

**Technical Library**  
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# Communications



# Automotive



# Computer



# Industrial



# Broadcast Media



# Aerospace & Defense





## Communications Applications

### Telephone ICs

Type	Package	Function	Key Features
<a href="#">U3750BM-CP</a>	44-pin PLCC	One chip telephone	speech circuit Pulse / DTMF dialer with redial 2 tone ringer
<a href="#">U3760MB-FN</a> * <a href="#">U3760MB-SD</a>	SSO-44 SD-40	One chip telephone	Low voltage speech circuit dialer with selectable brake/make ratio flash time and speed dialing two tone ringer with adjustable threshold
<a href="#">U3800BM-CP</a>	44-pin PLCC	Multi Standard Feature Phone IC	Complete system integration of analog signal processing and digital control circuit One IC for several PTT standards e.g. programmable specification via $\mu$ C Only one loudspeaker for tone ringer and loud hearing necessary
<a href="#">U3810BM</a>	SSO-44	Multi standard feature phone IC	Improved version of U 3800 BM
<a href="#">U4030B</a> <a href="#">U4030B-FL</a>	20-pin DIP SO-20	Speech circuit with anticlipping	Independent adjustment of transmit gain, receive gain and side tone suppression Power supply management
<a href="#">U4050B</a> <a href="#">U4050B-FL</a>	28-pin DIP SO-28	Speech circuit with loudspeaker amplifier	Squelch Anticlipping for transmit and loud-speaker amplifier Power supply management
<a href="#">U4056B1</a>	16-pin DIP	Low voltage speech circuit	Asymmetrical microphone input for electret microphone



## Communications Applications

Type	Package	Function	Key Features
<a href="#">U4072B</a>	8-pin DIP	Two tone ringer	Adjustable volume Sequence frequency adjustable On chip rectifier bridge
<a href="#">U4074B-FP</a>	14-pin DIP SO-16	Tone ringer interface	Complies with 1 TR 2, ETR 2, 2 bit D/A converter for volume control Power supply for $\mu$ C
<a href="#">U4076B</a> <a href="#">U4076B-FL</a>	14-pin DIP SO-16 L	Three tone ringer	Tone frequencies: 800 Hz, 1067 Hz, 1333 Hz Sequence frequencies adjustable between 2.5 Hz and 25 Hz Complies with German post office specification FTZ?121671 Pfl. 3 (1TR2)
<a href="#">U4078B-FP</a>	SO-8	Tone ringer interface with DC/DC converter	Complies with 1 TR 2, ETR 2
<a href="#">U4080B</a>	28-pin DIP	Voice switched circuit	Monitoring system for background sound level Wide dynamic operating range
<a href="#">U4082B</a> <a href="#">U4082B-FL</a>	28-pin DIP SO-28	Voice switched circuit	Fast channel switching for quasi duplex operation Proper operation in noisy surrounding
<a href="#">U4083B</a> <a href="#">U4083B-FP</a>	8-pin DIP SO-8	Low power audio amplifier	Low current consumption Power down mode
<a href="#">U4084B-FL</a>	24-pin DIP SO-24	Voice switched circuit	Fast channel switching for quasi duplex operation Proper operation in noisy surrounding Low current consumption



## Communications Applications

Type	Package	Function	Key Features
<a href="#">U4087B-FP *</a>	SO-16	Voice switch for U4090B	Mode detector for improvement of U4090B handsfree operation
<a href="#">U4090B-FN</a>	SSO-44	Multistandard feature phone circuit with voice switch	Speech circuit, voice switch, supply managment, DC/DC converter $\mu$ Controllable gains and switches suitable for several PTT standards
<a href="#">U4092B-SD</a>	SD-40	Multistandard feature phone circuit with voice switch	U 4090 B in shrink dip-40 package

\* under development



**Radio Telecommunication ICs**

Type	Package	Function	Key Features
<a href="#">U832BS-FP</a>	SO-8	High speed divider for satellite receiver and instrumentation	3 GHz frequency divider U 832 BD-FP divides by 2 U 834 BS-FP divides by 4 12 mA current consumption 5 V operation voltage
<a href="#">U2760B-FS</a>	SSO-28	CT2 RX/TX IC	High integrated transceiver unit for CT2
<a href="#">U2780B-AFP</a>	SSO-20	1.1 GHz synthesizer	Low current consumption: 5 mA @ 3 V supply voltage range 2.7 to 5 V very sensitive inputs: min 20 mV
<a href="#">U2781B-FS</a>	SSO-20	1.1 GHz synthesizer	Low current consumption: 5 mA @ 3 V supply voltage range 2.7 to 5 V very sensitive inputs: min 20 mV
<a href="#">U2782B-FS</a>	SSO 20	Twin PLL, 1.1/1.1 GHz	Low current consumption: 11 mA @ 3 V supply voltage range 2.7 to 5 V very sensitive inputs: min 20 mV
<a href="#">U2783B-FS</a>	SSO 20	Twin PLL 1250/400 MHz	Low current consumption: 10 mA @ 3 V supply voltage range 2.7 to 5 V very sensitive inputs: min 20 mV
<a href="#">U2784B-FS</a>	SSO 20	Twin PLL 2200/400 MHz	Low current consumption: 12 mA @ 3 V supply voltage range 2.7 to 5 V very sensitive inputs: min 20 mV
<a href="#">U2790B-FP</a>	SO-16	1000 MHz quadrature modulator for digital cellular radio systems	Very low power consumption (typ. 150 mW) for 0 dBm O/P level Very good sideband suppression Only 3 external components



## Communications Applications

Type	Package	Function	Key Features
<a href="#">U2791B-FS</a>	SSO-20	1000 MHz quadrature demodulator for digital cellular radio systems	Current consumption 28 mA @ 5 V Excellent LO isolation Very good image rejection
<a href="#">U2793B-FS</a>	SSO-20	30 to 300 MHz quadrator modulator for WLAN and digital cellular radio systems	Current consumption 15 mA @ 5 V 0 dBm O/P level 50 $\Omega$ single ended LO and RF ports 90° phase shifter integrated
<a href="#">U2794B-BFS</a>	SSO 20	1000 MHz quadratur demodulator	see U 2791 B, but frequency range down to 70 MHz, very low output offset :< 5 mV
<a href="#">U2795B-FP</a>	SO-8	2000 MHz up and down conversion mixer for DECT, PCN, and WLAN application	Supply voltage 2.7 to 5.5 V Single ended output, no balun required Input and output impedance pogrammable IP3 programmable
<a href="#">U2796B-FP</a>	SO-8	2000 MHz down conversion mixer	Supply voltage 2.7 to 5.5 V Very good isolation characteristics Current consumption 3.2 mA
<a href="#">U2797B-FS</a>	SSO 20	1000 MHz quadratur demodulator	see U 2790 B, but smaller package and higher baseband input impedance
<a href="#">U2891B-FS</a>	SSO 24	2.5 GHz quadratur up-converter	I/Q modulator and mixer low current consumption: 22 mA @ 3 V few external components
<a href="#">U3770M</a>	SO 16	CT2 modulator	I/Q modulator and clock circuitry



## Communications Applications

Type	Package	Function	Key Features
U7000BG	SSO 20	CT2 GaAs frontend	Antenna switch current saving power amplifier low noise amplifier
<a href="#">U7001BG</a>	SSO 20	CT2 GaAs frontend	Antenna switch current saving power amplifier low noise amplifier
U3500BM	SO 28	CT0 analog signal processor	Two chip CT0 solution with U3550BM Microcomputer programmable FSK modem Comander, Scrambler
U3550BM	SO 20	CT0 frequency processor	Two chip CT0 solution with U3550BM Microcomputer programmable
<a href="#">U6024BS-FP</a> <a href="#">U6028BS-FP</a>	SO-8	High speed divider for satellite communication systems	6 GHz frequency divider U6024BS-FP divides by 4 U6028BS-FP divides by 8 45 mA current consumption 5 V operation voltage





## Communications Applications

### Data Communication ICs

Type	Package	Function	Key Features
<a href="#">U6791B-FP</a>	SO-8	Trans-impedance amplifier	IC kit for data rates up to 200 Mbps
<a href="#">U6792B-FP</a>	SO-16	Data regenerator	
<a href="#">U6795B-FP</a>	SO-16	LED-driver	



## Communication ASSPs Digital Networking

Part-number	Function	Main features
<a href="#">29C300/301</a>	T1/E1 Integrated Short Haul Transceiver Jitter Attenuation	
<a href="#">29C304A</a>	Low-Power T1/E1 Integrated Short Haul Transceivers with Receive Jitter Attenuation	
<a href="#">29C305A</a>	Low-Power T1/E1 Integrated Short Haul Transceivers with Transmit Jitter Attenuation	
<a href="#">29C310</a>	T1 CSU / ISDN PRI Transceiver	
<a href="#">29C318</a>	E1 NIU / ISDN PRI Transceiver	
<a href="#">29C921</a>	X21 Controller	CCITT X21 up to 2 Mbps
<a href="#">29C93A</a>	ECMA 102/V10 Terminal Rate Adaptor	V110, up to 112 Kbps, NIC, IPE
<a href="#">29C94</a>	Multi-channel HDLC/V120 Protocol Controller	Up to 23/30 B channels
<a href="#">29C948</a>	8 channel HDLC/V120 Protocol Controller	
<a href="#">29C95</a>	Multi-channel ECMA 102/V110 Protocol Controller	Up to 23/30 B channels
<a href="#">29C96</a>	T1-DS1/E1-CEPT Frame Formater	Both Standards and 4 PCM
<a href="#">29C98</a>	B-Channel Resynchronizer	Group delay compensation (bonding group compliant)
<b>Presentation:</b>		
<a href="#">TEMIC Solutions for Communication Applications</a>		
<b>Application Notes:</b>		
<a href="#">ANM035</a> Programming E1-CEPT modes of the 29C96		
<a href="#">ANM036</a> Connecting 29C96 and 29C94		
<a href="#">ANM042</a> Escape Sequence Detection with 29C93A		

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



## Universal Logic Circuits FPGA and PLD Conversions

<b>Part-number / name</b>	<b>Description</b>
<a href="#">ULC</a>	Introduction to ULC - FPGA and PLD replacement
<a href="#">Conversion</a>	Detailed information on conversion to ULC : Device specific information, Design requirements, conversion process...
<a href="#">UC</a>	UC Technology and products characteristics
<a href="#">UD</a>	UD Technology and products characteristics
<a href="#">UG</a>	UG Technology and products characteristics
<a href="#">Cross Reference</a>	ULC cross reference from mains PLD and FPGA

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



### ICs for TV-, CATV-, SAT-, VTR-Tuner

#### Mixer ICs

Type	Package	Function	Key Features
U2300B-FL	SO-28	TV-tuner IC with mixer, oscillator, SAWF-driver	3 separate oscillators and mixers
U2309B-FL U2309B-FS	SO-28	TV-tuner IC with mixer, oscillator, SAWF-driver	3 separate oscillators and mixers, 9 V supply voltage
U2320B-FL	SO-20	TV-tuner IC with mixer, oscillator, SAWF-driver	2 separate oscillators and mixers
U2321B-FP	SO-16	TV-tuner IC with mixer and oscillator	Small package, 2 separate oscillators and mixers
U2329B-FL	SO-20	TV-tuner IC with mixer, oscillator, SAWF-driver	2 separate oscillators and mixers, 9 V supply voltage
U2323B-FP		TV-tuner IC with mixer and oscillator	2 separate oscillators and mixers, 9 V supply voltage



### PLL ICs

Type	Package	Function	Key Features
U6204B-FP	SO-20	PLL tuning circuit with 1.3 GHz prescaler	With I <sup>2</sup> C bus, 7 switching outputs
U6205B-FP	SO-14	PLL tuning circuit with 1.3 GHz prescaler	I <sup>2</sup> C bus, small package, 3 switching outputs
U6206B-FP	SO-16	PLL tuning circuit with 1.3 GHz prescaler	I <sup>2</sup> C bus, small package, 5 switching outputs
U6207B-FP	SO-14	PLL tuning circuit with 1.3 GHz prescaler	I <sup>2</sup> C bus, small package, 3 switching outputs Input frequency 220 MHz when prescaler is switched off
U6225B-FP	SO-16	2.9 GHz PLL for SAT-TV receiver	5 open collector switching outputs with I <sup>2</sup> C bus
U6235B-FP	SO-16	3.5 GHz PLL for SAT-TV receiver	5 open collector switching outputs with I <sup>2</sup> C bus
U6359B-FL	SO-20	PLL tuning circuit with 1.0 GHz prescaler	3 wire bus, 4 switching outputs, clock output
U6223B-FP	SO-16	2.9 GHz PLL for SAT-TV receiver	
U6224B	SO-16	1.3 GHz PLL for SAT-TV receiver	
<a href="#">U810BS</a> <a href="#">U811BS</a> <a href="#">U812BS</a>	TO-50	1.2 GHz PLL for CATV and SAT-TV Tuners	High input sensitivity Low power consumption Low output impedance
<a href="#">U813BS</a>	8-pin DIP SO-8 SIP-6	1.1 GHz Prescaler for PLL's in TV, CATV and SAT TV Tuners	High input sensitivity Low power consumption Low output impedance
<a href="#">U816BS-SP</a>	SIP-6	1.1 GHz Prescaler for TV Tuners	High input sensitivity Extrem low current consumption (typ. 17 mA)



## Broadcast Media Applications

### High Speed Frequency Prescalers

Type	Package	Function	Key Features
<a href="#">U832BS-FP</a>	SO-8	3.0 GHz prescaler	Scaling factor /2, low current consumption
<a href="#">U834BS-FP</a>	SO-8	3.0 GHz prescaler	Scaling factor /4, low current consumption
<a href="#">U833BS</a> <a href="#">U833BSE-FP</a> <a href="#">U833BSE-SP</a>	8-pin DIP SO-8 SIP-6	1.3 GHz prescaler	3 Scaling factors /64, /128, /256 programmable at pin 5
<a href="#">U847BST</a>	8-pin DIP	1.3-GHz prescaler for CATV Tuners	
<a href="#">U893BSE</a> <a href="#">U893BSE-FP</a> <a href="#">U893BSE-SP</a>	8-pin DIP SO-8 SIP-8	1.3 GHz programmable prescaler	3 Scaling factors /64, /128, /256 programmable, low current consumption



### TV/VTR

#### Video & Sound IF ICs

Type	Package	Function	Key Features
U2860B	14-pin DIP	Double FM demodulator	Alignment-free, 5 V supply
<a href="#">TBA120T</a> <a href="#">TBA120U</a>	14-pin DIP	Sound IF (SIF)	FM IF demodulator
<a href="#">TDA4439</a>	18-pin DIP	Video IF (VIF)	Multistandard with AFC
<a href="#">TDA4445B</a>	16-pin DIP	Sound IF (SIF)	Quasi parallel sound processor + AM demod.
<a href="#">TDA4452</a>	18-pin DIP	Video IF (VIF)	Multistandard with video switch
<a href="#">TDA4453</a>	16-pin DIP	Video IF (VIF)	Multistandard
<a href="#">TDA4454</a>	16-pin DIP	Video IF (VIF)	Multi (D2Mac), PLL detection
<a href="#">TDA4455</a>	18-pin DIP	Video IF (VIF)	Multi (D2Mac), PLL detection, two IF inputs
<a href="#">TDA4480</a>	20-pin DIP	Sound IF (SIF)	Multistandard SIF processor (FM+AM), stereo
<a href="#">TDA4481</a>	20-pin DIP	Sound IF (SIF)	Multistandard SIF processor (FM+AM), mono
<a href="#">TDA4482</a>	18-pin DIP	Sound IF (SIF)	Single standard SIF processor (FM), stereo
<a href="#">TDA4483</a>	14-pin DIP	Sound IF (SIF)	QPS processor (FM/NICAM) + AM demod.
<a href="#">TDA4484</a>	14-pin DIP	Sound IF (SIF)	QPS processor (FM/NICAM) + AM demodulator , 2 IF inputs
<a href="#">U828B</a> <a href="#">U829B</a>	14-pin DIP	Sound IF (SIF)	FM IF demodulator
<a href="#">U2840B/41B</a>	16-pin DIP	Sound IF (SIF)	FM IF amplifier, audio switch, volume control



## Broadcast Media Applications

Type	Package	Function	Key Features
U4454B	16-pin DIP	Sound IF (SIF)	Quasi parallel sound processor + AM demodulator, PLL detection
U4459B	16-pin DIP	IF mixer	External gain control, 12 V
U4460B *)	28-pin SDIP	Video IF	FPLL 5 V, AFC
U4462B *)	28-pin SDIP	Video IF and mono demodulator	Single standard
U4490B	16-pin DIP	Sound IF (SIF)	SAT sound IF circuit and mixer
TDA4462	28-pin SDIP	1-Chip IF processor	Single standard, FPLL detection, AFC, Mono FM demod., SCART switches, volume control, 5 V supply
TDA4470	28-pin SDIP	Video/Sound IF combination	Multistandard, FPLL detection 5 V supply, AFC
TDA4471 *)	30-pin SDIP	Video/Sound IF combination	Multistandard, FPLL detection 5 V supply, AFC
<a href="#">TDA4472</a>	28-pin SDIP	Video/Sound IF combination	Single standard, FPLL detection 5 V supply, AFC
TDA4474 *)	30-pin SDIP	Video/Sound IF combination	Multistandard, FPLL detection 5 V supply, AFC

\*) under development





## Broadcast Media Applications

### Chroma-Video ICs

Type	Package	Function	Key Features
<a href="#">TDA3505</a>	28-pin DIP	Chroma-video	
<a href="#">TDA4565</a>	18-pin DIP	Chroma-video	Color transient improvement (CTI), Y-delay
U3660M U3661M	16-pin DIP	Chroma-video	Baseband delay line (with U 4650 B)
U4930B *)	SDIP-52	TV base band PAL/NTSC	I <sup>2</sup> C-bus controlled, multiple video switches
U4935B *)	16-pin DIP	SECAM decoder	Complete alignment free, add-on SECAM for U 4930 B

\*) under development

### Pulse Processing ICs

Type	Package	Function	Key Features
<a href="#">TEA2029CV</a>	28-pin DIP	Pulse processing	Timing processor (line, frame) + SMPS control

### Deflection ICs

Type	Package	Function	Key Features
<a href="#">TDA4173</a>	7-pin HW	Deflection	Vertical deflection output amplifier, 2,5 A
<a href="#">TEA8172</a>	7-pin HW	Vertical deflection	Vertical deflection output amplifier, 2 A



## Broadcast Media Applications

### E/W-Correction ICs

Type	Package	Function	Key Features
<a href="#">TDA4950</a>	8-pin DIP	E/W-correction	East-west correction for square tubes
<a href="#">TDA4951</a>	8-pin DIP	E/W-correction	East-west correction for square tubes
<a href="#">TDA8145</a>	8-pin DIP	E/W-correction	East-west correction for square tubes



## Broadcast Media Applications

### Audio

#### Receiver ICs

Type	Package	Function	Key Features
U4062B	18-pin DIP	FM-Frontend	Completely integrated FM frontend Oscillator with low phase noise and excellent frequency stability IF preamplifier with dB linear gain control
<a href="#">U4065B-FL</a>	SO-24	FM-Frontend	High performance FM frontend without RF-preamplifier unique interference sensor new AGC concept with 3 loops
<a href="#">TDA1072A</a>	16-pin DIP	AM receiver circuit	Controlled RF preamplifier IF amplifier with gain control Audio preamplifier
<a href="#">U4240B</a> <a href="#">U4240B-FS</a>	18-pin DIP SSO-20	AM receiver circuit	Controlled RF preamplifier IF output for stereo demodulation and stop signal generation Audio preamplifier
<a href="#">TDA1083</a>	16-pin DIP	AM/FM and audio amplifier	0.7 W AF output power High AM sensitivity FM/IF amplifier
U2510B-M	SDIP-28	All band AM/FM receiver	1 W AF output power DC mode control for AM, FM, and Tape Superior strong signal behaviour
U2514B	SO-24	AM/FM receiver with stereo decoder (under development)	LO-Buffer for PLL applications MPX output Stop signal generation for AM/FM



## Broadcast Media Applications

### PLL Ics

Type	Package	Function	Key Features
U4280BM U4280BM-FL	20-pin DIP	AM/FM PLL	Reference oscillator up to 15 MHz High signal/noise ratio Controlled by I <sup>2</sup> C-bus
<a href="#">U4283BM</a> <a href="#">U4283BM-FS</a>	20-pin DIP SSO-20	AM/FM PLL	Reference oscillator up to 15 MHz High signal/noise ratio 4 switching outputs Integrated loop-transistors
<a href="#">U4286BM-FP</a>	SO-16	AM/FM PLL	Reference oscillator up to 15 MHz High signal/noise ratio 2 switching outputs Integrated loop-transistors
<a href="#">U4287BM</a>	SSO-20	AM/FM PLL	Reference oscillator up to 15 MHz High signal/noise ratio 3 switching outputs Integrated loop-transistors
U4285BM-FP U4285BM-FL	SO-20	AM/FM PLL (for RDS application)	High signal/noise ratio 4 switching outputs Integrated push-pull stage Fast response time (for RDS)
U4288BM		AM/FM high speed PLL	Recommended for RDS, (TCM), Audis high signal/noise ratio controlled by 3 wire-bus intergrated push-pull stage extrem fast respanse time (<50 μs)



## Broadcast Media Applications

Type	Package	Function	Key Features
<a href="#">U4284BM</a>	SO-20	AM/FM PLL (for RDS application)	High signal/noise ratio 4 switching outputs Integrated loop-transistors Fast response time High signal/noise ratio 4 switching outputs Integrated loop-transistors Fast response time

### IF ICs

Type	Package	Function	Key Features
<a href="#">TDA4210</a>	18-pin DIP	FM-IF limiter amplifier and detector	7 stage limiter amplifier Multi-path signal detector
<a href="#">U4270B</a> <a href="#">U4270B-FS</a>	18-pin DIP SSO-20	FM IF limiter amplifier and detector	7 stage limiter amplifier Multi-path signal detector Adjustable stop signal threshold
<a href="#">U4275B-FL</a>	SO 20	Receiving condition analyzer and multipath noise cancellation	Detection of multipath common channel and adjacent channel interferences multipath noise cancellation multifunction control by $\mu\text{C}$
<a href="#">U4276B-FP</a>	SO 8	Multipath noise cancellation circuit ( under development )	Multipath noise cancellation multifunction control by $\mu\text{C}$
<a href="#">U4292B-FS</a>	SSO-44	FM-IF (software controlled DYNAS)	Significantly improved selectivity and sensitivity compared to conventional IF-systems Controllable by software



### Radio Clock Receiver ICs

Type	Package	Function	Key Features
<a href="#">U4221B-FP</a>	SO-16	Radio controlled clock receiver for 60 to 80 kHz	Low power consumption Very high sensitivity
<a href="#">U4222B</a>	SO-20 SSO-20	Time code receiver	Very low power consumption Very high sensitivity
<a href="#">U4223B-FL</a>	SO-20	Radio controlled clock receiver for 40 to 80 kHz	Extreme low power consumption Very high sensitivity Very high selectivity by using 2 crystals 4 bit ADC output
<a href="#">U4224B-FL</a>	SO-16 L	Radio controlled clock receiver for 40 to 80 kHz	Extreme low power consumption Very high sensitivity Very high selectivity by using 2 crystals
<a href="#">U4226B-FS</a>	SSO 20	Radio controlled clock receiver for 40 to 80 kHz	Extreme low power consumption Very high sensitivity Very high selectivity by using 2 crystals
<a href="#">T4225B</a>	die	Radio controlled clock receiver for 40 to 80 kHz	Extreme low power consumption Very high sensitivity Very high selectivity by using 2 crystals



## Automotive Applications

### Car Direction Indicator / Hazard Warning ICs

Type	Package	Function	Key Features
U643B U643B-FP	8-pin DIP SO-8	Lamp load > 1 W, 30 mW shunt	Improved EMC, load dump protected
U644B U644B-FP	8-pin DIP SO-8	Lamp load > 1 W, 18 mW shunt	Improved EMC, load dump protected, stand-by mode with reduced current consumption
U2042B	8-pin DIP	Lamp load > 10 W, 30 mW shunt	Reduced current consumption
U2043B U2043B-FP	8-pin DIP SO-8	Lamp load > 10 W, 30 mW shunt	Improved EMC
U2044B U2044BFP	14-pin DIP SO-14	TWIN relay type 30 mΩ shunt	Stand-by current < 10μA
U6043B U6043B-FP	8-pin DIP SO-8	Lamp load > 1 W, 18 mW shunt	Improved EMC, load dump protected
U6432B-FP	SO-8	Lamp load > 1 W, 18 mW shunt	Low current consumption in stand by mode
U6433B-FP	SO-8	Lamp load > 1 W, 18 mΩ shunt	Improved EMC



### Intermittent Wiper and Wipe/Wash Control Ics

Type	Package	Function	Key Features
U264“x”B U264“x”B–FP	8–pin DIP SO–8	Universal wiper control with fixed timing	“x” mask options for timing modifications by metal layer
U642B U642B–FP	8–pin DIP SO–8	Wipe/wash control without wipe delay	INT / WIWA switches to +
<a href="#">U690B</a>	8–pin DIP	Rear windscreen wiper control	One–pin activation for intermittent and wipe/wash operation
<a href="#">U840B</a> <a href="#">U840B–FP</a>	8–pin DIP SO–8	Universal wiper control with wipe delay, variable INT pause	INT switch to GND, WIWA switches to +
<a href="#">U842B–FP</a>	SO–8	Universal wiper control with wipe delay, variable INT pause	INT/WIWA switches to GND
U846B	DIP–8	Universal wiper control with wipe delay, variable INT pause	INT/WIWA switches to +

Wiper control ICs can be matched to customer needs with new metallization layers (U 264 “x” B) or with a modified cell design (U 840 B)





## Automotive Applications

### Long Time Timer Ics

Type	Package	Function	Key Features
<a href="#">U6044B</a>	8-pin DIP	Cooling off timer, inputs for thermo switch and air conditioning, 4 s to 20 h delay time	Delay adjustable with RC oscillator: R < 650 kW, C < 4700 pf
<a href="#">U6046B</a> <a href="#">U6046B-FP</a>	8-pin DIP SO-8	Adjustable 4 s to 20 h, one time delay, input signal HIGH	Delay adjustable with RC oscillator: R < 650 kW, C < 4700 pf
<a href="#">U6047B</a> <a href="#">U6047B-FP</a>	8-pin DIP SO-8	Adjustable 4 s to 20 h, one time delay, input signal LOW	Delay adjustable with RC oscillator: R < 650 kW, C < 4700 pf
<a href="#">U6049B</a> <a href="#">U6049B-FP</a>	8-pin DIP SO-8	Cooling off timer, thermo switch input, 4 s to 20 h delay time	Delay adjustable with RC oscillator: R < 650 kW, C < 4700 pf



## Automotive Applications

### Lamp Outage Monitoring ICs

Type	Package	Function	Key Features
U479B U479B-FP	8-pin DIP SO-8	2 comparators, 8 mV threshold, single lamp application	ESD protection up to 2 kV
U2480B	28-pin DIP S	3 double/3 single comparators, 10 mV threshold	High level EMC, stop lamp latch, fuse monitoring
U2481B-FL	SO-28	1 triple / 2 double / 4 single comparators, 3.5/13 mV threshold, latch	High level EMC, stop lamp latch, fuse monitoring, stop lamp monitoring
U2482B-FL	SO-28	1 triple / 2 double / 4 single comparators, 3.5/13 mV threshold	High level EMC, fuse monitoring
U4790B	8-pin DIP	2 comparators, 8 mV threshold, single lamp application	ESD protection up to 10 kV
U4791B U4791B-FP	8-pin DIP SO-8	2 comparators, 50 mV threshold, parallel lamps application	ESD protection up to 10 kV
U4793B-FP	8-pin DIP SO-8	2 comparators, 45 mV threshold, single lamp application	ESD protection up to 10 kV

### Dashboard Dimmer ICs

Type	Package	Function	Key Features
U6081B	8-pin DIP	PWM high-side driver, $f < 2.000$ Hz, 13 to 100 % duty cycle	Integrated charge pump is noise reduced.
U6083B	8-pin DIP	PWM high-side driver, $f < 2.000$ Hz, 18 to 100 % duty cycle	Minimum external components
U6084B-FL	SO-16	PWM high-side driver, $f < 2.000$ Hz, 0/10 to 100 % duty cycle	For high performance applications



## Automotive Applications

### Miscellaneous ICs

Type	Package	Function	Key Features
<a href="#">U5020M-FP</a>	SO-16	Watch dog timer	Active- and sleep mode, 6 wake up inputs, enable output
<a href="#">U5021M-FP</a>	SO-8	Watch dog timer	Active- and sleep mode, 1 wake up input, enable output
<a href="#">U6803B-FP</a>	SO-8	Triple driver 3 x 25 mA output	Thermal shut down, short circuit protection
<a href="#">U6805B-FP</a>	SO-14	Hex driver 6 x 25 mA output	Common thermal shut down, short circuit protection
<a href="#">U6806B-FL</a>	SO-8 Batwing	Hex relay driver 6 x 250 mA	Common thermal shut down
<a href="#">U6032B</a>	8-pin DIP	Toggle IC for switch over function	Defined status after POR

### Multiplex/Network/Diagnosis ICs

Type	Package	Function	Key Features
<a href="#">U6050B-FL</a>	SO-20	MUX transmitter, 8-switch input, serial line interface	Remote communication system for point-to-point multiplex via single wire, high safety standard, low transmission speed, cascading capability
<a href="#">U6052B</a> <a href="#">U6052B-FL</a>	18-pin DIP SO-24	MUX receiver, serial line interface, 8 relay driver	
<a href="#">U6056B-FL</a>	SO-20	MUX receiver, serial line interface, serial MCU interface	



### Remote Control/Keyless Entry Ics

Microcontroller family, suitable for IR- and RF-systems as well as Encoder or Decoder

Type	Package	Function	Key Features
<a href="#">M43C200</a>	SO-24	4-bit MCU, 4 K ROM, 256x4 RAM, 10 I/O, 4 IN, 3 interrupt	MARC4-family, qFORTH language, Low stand-by current, 3 operating modes
<a href="#">M43C201</a>	SO-16 L	4-bit MCU, 4 K ROM, 256x4 RAM, 8 I/O, 2 IN, 2 interrupt	MARC4-family, qFORTH language, Low stand-by current, 3 operating modes
<a href="#">M44C260</a>	SO-28 *	4-bit MCU, 4 K ROM, 256x4 RAM, 2x8 bit timer, watch dog, 16x8 bit EEPROM	
<a href="#">M48C260</a>	SO-28	OTP version of M44C260	

Note: \* other SSO packages on request



## Automotive Applications

### IR Transmitter/Receiver

Type	Package	Function	Key Features
<a href="#">BPV23NF</a>		PIN diode, IR foto-detector, 875...950 nm, sensitivity typical 65 $\mu$ A	IR foto-detector, 875...950 nm, sensitivity typical 65 $\mu$ A
<a href="#">TSHA520x</a>	T1-3/4, 5mm	IR emitter family	high efficiency, 12°, 875 nm
<a href="#">TSHA550x</a>	T1-3/4, 5mm	IR emitter family	high efficiency, 24°, 875 nm
<a href="#">U426B-FP</a>	SO-8	IR driver, transmitter, constant current source, 2,4 to 12 V, max 500 kHz	Adjustable constant current between 0.2 to 1.2 A
<a href="#">U2535B-FP</a>	SO-8	IR preamplifier, typical 0.26 mA standby current, 20 to 100 kHz	Low power consumption
<a href="#">U2537B</a>	SO-8	IR preamplifier	Low power consumption
<a href="#">U2538B-FP</a>	SO-8	IR preamplifier, typical 0.55 mA standby current, 20 to 60 kHz	Only 3 external components required



## Automotive Applications

### RF Transmitter/Receiver

Type	Package	Function	Key Features
<a href="#">S822T</a>	SOT-143	NPN planar RF transistor, 50 W input impedance at 945 MHz	Low noise, low current
<a href="#">S852T</a>	SOT-23	NPN planar RF transistor, 50 W input impedance at 945 MHz	Low noise, low current
<a href="#">U2740B-FP</a>	SO-16	UHF AM/FM transmitter	Wide frequency range: 200 to 500 MHz, supply voltage 2.4 to 6 V
<a href="#">U4311B</a> <a href="#">U4311B-FL</a>	16-pin DIP SO-16 L	RF-receiver, 10.7 MHz, IF amplifier, AM + FM demodulator, non-inverting clamping comparator	Low-power consumption, typ 1.1 mA
<a href="#">U4313B</a> <a href="#">U4313B-FL</a>	16-pin DIP SO-16 L	RF-receiver, 10.7 MHz, IF amplifier, AM demodulator, inverting clamping comparator	Low-power consumption, typ 1.1 mA
<a href="#">U4314B-FP</a>	SO-8	RF-receiver, 10.7 MHz, IF amplifier, AM demodulator, logarithmic RSSI	Low power consumption, typical 0.8 mA

### IrDA

Type	Package	Function	Key Features
<a href="#">U2532B-FP</a>	SO-16	IR transmitter receiver IC	Data rates up to 115,2 kbit/s, compatible to IrDA



## Automotive ASSPs Multiplex / Network

Part-number	Function	Main features
<a href="#">29C461B</a>	Vehicule Area Network (VAN) Data Link Controller	Stand alone
<a href="#">29C462</a>	Vehicule Area Network Data Link Controller with Multiple Interface	Multiple micro interface, CAN compatible
<a href="#">29C463A</a>	Vehicule Area Network Data Link Controller with Mask Programmable Interfaces	User configurable VAN controller
<a href="#">80C51A30</a>	CMOS Single-Chip 8 bit Microcontroller with VAN Data Link Controller	
<a href="#">80C51A11</a>	CMOS Single-Chip Microcontroller with CAN Controller	

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



## Industrial Applications

### Phase Control ICs

Type	Package	Function	Key Features
<a href="#">TEA1007</a>	8-pin DIP	Low cost AC-power control applications: Fan, low-cost motor control	Minimal external components
UAA145	16-pin DIP	SCR 3 phase control IC	
<a href="#">U208B-A</a>	8-pin DIP	As TEA 1007 + retrigger applications: Vacuum cleaner universal motor control	
U209B-B U209B3-BFP	14-pin DIP SO-16	As U 208 B + f/V converter, reference voltage, applications: All tacho control motors	Tacho control IC
<a href="#">U210B1-A</a>	14-pin DIP	As U 208 B + shunt speed control reference voltage applications: Regulation of speed in universal motors	
U211B2-B U211B3-FP	18-pin DIP SO-16	As U 209 B + foldback	The worldwide standard IC for tacho AC motor control
U2008B U2008B-FP	8-pin DIP SO-8	As U 208 B + programmable retrigger softstart OR shunt speed regulation	Line voltage compensation, minimal external components
U2010B U2010B-FP	16-pin DIP SO-16	As U 2008 B + softstart, shunt speed regulation, overload compensation, overload indication, left/right select	Line voltage compensation
U2350B-FP	SO-16	PWM control IC on AC-line for IGBT or power FET overload indication, line voltage compensation	100 % more power from the motor
<a href="#">U2352B-A</a>	8-pin DIP SO-8	DC power control for portable tools Speed control	PWM control, load current measurement without shunt





## Industrial Applications

### Battery Charger ICs

Type	Package	Function	Key Features
<a href="#">U2400B</a> <a href="#">U2400B-FL</a>	16-pin DIP SO-16	Automatic recharging of NiCd, NiMH batteries with safety control by time, V, temperature	Battery refreshment and charge control
<a href="#">U2402B-B</a> <a href="#">U2402B-C</a> <a href="#">U2402B-FL</a>	16-pin DIP SO-20	NiCd/NiMH fast charge / very fast charge control with smart overcharge protection	Maximum life time and full capacity by $d^2V/dt^2$ gradient monitoring
<a href="#">U2407B</a> <a href="#">U2407B-FP</a>	16-pin DIP SO-16	As U2402B + 2 Op-Amps	
<a href="#">U2403B-A</a> <a href="#">U2403B</a>	8-pin DIP FPSO-8	Charge current and time control for standard charge	Minimized charge concepts (Low cost charger, cordless phone)

### Zero Crossing Switching ICs

Type	Package	Function	Key Features
<a href="#">TEA1024</a> <a href="#">TEA1124</a>	16-pin DIP	Temperature control for consumer products	Internal ramp less external components
<a href="#">U217B</a> <a href="#">U217B-FP</a>	8-pin DIP SO-8	Standard zero crossing switch with ramp low cost application	
<a href="#">U2100B-C</a> <a href="#">U2100B-CFP</a>	8-pin DIP SO-8	Timer for AC line applications: motion sensors, fans, hand dryer, stair light	5 V reference
<a href="#">U2101B</a> <a href="#">U2101B-FP</a>	16-pin DIP SO-16	As U2100B + 2 Op-Amps	SMPS + DC Applications
<a href="#">U2102B-A</a> <a href="#">U2102B-FP</a>	16-pin DIP SO-16	IGBT/FET control timer for AC line at advanced dimmer / motion sensor applications	Programmable trigger window and reverse phase control electronic fuse



### Identification ICs

Type	Package	Function	Key Features
<a href="#">e5530</a> <a href="#">e5530GT</a>	Dice SO-8 8-pin DIP chipcard, buttons glass tubes	128 bit transponder IC for contactless RF identification	Low power/low voltage CMOS No battery supply, small size All analog/digital/memory components options available

### Low Power Motor or Line Driver

Type	Package	Function	Key Features
<a href="#">e5130</a>	Dice	Motor Driver: Drive capability up to 13 mA supply voltage 1.1-3.6 V	To be used as: <ul style="list-style-type: none"><li>• motor driver</li><li>• line driver</li><li>• LED, relay or buzzer driver</li></ul>



## Industrial Applications

### Clock and Watch Circuits

Type	Package	Function	Key Features
e1466Z	Dice, 8 Pin DIP	Clock IC with digital trimming, 32 kHz crystal	
e1467Z	Dice	Clock IC with digital trimming, 32 kHz crystal	Same as e1466Z, but with alarm function
e1469D	Dice	Clock IC with digital trimming, 32 kHz crystal	Alarm, snooze, autostop, crescendo electroset, lam driver
e1480D	Dice	Clock IC with digital trimming, 32 kHz crystal	Pendulum driver
<a href="#">e1217D</a>	Dice	Watch IC, 32 kHz crystal	Very low power consumption typ 180 nA
e1218D	Dice	Watch IC, 32 kHz crystal	Very low power consumption typ 250 nA
e5310	Dice SO-28 Pin	Clock IC, 4 MHz	Melody sound generator features westminster or Bim Bam sound

## Power ICs

## Power Conversion Products

Part Number	Application*	Input Voltage (V)	Mode**	Max. Oscillator Frequency	Voltage (V)	Maximum Supply Current (mA)	Package
<b>Telecom Converters</b>							
Si9100	Bu, Fl, Fo	10 – 70	C	1 MHz	4	1	14-Pin DIP 20-Pin PLCC
Si9102	Bu, Fl, Fo	10 – 120	C	1 MHz	4	1	14-Pin DIP 20-Pin PLCC
Si9104	Bu, Fl, Fo	10 – 120	C	1 MHz	4	1	16-Pin SOIC 14-Pin DIP 20-Pin PLCC
Si9105	Bu, Fl, Fo	10 – 120	C	1 MHz	4	0.5	16-Pin SOIC 14-Pin DIP 20-Pin PLCC
Si9110/Si9111	Bu, Fl, Fo	10 – 120	C	1 MHz	4	1	14-Pin SOIC 14-Pin DIP
Si9112	Bu, Fl, Fo	9 – 80	C	1 MHz	4	1	14-Pin SOIC 14-Pin DIP
Si9114	Bu, Fl, Fo	15 – 200	C	1 MHz	4	3	14-Pin SOIC 14-Pin DIP
<b>Off-Line Converters</b>							
Si9120	Bu, Fl, Fo	15 – 450	C	1 MHz	4	1.5	16-Pin SOIC 16-Pin DIP
<b>Point-Of-Use</b>							
Si9145	Bu, Bo, Fl, Fo	2.7 – 8	V	2 MHz	1.5	1.4	16-Pin SOIC 16-Pin TSSOP
Si9150	Bu	6 – 18	V	300 kHz	2.5	3	14-Pin SOIC
*Bu = Buck, Bo = Boost, Fl = Flyback, Fo = Forward **C = Current mode, V = Voltage mode							

## Power Interface

Part Number	Description	Switching		12-V Suspend Capability	Packages	V <sub>CC</sub> Rise Time	Max On-Resistance (T <sub>A</sub> = 25°C)	
		V <sub>CC</sub>	V <sub>PP</sub>				V <sub>CC</sub> (I = 500 mA)	V <sub>PP</sub> (I = 120 mA)
Si9706DY	PCMCIA Interface Switch	X			8-Pin SOIC	Programmable	70 mΩ	n/a
Si9707DY	PCMCIA Dual Interface Switch	X			16-Pin SOIC	Programmable	70 mΩ	n/a
Si9712DY	PCMCIA Interface Switch	X	X	X	16-Pin SOIC	Programmable	70 mΩ	150 mΩ

## Bus Interface

Function	Recommended Operating Voltage Range (V)	Part Number	Packages	Comments
Single-Ended Transceiver	5, 8 – 35	Si9241EY	8-Pin SOIC	ISO9141 Compatible, K
Single-Ended Transceiver	5, 8 – 35	Si9243EY	8-Pin SOIC	ISO9141 Compatible, K+L
CAN Bus Transceiver	5	Si9200EY	8-Pin SOIC	Differential Bus

**Motor Control and MOSFET Drivers**

Function	Recommended Operating Range		Part Number	Packages
	Peak Output Current (A)	Voltage Range (V)		
Quad High-Current Power Driver	1.5 <sup>a</sup>	12 – 15	D469A	14-Pin Plastic DIP 14-Pin Sidebrazed
Adaptive Power MOSFET Driver	± 1 <sup>a</sup>	10.8 – 16.5	Si9910	8-Pin Plastic DIP 8-Pin SOIC
12-V Voice Coil Motor Driver	1.8	16	Si9961	24-Pin SOIC
N-Channel Half-Bridge Driver	± 0.5 <sup>a</sup>	20 – 40	Si9976	14-Pin SOIC
Configurable H-Bridge Driver	± 0.5 <sup>a</sup>	20 – 40	Si9978	24-Pin SOIC
3-Phase Brushless DC Motor Controller	± 0.5 <sup>a</sup>	20 – 40	Si9979	48-Pin SQFP

Notes

- a. Driver output

## Analog Switches

Part Number	Max $r_{DS(on)}$ ( $\Omega$ )	Max $I_{S(off)}$ (nA)	Max $t_{ON}$ (ns)	Typ $Q_{inj}$ (pC)	Max Supply Range (V)	On-Chip Logic Regulator	Max Power Consumption (mW)	Package	Comments
<b>1-Channel SPST</b>									
DG417	35	0.25	175	60	44	–	0.035	J, K, Y	8-Pin Package
DG418	35	0.25	175	60	44	–	0.035	J, K, Y	8-Pin Package
<b>2-Channel SPST</b>									
DG180	10	10	400	N/A	36	–	120	A, P, X	JFET
DG181	30	1	150	N/A	36	–	120	A, P, X	JFET
DG401	35	0.25	150	80	44	–	0.035	J, K, Z	–
DG421	35	0.25	250	80	44	–	0.035	J, K	Latches
DG300A	50	1	300	8	44	–	7.65	A, J, K, P	–
DG304A	50	1	250	30	44	–	0.3	A, J, K, P	–
DG381A	50	1	300	10	44	–	7.65	J	–
DG200A	70	2	1000	–10	44	Yes	60	A, J, K	–
DG182	75	1	250	N/A	36	–	120	A, P, X	JFET
<b>4-Channel SPST</b>									
DG641	15	10	70	–19	21	Yes	108	J, Y	Video
DG411	35	0.25	175	5	44	–	0.035	J, K, Y, Z	–
DG412	35	0.25	175	5	44	–	0.035	J, K, Y, Z	–
DG413	35	0.25	175	5	44	–	0.035	J, K, Y, Z	–
DG601	35	4	45	13	22	Yes	180	J, K, Y, Z	High Speed
DG271	50	1	65	9	44	Yes	225	J, K, Y, Z	High Speed
DG201HS	50	1	50	5	44	Yes	240	J, K, Y, Z	High Speed
DG540	60	10	70	–25	21	Yes	108	J, N, P	Video
DG541	60	10	70	–25	21	Yes	108	J, P, Y	Video
<b>4-Channel SPST</b>									
DG611	60	0.25	35	1	21	–	0.018	J, K, Y, Z	Glitchless/High Speed
DG612	60	0.25	35	1	21	–	0.018	J, K, Y, Z	Glitchless/High Speed
DG613	60	0.25	35	1	21	–	0.018	J, K, Y, Z	Glitchless/High Speed
DG201B	85	0.5	300	1	44	Yes	0.765	J, K, Y	–
DG202B	85	0.5	300	1	44	Yes	0.765	J, K, Y	–
DG211B	85	0.5	300	1	44	–	0.35	J, Y	General Purpose
DG212B	85	0.5	300	1	44	–	0.35	J, Y	General Purpose
DG308B	85	0.5	200	1	44	–	0.03	J, K, Y	General Purpose
DG309B	85	0.5	200	1	44	–	0.03	J, K, Y	General Purpose
DG441	85	0.5	250	1	44	Yes	1.5	J, K, Y	–
DG442	85	0.5	250	1	44	Yes	1.5	J, K, Y	–
DG444	85	0.5	250	1	44	–	0.035	J, Y	–
DG445	85	0.5	250	1	44	–	0.035	J, Y	–
DG221	90	1	550	20	44	Yes	37.5	J, K, Y	Latches
DG308A	100	1	200	–10	44	–	0.3	J, K, Y	–
DG309	100	1	200	–10	44	–	0.3	J, Y	–
DG201A	175	1	600	20	44	Yes	60	J, K, Y, Z	–
DG202	175	1	600	20	44	Yes	60	J, K	–
DG211	175	5	1000	3	44	–	20.4	J, Y	–
DG212	175	5	1000	3	44	–	20.4	J, Y	–

A = Metal Case  
P = Sidebrazed

J = Plastic DIP  
X = Flatpack

K = CerDIP  
Y = SOIC

N = PLCC  
Z = LCC

Part Number	Max $r_{DS(on)}$ ( $\Omega$ )	Max $I_{S(off)}$ (nA)	Max $t_{ON}$ (ns)	Typ $Q_{inj}$ (pC)	Max Supply Range (V)	On-Chip Logic Regulator	Max Power Consumption (mW)	Package	Comments
<b>1-Channel SPDT</b>									
DG642	8	10	100	-40	21	Yes	108	J, Y	Video
DG186	10	10	400	N/A	38	-	73	A, P	JFET
DG301A	50	1	300	8	44	-	0.3	A, J, K, Z	-
DG187	30	1	150	N/A	38	-	73	A, P, X	JFET
DG419	35	0.25	175	60	44	-	0.035	J, K, Y	8-Pin Package
DG305A	50	1	250	30	44	-	0.3	A, K, P	-
DG387A	50	1	300	10	44	-	7.65	A, J, K	-
DG188	75	1	250	N/A	38	-	73	A, P, X	JFET
DG189	10	10	400	N/A	36	-	120	P	JFET
DG643	15	10	70	-19	21	-	108	J, Y	Video
DG190	30	1	150	N/A	36	-	120	P, X	JFET
<b>2-Channel SPDT</b>									
DG403	35	0.25	150	60	44	-	0.035	J, K, Y, Z	-
DG423	35	0.25	250	60	44	-	0.035	J, K, N	Latches
DG243	50	1	500	60	44	-	0.45	J, N	Latches
DG303A	50	1	300	8	44	-	7.65	J, K, P, Z	-
DG307A	50	1	250	30	44	-	0.3	J, K, P, Z	-
DG390A	50	1	300	10	44	-	7.65	J, K	-
DG5043	50	1	1200	30	44	-	9	J	-
DG5143	50	0.5	200	60	44	-	0.035	J, K	-
DG542	60	10	100	-25	21	Yes	108	J, P, Y	Video
DG191	75	1	250	N/A	36	-	120	P, X	JFET

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K = CerDIP  
Y = SOIC

N = PLCC  
Z = LCC

Part Number	Max $r_{DS(on)}$ ( $\Omega$ )	Max $I_{S(off)}$ (nA)	Max $t_{ON}$ (ns)	Typ $Q_{inj}$ (pC)	Max Supply Range (V)	On-Chip Logic Regulator	Max Power Consumption (mW)	Package	Comments
<b>2-Channel DPST</b>									
DG183	10	10	400	N/A	36	–	120	P	JFET
DG184	30	1	150	N/A	36	–	120	P, X	JFET
DG129	30	1	600	N/A	36	–	68	P	JFET
DG405	35	0.25	150	60	44	–	0.035	J, K, Y, Z	–
DG425	35	0.25	250	60	44	–	0.035	J	Latches
DG302A	50	1	300	8	44	–	7.65	J, K, P	–
DG306A	50	1	250	30	44	–	0.3	J, K, P	–
DG384A	50	1	300	10	44	–	7.65	J, K	–
DG185	75	1	250	N/A	36	–	120	P, X	JFET

A = Metal Case  
P = Sidebrazed

J = Plastic DIP  
X = Flatpack

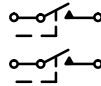
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Y = SOIC

N = PLCC  
Z = LCC

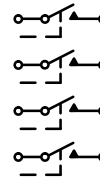
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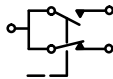
1-Channel SPST



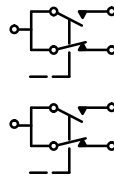
2-Channel SPST



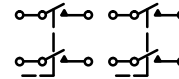
4-Channel SPST



1-Channel SPDT



2-Channel SPDT



2-Channel DPST



## Analog Multiplexers

Part Number	Max $r_{DS(on)}$ ( $\Omega$ )	Max $I_{S(on)}$ (mA)	Analog Range (V)	Transition Time ( $\mu$ s)	Typical Charge Injection (pC)	On-Chip Logic Regulator	Max Power Consumption (mW)	Package	Comments
<b>4-Channel Single-Ended/2-Channel Differential</b>									
DG534A	90	20	-5 to 10	0.3	-70	-	59.5	J, N, P	Video, Latches
<b>4-Channel Differential</b>									
DG538A	90	20	-5 to 10	0.3	-70	-	59.5	J, N, P	Video, Latches
DG409	100	1	$\pm 15$	0.25	20	Yes	0.9	J, K, Y, Z	High Speed
DG429	100	1	$\pm 15$	0.25	4	Yes	1.58	J, K, N, W	Latchable, High Sp.
DG509A	400	10	$\pm 15$	1.0	20	Yes	58.5	J, K, Y	-
DG529	400	10	$\pm 15$	1.0	4	Yes	60	J, K	Latchable
DG459	1200	2	-9.5 to 10	0.5	-	Yes	3	J, K, Z	Fault Protected
<b>8-Channel Single-Ended</b>									
DG538A	90	20	-5 to 10	0.3	-70	-	59.5	J, N, P	Video, Latches
DG408	100	1	$\pm 15$	0.2	20	Yes	0.9	J, K, Y	High Speed
DG428	100	1	$\pm 15$	0.25	4	Yes	1.58	J, K, N	Latchable, High Sp.
DG508A	400	10	$\pm 15$	1.0	20	Yes	59.5	J, K, Y, Z	-
DG528	400	10	$\pm 15$	1.0	4	Yes	60	J, K	Latchable
DG458	1200	2	-9.5 to 10	0.5	-	Yes	3	J, K, Z	Fault Protected
<b>8-Channel Differential</b>									
DG407	100	1	$\pm 15$	0.3	15	Yes	0.5	J, K, N, Z	High Speed
DG507A	400	5	$\pm 15$	1.0	20	Yes	58.5	J, K	-
<b>16-Channel Single-Ended</b>									
DG535	90	10	0 to 10	0.3	-35	-	0.75	J, P	Low Power, Video
DG536	90	10	0 to 10	0.3	-35	-	0.75	M, N	Low Power, Video
DG406	100	1	$\pm 15$	0.3	20	Yes	0.47	J, K, N, Z	Low Power, Fast
DG506A	400	10	$\pm 15$	1.0	20	Yes	58.5	J, K, N, Z	-
<b>Specials</b>									
DG485	85	20	$\pm 15$	0.2	17	-	0.11	J, N, Z	8-Ch, Ser. Control
DG884	90	20	-5 to 8	0.3	-100	-	92.5	M, N	8x4 Video Crosspt
DG894	100	10	-5 to 8	0.2	-	Yes	136	J, W	RGB Video Mux

A = Metal Case  
P = Sidebrazed

J = Plastic DIP  
X = Flatpack

K = CerDIP  
Y = SOIC

N = PLCC  
Z = LCC

## Power MOSFETs

### N-Channel Devices

Part Number	Package	Maximum Ratings			
		V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)	P <sub>D</sub> (W)
SMP60N03-10L	TO-220AB	30	0.010	60	105
SMD30N03-30L	DPAK (TO-252)		0.03	30	50
SMU30N03-30L	TO-251		0.03	30	50
SMD25N05-45L	DPAK (TO-252)	50	0.045	25	50
SMU25N05-45L	TO-251		0.045	25	50
SMD15N05	DPAK (TO-252)		0.10	15	40
SMU15N05	TO-251		0.10	15	40
SUB75N06-08	D <sup>2</sup> PAK (TO-263)	60	0.008	75	187
SUP75N06-08	TO-220AB		0.008	75	187
SUB70N06-14	D <sup>2</sup> PAK (TO-263)		0.014	70	100
SUP70N06-14	TO-220AB		0.014	70	142
SMP60N06-18	TO-220AB		0.018	60	125
SUB60N06-18	D <sup>2</sup> PAK (TO-263)		0.018	60	120
SUP60N06-18	TO-220AB		0.018	60	120
SUB40N06-25L	D <sup>2</sup> PAK (TO-263)		0.022	40	90
SUD40N06-25L	DPAK (TO-252)		0.022	34	75
SUP40N06-25L	TO-220AB		0.025 <sup>a</sup>	40	90
SUD40N06-24	DPAK (TO-252)		0.024	37	75
SMP50N06-25	TO-220AB		0.025	46	105
SUD25N06-45L	DPAK (TO-252)		0.045 <sup>a</sup>	25	50

Notes

a. r<sub>DS(on)</sub> @ 4.5 V

### P-Channel Devices

Part Number	Package	Maximum Ratings			
		V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)	P <sub>D</sub> (W)
SMD10P05	DPAK (TO-252)	-50	0.28	-10	40
SMU10P05	TO-251				
SUB65P06-20	D <sup>2</sup> PAK (TO-263)	-60	0.02	-65	150
SUP65P06-20	TO-220AB		0.02	-65	150
SMD10P06	DPAK (TO-252)		0.28	-10	42
SMD10P06L	DPAK (TO-252)		0.28	-10	40
SMP40P06	TO-220AB		0.045	-40	125

## N-Channel LITE FOOT<sup>®</sup> Devices (8-Pin TSSOP)

Part Number	Maximum Ratings					Configuration
	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)			I <sub>D</sub> (A)	
		V <sub>GS</sub> = 10 V	V <sub>GS</sub> = 4.5 V	V <sub>GS</sub> = 2.5 V		
Si6426DQ	20		0.035	0.04	± 5.4	Single
Si6946DQ			0.080	0.11	± 2.8	Dual
Si6956DQ		0.090	0.175		± 2.5	Dual
Si6434DQ	30	0.028	0.042		± 5.6	Single
Si6436DQ		0.045	0.070		± 4.4	Single
Si6954DQ		0.065	0.095		± 3.9	Dual

## P-Channel LITE FOOT<sup>®</sup> Devices (8-Pin TSSOP)

Part Number	Maximum Ratings					Configuration
	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)			I <sub>D</sub> (A)	
		V <sub>GS</sub> = -10 V	V <sub>GS</sub> = -4.5 V	V <sub>GS</sub> = -2.5 V		
Si6433DQ	-12		0.060	0.100 @ V <sub>GS</sub> = 2.7 V	± 4.0	Single
Si6943DQ			0.100	0.180	± 2.5	Dual
Si6447DQ	-20	0.090	0.160		± 3.2	Single
Si6953DQ		0.170	0.320		± 1.9	Dual
Si6435DQ	-30	0.040	0.070		± 4.5	Single
Si6955DQ		0.085	0.190		± 2.5	Dual

## Complementary LITE FOOT<sup>®</sup> Devices (8-Pin TSSOP)

Part Number	Maximum Ratings					Configuration
	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)			I <sub>D</sub> (A)	
		V <sub>GS</sub> = ± 10 V	V <sub>GS</sub> = ± 4.5 V	V <sub>GS</sub> = ± 2.5 V		
Si6552DQ	20		0.080	0.110	± 2.8	N-Channel P-Channel
	-12		0.100	0.180	± 2.5	
Si6542DQ	20	0.090	0.175		± 2.5	N-Channel P-Channel
	-20	0.170	0.320		± 1.9	
Si6543DQ	30	0.065	0.095		± 3.9	N-Channel P-Channel
	-30	0.085	0.190		± 2.5	

## N-Channel LITTLE FOOT<sup>®</sup> Devices (8-Pin SOIC)

Part Number	Maximum Ratings					Configuration
	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)			I <sub>D</sub> (A)	
		V <sub>GS</sub> = 10 V	V <sub>GS</sub> = 4.5 V	V <sub>GS</sub> = 2.5 V		
Si9925DY	20		0.05	0.08	± 5	Dual
Si9956DY		0.1	0.2		± 3.5	Dual

Part Number	Maximum Ratings					Configuration
	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)			I <sub>D</sub> (A)	
		V <sub>GS</sub> = 10 V	V <sub>GS</sub> = 4.5 V	V <sub>GS</sub> = 2.5 V		
Si4410DY	30	0.0135	0.020		±10	Single
Si4412DY		0.028	0.042		±7	Single
Si9410DY <sup>a</sup>		0.03	0.05		±7	Single
Si4936DY		0.037	0.055		±5.8	Dual
Si9936DY		0.05	0.08		±5	Dual
Si9940DY <sup>b</sup>	50	0.05	0.07		±5.3	Dual
Si9955DY		0.13	0.2		±3	Dual
Si4450DY	60	0.024	0.03		±7.5	Single
Si9945DY		0.1	0.2		±3.3	Dual
Si9959DY		0.3			±2	Dual

Notes

- a. Not recommended for new designs  
b. 16-Pin SOIC

## P-Channel LITTLE FOOT<sup>®</sup> Devices (8-Pin SOIC)

Part Number	Maximum Ratings					Configuration
	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)			I <sub>D</sub> (A)	
		V <sub>GS</sub> = -10 V	V <sub>GS</sub> = -4.5 V	V <sub>GS</sub> = -2.7 V		
Si9434DY	-12		0.04	0.06	±6.4	Single
Si9400DY <sup>a</sup>	-20	0.25	0.4		±2.5	Single
Si9405DY <sup>a</sup>		0.100	0.160		±4.3	Single
Si9430DY <sup>a</sup>		0.05	0.09		±5.8	Single
Si9433DY <sup>a</sup>		0.065	0.100		±5.4	Single
Si9933DY <sup>a</sup>			0.11	0.19	±3.4	Dual
Si9947DY <sup>a</sup>		0.100	0.190		±3.5	Dual
Si9953DY		0.25	0.4		±2.3	Dual
Si4435DY		-30	0.02	0.035		±8.0
Si4431DY	0.04		0.07		±5.8	Single
Si4953DY	0.053		0.095		±4.9	Dual
Si9435DY <sup>a</sup>	0.055		0.105		±5.1	Single
Si4947DY	0.085		0.19		±3.5	Dual
Si9407DY	-60	0.15	0.24		±3	Single
Si9948DY		0.28	0.5		±2	Dual

Notes

- a. Not recommended for new designs

## Complementary LITTLE FOOT<sup>®</sup> Devices (8-Pin SOIC)

Part Number	Maximum Ratings					Configuration
	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)			I <sub>D</sub> (A)	
		V <sub>GS</sub> = ±10 V	V <sub>GS</sub> = ±4.5 V	V <sub>GS</sub> = ±2.7 V		
Si9928DY	20 -20		0.05 0.11	0.08 0.19	±5 ±3.4	N-Channel P-Channel
Si9942DY		0.125 0.2	0.25 0.35		±3 ±2.5	N-Channel P-Channel
Si9958DY		0.10	0.15 0.19		±3.5	N-Channel P-Channel
Si4539DY	30 -30	0.037 0.053	0.055 0.095		±5.8 ±4.9	N-Channel P-Channel
Si9939DY		0.05 0.1	0.08 0.16		±3.5 ±3.5	N-Channel P-Channel
Si4532DY		0.065 0.085	0.095 0.190		±3.9 ±2.5	N-Channel P-Channel

## Low-Power Discretes

### DMOS FETs—Low-Power MOS N-Channel Enhancement-Mode

Part Number	V <sub>(BR)DSS</sub> Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(th)</sub> Max (V)	t <sub>ON</sub> Max (ns)	C <sub>iss</sub> Typ (pF)	I <sub>D</sub> Max (A)	PD Max (W)
<b>14-Pin Sidebrazed (P) and Plastic (J)</b>							
VQ1001J	30	1	2.5	30	38	3	2
VQ1001P		1	2.5	30	38	3	2
VQ1004J	60	3.5	2.5	10	35	0.46	1.3
VQ1004P		3.5	2.5	10	35	0.46	1.3
VQ1000J		5.5	2.5	10	22	1	1.3
VQ1000P		5.5	2.5	10	22	1	1.3
VQ1006P	90	4.5	2.5	10	35	2	2
<b>TO-236 (SOT-23)</b>							
TN0200T	20	0.4	1.0 (Typ)	34	90	4.0	0.23
TN0201T		1	3.0	15 (Typ)	65	0.75	0.2
VN0605T	60	5	3.0	20	22	0.72	0.36
2N7002		7.5	2.5	20	22	0.8	0.2
TN2010T	200	11	3.0	20 (Typ)	35	0.085	0.2
TN2460T	240	60	1.8	20	14	0.4	0.36
VN50300T	500	300	4.5	20	5	0.08	0.35
<b>TO-205AD (TO-39)</b>							
2N6659	35	1.8	2.0	10	35	3	6.25
2N6660JANTX	60	3	2.0	10	35	3	6.25
2N6660		3	2.0	10	35	3	6.25
2N6661JANTX	90	4	2.0	10	35	3	6.25
2N6661		4	2.0	10	35	3	6.25
<b>TO-206AC (TO-52)</b>							
VN10LE	60	5	2.5	10	22	1	1.5
VN10KE		5	2.5	10	38	1	0.3
<b>TO-220/TO-220SD</b>							
VN66AFD	60	3	2.5	15	35	3	15
VN88AFD	80	4	2.5	15	35	3	15
VN2406D	240	6	2.0	16	110	3	20
<b>TO-237</b>							
VN0300M	30	1.2	2.5	30	38	3	1
VN0606M	60	3	2.0	10	35	2	1
VN10KM		5	2.5	10	38	1	1
VN10LM		5	2.5	10	22	1.4	1
VN2222LM		7.5	2.5	10	22	1	1
VN0808M	80	4	2.0	10	35	1.9	1
VN1206M	120	6	2.0	16	35	2	1
VN1210M		10	2.0	16	35	2	1
VN2406M	240	6	2.0	16	110	2	1
VN2410M		10	2.0	16	110	2	1
<b>TO-226AA (TO-92)</b>							

Part Number	V <sub>(BR)DSS</sub> Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(th)</sub> Max (V)	t <sub>ON</sub> Max (ns)	C <sub>iss</sub> Typ (pF)	I <sub>D</sub> Max (A)	PD Max (W)	
<b>TO-226AA (TO-92)</b>								
TN0201L	20	1.2	2.0	30	38	1.5	0.8	
VN0300L	30	1.2	2.5	30	38	3	0.8	
TN0401L	40	1.2	2.0	30	38	1.5	0.8	
TN0601L	60	1.8	2.0	15	35	1.5	0.8	
VN0606L		3	2.0	10	35	1.6	0.8	
2N7000		5	3.0	10	20	0.5	0.4	
VN0610L		5	2.5	10	38	1	0.8	
BS170		5	3.0	10	22	0.8	0.83	
VN0610LL		5	2.5	10	22	1.3	0.8	
VN2222LL		7.5	2.5	10	22	1	0.8	
VN2222L		7.5	2.5	10	38	1	0.8	
VN0808L		80	4	2.0	10	35	1.9	0.8
VN1206L		120	6	2.0	16	35	2	0.8
VN2010L	200	10	1.8	20	35	0.8	0.8	
BS107		28	3.0	5	35		0.5	
VN2406L	240	6	2.0	16	115	1.7	0.8	
VN2410L		10	2.0	16	115	1.7	0.8	
TN2410L		10	1.8	35	110	1	0.8	
TN2460L		60	1.8	20	14	0.8	0.8	
TN3012L	300	12	3.0	50	40	0.5	0.8	
VN3515L	350	15	1.8	40	85	0.6	0.8	
VN4012L	400	12	1.8	40	85	0.65	0.8	
VN50300L	500	300	4.5	20	5	0.13	0.8	

## DMOS FETs—Low-Power MOS P-Channel Enhancement-Mode

Part Number	V <sub>(BR)DSS</sub> Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(th)</sub> Max (V)	t <sub>ON</sub> Max (ns)	C <sub>iss</sub> Typ (pF)	I <sub>D</sub> Max (A)	PD Max (W)
<b>14-Pin Sidebrazed (P) and Plastic (J)</b>							
VQ2001J	-30	2	-4.5	30	60	-2	2.00
VQ2001P		2	-4.5	30	60	-2	2.00
VQ2004J	-60	5	-4.5	55	75	-3	2.00
<b>TO-236 (SOT-23)</b>							
TP0101T	-12	0.65	-1.1 (Typ)	47	110	-3.0	0.23
TP0202T	-20	1.4	-3.0	42	55	-0.75	0.2
TP0610T	-60	10	-2.4	25	15	-0.4	0.36
VP0610T		10	-3.5	25	15	-0.4	0.36
<b>TO-205AD (TO-39)</b>							
VP0300B	-30	2.5	-4.5	30	60	-3	6.25
VP0808B	-80	5	-4.5	55	75	-3	6.25
VP1008B	-100	5	-4.5	55	75	-3	6.25
<b>TO-237</b>							
VP0300M	-30	2.5	-4.5	30	60	-3	1.0
VP0808M	-80	5	-4.5	55	75	-3	1.0
VP1008M	-100	5	-4.5	55	75	-3	1.0
<b>TO-226AA (TO-92)</b>							
VP0300L	-30	2.5	-4.5	30	60	-2.4	0.8
BS250	-45	14	-3.5	10	15		0.83
VP0610L	-60	10	-3.5	25	15	-0.8	0.8
TP0610L	-60	10	-2.4	25	15	-0.8	0.8

Part Number	V <sub>(BR)DSS</sub> Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(th)</sub> Max (V)	t <sub>ON</sub> Max (ns)	C <sub>iss</sub> Typ (pF)	I <sub>D</sub> Max (A)	PD Max (W)
<b>TO-226AA (TO-92)</b>							
VP0808L	-80	5	-4.5	55	75	-3	0.8
VP1008L	-100	5	-4.5	55	75	-3	0.8
TP1220L	-120	20	-2.4	25	30	-0.48	0.8
BSS92	-200	20	-2.8	14	30	-0.6	1.0
VP2020L	-200	20	-2.5	25	30	-0.48	0.8
TP2020L	-200	20	-2.4	25	30	-0.48	0.8
VP2410L	-240	10	-2.5	45	65	-0.72	0.8
<b>TO-206AF (TO-72)</b>							
3N164	-30	300	-5	36	2.4	-0.05	0.375
3N163	-40	250	-5	36	2.4	-0.05	0.375

## DMOS FETs—N- and P-Channel Quads

Part Number	V <sub>(BR)DSS</sub> Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(th)</sub> Max (V)	t <sub>ON</sub> Max (ns)	C <sub>iss</sub> Typ (pF)	I <sub>D</sub> Max (A)	PD Max (W)
<b>14-Pin Ceramic (P) and Plastic (J)</b>							
VQ3001J	±30	1/2	2.5/-4.5	30	38/60	±3	2.00
VQ3001P		1/2	2.5/-4.5	30	38/60	±3	2.00

## DMOS FETs—N-Channel Depletion-Mode MOS

Part Number	V <sub>(BR)DSS</sub> Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(th)</sub> Max (V)	t <sub>ON</sub> Max (ns)	C <sub>iss</sub> Typ (pF)	I <sub>D</sub> Max (A)	PD Max (W)
<b>TO-226AA (TO-92)</b>							
ND2012L	200	12	-4.0	40	35	0.8	0.80
ND2020L		20	-2.5	40	35	0.8	0.80
BSS129	230	20	-3	90	70	0.6	1.00
ND2406L	240	6	-4.5	90	70	0.9	0.80
ND2410L		10	-2.5	90	70	0.9	0.80

## JFETs—N-Channel JFET Amplifiers

Part Number	Bkdown Voltage Min (V)	I <sub>DSS</sub> (mA)		g <sub>fs</sub> (mS)		V <sub>GS(off)</sub> (V)		Gate Leakage (pA)		r <sub>DS(on)</sub> (Ω)		C <sub>iss</sub> (pF)		Comments
		Min	Max	Min	Max	Min	Max	Typ	Max	Typ	Max	Typ	Max	
<b>TO-220AA (TO-92)</b>														
J204	-25	0.2	3	0.5		-0.3	-2	-2	-100	450		4.5		Low Noise/Voltage
2N3819		2	20	2	6.5		-8	-2	-2,000	150			8	High Frequency
2N5484		1	5	3	6	-0.3	-3	-2	-1,000	300			5	High Freq./Gen. Pur.
2N5485		4	10	3.5	7	-0.5	-4	-2	-1,000	175			5	High Freq./Gen. Pur.
2N5486		8	20	4	8	-2	-6	-2	-1,000	110			5	High Freq./Gen. Pur.
J210		2	15	4	12	-1	-3	-1	-100	140			4	High Frequency
J211		7	20	6	12	-2.5	-4.5	-1	-100	100			4	High Frequency
J212		15	40	7	12	-4	-6	-1	-100	70			4	High Frequency
J308		12	60	8		-1	-6.5	-2	-1,000	35			5	Very High Frequency
J309		12	30	10		-1	-4	-2	-1,000	45			5	Very High Frequency
J310		24	60	8		-2	-6.5	-2	-1,000	35			5	Very High Frequency
J305		-30	1	8	3		-0.5	-3	-2	-100	200		2.2	
J304	5		15	4.5	7.5	-2	-6	-2	-100	150		2.2		High Frequency



Part Number	Bkdown Voltage Min (V)	I <sub>DSS</sub> (mA)		g <sub>fs</sub> (mS)		V <sub>GS(off)</sub> (V)		Gate Leakage (pA)		r <sub>DS(on)</sub> (Ω)		C <sub>iss</sub> (pF)		Comments
		Min	Max	Min	Max	Min	Max	Typ	Max	Typ	Max	Typ	Max	
<b>TO-220AA (TO-92)</b>														
PN4117A	-40	0.03	0.09	0.07	0.21	-0.6	-1.8	-0.2	-1	11,000			3	Ultralow Leakage
PN4118A		0.08	0.24	0.08	0.25	-1	-3	-0.2	-1	7,000			3	Ultralow Leakage
PN4119A		0.2	0.6	0.1	0.33	-2	-6	-0.2	-1	4,500			3	Ultralow Leakage
J201		0.2	1	0.5		-0.3	-1.5	-2	-100	750			4.5	Low Noise/Voltage
J202		0.9	4.5	1		-0.8	-4	-2	-100	400			4.5	Low Noise
<b>TO-236 (SOT-23)</b>														
SST204	-25	0.2	3	0.5		-0.3	-2	-2	-100	450			2.2	Low Noise/Voltage
SST5484		1	5	3	6	-0.3	-3	-2	-1,000	300			5	High Freq/Gen Pur.
SST5485		4	10	3.5	7	-0.5	-4	-2	-1,000	175			5	High Freq/Gen Pur.
SST5486		8	20	4	8	-2	-6	-2	-1,000	110			5	High Freq/Gen Pur.
SST308		12	60	8		-1	-6.5	-2	-1,000	35			5	Very High Frequency
SST309		12	30	8		-1	-4	-2	-1,000	45			5	Very High Frequency
SST310		24	60	8		-2	-6.5	-2	-1,000	35			5	Very High Frequency
SST4416	-30	5	15	4.5	7.5		-6	-2	-1,000	150			4	Low Noise/High Freq.
SST4117	-40	0.03	0.09	0.07	0.21	-0.6	-1.8	-0.2	-10	11,000			3	Very Low Leakage
SST4118		0.08	0.24	0.08	0.25	-1	-3	-0.2	-10	7,000			3	Very Low Leakage
SST4119		0.2	0.6	0.1	0.33	-2	-6	-0.2	-10	4,500			3	Very Low Leakage
SST201		0.2	1	0.5		-0.3	-1.5	-2	-100	750			4.5	Low Noise/Voltage
SST202		0.9	4.5	1		-0.8	-4	-2	-100	400			4.5	Low Noise
<b>TO-206AA (TO-18), TO-206AC (TO-52), TO-206AF (TO-72)</b>														
U309	-25	12	30	10		-1	-4	-2	-150	45			5	Very High Frequency
U310		24	60	10		-2.5	-6	-2	-150	35			5	Very High Frequency
2N4416	-30	5	15	4.5	7.5		-6	-2	-100	150			4	Low Noise/High Freq.
2N4416A	-35	5	15	4.5	7.5	-2.5	-6	-2	-100	150			4	Low Noise/High Freq.
2N4117A	-40	0.03	0.09	0.07	0.21	-0.6	-1.8	-0.2	-1	11,000			3	Ultralow Leakage
2N4118A		0.08	0.24	0.08	0.25	-1	-3	-0.2	-1	7,000			3	Ultralow Leakage
2N4119A		0.2	0.6	0.1	0.33	-2	-6	-0.2	-1	4,500			3	Ultralow Leakage
2N4338	-50	0.2	0.6	0.6	1.8	-0.3	-1	-2	-100		2,500		7	Low Noise/Voltage
2N4339		0.5	1.5	0.8	2.4	-0.6	-1.8	-2	-100		1,700		7	Low Noise/Voltage
2N4340		1.2	3.6	1.3	3	-1	-3	-2	-100		1,500		7	Low Noise
2N4341		3	9	2	4	-2	-6	-2	-100		800		7	Low Noise

## JFETs—N-Channel JFET Analog Switches

Part Number	Bkdown Voltage Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(off)</sub> (V)		I <sub>DSS</sub> (mA)		Gate Leakage (pA)		g <sub>fs</sub> Typ (mS)			C <sub>iss</sub> Max (pF)	
			Min	Max	Min	Max	Typ	Max	I <sub>D</sub> = 1 mA	I <sub>D</sub> = 10 mA	I <sub>D</sub> = 25 mA		
<b>TO-226AA (TO-92)</b>													
J105	-25	3	-4.5	-10	500		-20	-3,000				55	160
J106		6	-2	-6	200		-20	-3,000				55	160
J107		8	-0.5	-4.5	100		-20	-3,000				55	160
J108		8	-3	-10	80		-10	-3,000			17		85
J109		12	-2	-6	40		-10	-3,000			17		85
J110		18	-0.5	-4	10		-10	-3,000			17		85
J111	-35	30	-3	-10	20		-5	-1,000	6				12
J112		50	-1	-5	5		-5	-1,000	6				12
J113		100		-3	2		-5	-1,000	6				12

Part Number	Bkdown Voltage Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(off)</sub> (V)		I <sub>DSS</sub> (mA)		Gate Leakage (pA)		g <sub>fs</sub> Typ (mS)			C <sub>iss</sub> Max (pF)
			Min	Max	Min	Max	Typ	Max	I <sub>D</sub> = 1 mA	I <sub>D</sub> = 10 mA	I <sub>D</sub> = 25 mA	
<b>TO-226AA (TO-92)</b>												
PN4391	-40	30	-4	-10	50	150	-5	-1,000	6			16
PN4392		60	-2	-5	25	100	-5	-1,000	6			16
PN4393		100	-0.5	-3	5	60	-5	-1,000	6			16
<b>TO-236 (SOT-23)</b>												
SST108	-25	8	-3	-10	80		-10	-3,000		17		85
SST109		12	-2	-6	40		-10	-3,000		17		85
SST110		18	-0.5	-4	10		-10	-3,000		17		85
SST111	-35	30	-3	-10	20		-5	-1,000	6			12
SST4391		30	-4	-10	50		-5	-100	6			16
SST112		50	-1	-5	5		-5	-1,000	6			12
SST4392		60	-2	-5	25		-5	-100	6			16
SST113		100		-3	2		-5	-1,000	6			12
SST4393		100	-0.5	-3	5		-5	-100	6			16
<b>TO-206AA (TO-18), TO-206AC (TO-52)</b>												
2N5432	-25	5	-4	-10	150		-5	-200		17		30
2N5433		7	-3	-9	100		-5	-200		17		30
2N5434		10	-1	-4	30		-5	-200		17		30
U290	-30	3	-4	-10	500		-20	-1000			55	160
U291		7	-1.5	-4.5	200		-20	-1000			55	160
2N4859JAN/ TX/TXV	-30	25	-4	-10	50		-5	-250				18
2N4860JAN/ TX/TXV		40	-2	-6	20	100	-5	-250				18
2N4861JAN/ TX/TXV		60	-0.8	-4	8	80	-5	-250				18
2N4856A	-40	25	-4	-10	50		-5	-250	6			10
2N4856JAN/ TX/TXV		25	-4	-10	50		-5	-250				18
2N4391		30	-4	-10	50	150	-5	-100	6			14
2N4857A		40	-2	-6	20	100	-5	-250	6			10
2N4857JAN/ TX/TXV		40	-2	-6	20	100	-5	-250				18
2N4392		60	-2	-5	25	75	-5	-100	6			14
2N4858A		60	-0.8	-4	8	80	-5	-250	6			10

## JFETs—N-Channel JFET Duals

Part Number	Breakdown Voltage Min (V)	V <sub>GS1</sub> -V <sub>GS2</sub>		Gate Leakage Max (pA)	g <sub>fs</sub> (mS)		I <sub>DSS</sub> (mA)		V <sub>GS(off)</sub> Max (V)	C <sub>iss</sub> Max (pF)	Package	Comments
		Max (mV)	Drift (μV/°C)		Min	Max	Min	Max				
SST404	-40	15	25	-15	1	2	0.5	10	-2.5	8	SO-8	Low Noise
SST406		40	80	-15	1	2	0.5	10	-2.5	8	SO-8	Low Noise
SST440	-25	10	10*	-500	4.5	9	6	30	-6	3.5*	SO-8	High Gain/Freq.
SST441		20	10*	-500	4.5	9	6	30	-6	3.5*	SO-8	High Gain/Freq.
U401	-40	5	10	-15	1	2	0.5	10	-2.5	8	TO-71	Low Noise
U404		15	25	-15	1	2	0.5	10	-2.5	8	TO-71	Low Noise
U406		40	80	-15	1	2	0.5	10	-2.5	8	TO-71	Low Noise
U421		10	10	-0.25	0.12	0.35	0.06	1	-2	3	TO-78	Ultra Low Leak.
U423		25	40	-0.25	0.12	0.35	0.06	1	-2	3	TO-78	Ultra Low Leak.
U430		25*		-15*	10		12	30	-4	5	TO-78	High Freq./ Low Noise
U431	-25	25*		-15*	10		24	60	-6	5	TO-78	High Freq./ Low Noise
U440		10	20*	-500	4.5	9	6	30	-6	3*	TO-71	High Gain
U441		20	20*	-500	4.5	9	6	30	-6	3*	TO-71	High Gain

Part Number	Breakdown Voltage Min (V)	V <sub>GS1</sub> -V <sub>GS2</sub>		Gate Leakage Max (pA)	g <sub>fs</sub> (mS)		I <sub>DSS</sub> (mA)		V <sub>GS(off)</sub> Max (V)	C <sub>iss</sub> Max (pF)	Package	Comments
		Max (mV)	Drift (μV/°C)		Min	Max	Min	Max				
2N3958	-50	25	100	-50	1	3	0.5	5	-4.5	4	TO-71	Tight Match Low I <sub>G</sub>
2N5196		5	5	-15	0.7	1.6	0.7	7	-4	6	TO-71	Tight Match Low I <sub>G</sub>
2N5197		5	10	-15	0.7	1.6	0.7	7	-4	6	TO-71	Tight Match Low I <sub>G</sub>
2N5198		10	20	-15	0.7	1.6	0.7	7	-4	6	TO-71	General Purpose
2N5199	-50	15	40	-15	0.7	1.6	0.7	7	-4	6	TO-71	General Purpose
2N5545 JANTX/ TXV		5	10	-50	1.5	6	0.5	8	-4.5	6	TO-71	Military Hi-Rel
2N5546 JANTX/ TXV		10	20	-50	1.5	6	0.5	8	-4.5	6	TO-71	Military Hi-Rel
2N5547 JANTX/ TXV		15	40	-50	1.5	6	0.5	8	-4.5	6	TO-71	Military Hi-Rel
2N5564	-40	5	10	-3*	7.5	12.5	5	30	-3	12	TO-71	High Gain
2N5565		10	25	-3*	7.5	12.5	5	30	-3	12	TO-71	High Gain
2N5566		20	50	-3*	7.5	12.5	5	30	-3	12	TO-71	High Gain
2N5911	-25	10	20	-100	5	10	7	40	-5	5	TO-78	High Gain
2N5912		15	40	-100	5	10	7	40	-5	5	TO-78	High Gain

\* Typical Value

## JFETs—N-Channel Voltage-Controlled Resistors

Part Number	Breakdown Voltage Min (V)	r <sub>DS(on)</sub> (Ω)		V <sub>GS(off)</sub> (V)		Gate Leakage Max (pA)	Package
		Min	Max	Min	Max		
VCR2N	-25	20	60	-3.5	-7	-5000	TO-206AA
VCR4N	-25	200	600	-3.5	-7	-200	TO-206AA
VCR7N	-25	4000	8000	-2.5	-5	-100	TO-206AF

## JFETs—P-Channel JFET Amplifiers

Part Number	Brkdown Voltage Min (V)	I <sub>DSS</sub> (mA)		g <sub>fs</sub> (mS)		V <sub>GS(off)</sub> (V)		Gate Leakage (pA)		C <sub>iss</sub> Typ (pF)
		Min	Max	Min	Max	Min	Max	Typ	Max	
<b>TO-220AA (TO-92)</b>										
J270	30	-2	-15	6	15	0.5	2	10	200	20
J271		-6	-50	8	18	1.5	4.5	10	200	20
2N5460	40	-1	-5	1	4	0.75	6	3	5000	4.5
2N5461		-2	-9	1.5	5	1	7.5	3	5000	4.5
2N5462		-4	-16	2	6	1.8	9	3	5000	4.5
<b>TO-236 (SOT-23)</b>										
SST270	30	-2	-15	6	15	0.5	2	10	200	20
SST271		-6	-50	8	18	1.5	4.5	10	200	20

## JFETs—P-Channel JFET Analog Switches

Part Number	Brkdown Voltage Min (V)	r <sub>DS(on)</sub> Max (Ω)	V <sub>GS(off)</sub> (V)		I <sub>DSS</sub> (mA)		Gate Leakage (pA)		g <sub>fs</sub> (mS)	C <sub>iss</sub> Typ (pF)
			Min	Max	Min	Max	Typ	Max	Typ	
<b>TO-220AA (TO-92)</b>										
P1086	30	75		10	-10		10	2000	4.5*	20
J174		85	5	10	-20	-135	10	1000	4.5*	20
J175		125	3	6	-7	-70	10	1000	4.5*	20
P1087		150		5	-5		10	2000	4.5*	20
J176		250	1	4	-2	-35	10	1000	4.5*	20
J177		300	0.8	2.25	-1.5	-20	10	1000	4.5*	20
<b>TO-236 (SOT-23)</b>										
SST174	30	85	5	10	-20	-135	10	1000	4.5*	20
SST175		125	3	6	-7	-70	10	1000	4.5*	20
SST176		250	1	4	-2	-35	10	1000	4.5*	20
SST177		300	0.8	2.25	-1.5	-20	10	1000	4.5*	20
<b>TO-206AA (TO-18)</b>										
2N5114	30	75	5	10	-30	-90	5	500	4.5*	20
2N5114JAN/JANTX/ JANTXV		75	5	10	-30	-90	5	500	4.5*	20
2N5115		100	3	6	-15	-60	5	500	4.5*	20
2N5115JAN/JANTX/ JANTXV		100	3	6	-15	-60	5	500	4.5*	20
2N5116		150	1	4	-5	-25	5	500	4.5*	20
2N5116JAN/JANTX/ JANTXV		150	1	4	-5	-25	5	500	4.5*	20

\*Typical Value at V<sub>DS</sub> = -15 V, I<sub>D</sub> = -1 mA, f = 1 KHz

## N-Channel Lateral DMOS FET Switches

Part Number	V <sub>(BR)DS</sub> Min (V)	V <sub>(BR)SD</sub> Min (V)	r <sub>DS(on)</sub> * Typ (Ω)	t <sub>r</sub> Max (ns)	V <sub>GS(th)</sub> (V)		Package	Comments
					Min	Max		
<b>Single Configuration</b>								
SD210DE	30	10	30	1	0.5	1.5	TO-206AF	
SD211DE		10	30	1	0.5	1.5	TO-206AF	Zenered Gate
SST211		10	30	1	0.5	1.5	TO-253	Zenered Gate
SD213DE	10	10	30	1	0.1	1.5	TO-206AF	Zenered Gate
SST213		10	30	1	0.1	1.5	TO-253	Zenered Gate
SD214DE	20	20	30	1	0.1	1.5	TO-206AF	
SD215DE		20	30	1	0.1	1.5	TO-206AF	Zenered Gate
SST215		20	30	1	0.1	1.5	TO-253	Zenered Gate
<b>Quad Configuration</b>								
SD5000N	20	20	30	1	0.1	1.5	16-Pin Plastic DIP	Zenered Gate
SD5000I		20	30	1	0.1	1.5	16-Pin Sidebraze	Zenered Gate
SD5400CY		20	30	1	0.1	1.5	14-Pin SOIC	Zenered Gate

Part Number	$V_{(BR)DS}$ Min (V)	$V_{(BR)SD}$ Min (V)	$r_{DS(on)}$ * Typ ( $\Omega$ )	$t_r$ Max (ns)	$V_{GS(th)}$ (V)		Package	Comments
					Min	Max		
<b>Quad Configuration</b>								
SD5001N	10	10	30	1	0.1	1.5	16-Pin Plastic DIP	Zenered Gate
SD5401CY		10	30	1	0.1	1.5	14-Pin SOIC	Zenered Gate

\*Typical Value at  $V_{GS} = 15$  V



## Aerospace and Defense ASSPs

Part-number	Function	Main features
<a href="#">29C516E</a>	16 bit Flow-Through EDAC Error Detection And Correction Unit	Error detection: 30ns max. Error correction: 33ns max. for x1, x4 and x8 RAM format
<a href="#">29C80E</a>	2D Discrete Cosine Transform Circuit	Compression/Decompression up to 25MHz
<b>Short form Catalog:</b>		
<a href="#">Aerospace and Defense Product Offering</a>		
<b>Application Notes:</b>		
<a href="#">ANM052</a> Radiation Tolerant SRAM for SPACE Application		

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



## Detectors

### Photo Transistors in Clear Plastic Package

Type	Package	+/- $\varphi$	I <sub>ca</sub>
<a href="#">BPW16N</a>	Ø 1.8 mm	40°	0.14(>0.07) mA
<a href="#">BPW17N</a>	Ø 1.8 mm	12.5°	1.0(>0.5) mA
<a href="#">BPW85A</a>	Ø 3 mm	25°	0.8 - 2.5 mA
<a href="#">BPW85B</a>	Ø 3 mm	25°	1.5 - 4.0 mA
<a href="#">BPW85C</a>	Ø 3 mm	25°	3.0 - 8.0 mA
<a href="#">BPW96A</a>	Ø 5 mm	20°	1.5 - 4.5 mA
<a href="#">BPW96B</a>	Ø 5 mm	20°	2.5 - 7.5 mA
<a href="#">BPW96C</a>	Ø 5 mm	20°	4.5 - 15 mA
<a href="#">BPV11</a>	Ø 5 mm	15°	10(>3) mA
<a href="#">S351P</a>	Ø 5 mm	20°	>4 mA

### SMD Photo Transistors in Clear Plastic Package

Type	Package	+/- $\varphi$	I <sub>ca</sub>
<a href="#">TEMT2100</a>	SOT23	70°	0.45(>0.3) mA
<a href="#">TEMT2200*</a>			
<a href="#">TEMT370.</a>	PP-CC-2	70°	0.5(>0.2) mA
<a href="#">TEMT4700*</a>			

\* with base connected



## Detectors

### Photo Transistor with Filter Matched for GaAs IREDs in Plastic Package

Type	Package	+/- $\varphi$	I <sub>ca</sub>
<a href="#">S350P</a>	1.8 mm	40°	1(>0.2) mA
<a href="#">BPW78A</a>	side view, lens	25°	1.0-3.0 mA
<a href="#">BPW78B</a>	side view, lens	25°	4(>2.0) mA
<a href="#">TEFT4300</a>	3 mm	30°	3.2(>0.8) mA
<a href="#">TEST2600</a>	side view, cyl. lens	30°/60°	2.5(>1.0) mA
<a href="#">BPV11F</a>	5 mm	15°	9(>3.0) mA

### Photo Darlington with Filter Matched for GaAs IREDs in Plastic Package

Type	Package	+/- $\varphi$	I <sub>ca</sub>
<a href="#">S289P</a>	3 mm	30°	15(>4.0) mA

### Photo Transistors in Hermetically Sealed Package

Type	Package	+/- $\varphi$	I <sub>ca</sub>
<a href="#">BPW76A</a>	TO18	40°	0.4-0.6 mA
<a href="#">BPW76B</a>		40°	1.2(>0.6) mA
<a href="#">BPX38</a>	TO18	40°	>0.5 mA
<a href="#">BPX38-4</a>			0.5-1.0 mA
<a href="#">BPX38-5</a>			0.8-1.6 mA
<a href="#">BPX38-6</a>			>1.25 mA
<a href="#">BPW77NA</a>	TO18	10°	7.5-15 mA
<a href="#">BPW 77NB</a>			20(>10.0) mA





## Detectors

Type	Package	+/- $\varphi$	$I_{ca}$
<a href="#">S254PN</a>	TO18	10°	>3.0 mA
<a href="#">BPX43</a>	TO18	15°	>2.0 mA
<a href="#">BPX43-4</a>			2.0-4.0 mA
<a href="#">BPX43-5</a>			3.2-6.3 mA
<a href="#">BPX43-6</a>			>5.0 mA

### Photo Darlington Transistor in Hermetically Sealed Package

Type	Package	+/- $\varphi$	$I_{ca}$
<a href="#">BPX99R-2</a>	TO46	12.5°	10(>4.0) mA
<a href="#">BPX99R-3</a>			20(>10.0) mA

### Photo PIN Diodes in Clear Plastic Package

Type	Package	+/- $\varphi$	$I_{ra}$	$t_{on}$
<a href="#">BPW34</a>	top view, flat	65°	50(>40) $\mu$ A	100 ns (10V, 1000 $\Omega$ )
<a href="#">S268P</a>	8 pin DIL.	65°	50(>40) $\mu$ A	100 ns (10V, 1000 $\Omega$ )
<a href="#">BPW46</a>	side view, flat	65°	50(>40) $\mu$ A	100 ns (10V, 1000 $\Omega$ )
<a href="#">BPW43</a>	5 mm	25°	8(>4) $\mu$ A	4 ns (10V, 50 $\Omega$ )
<a href="#">BPV10</a>	5 mm	17.5°	65(>38) $\mu$ A	2.5 ns (50V, 50 $\Omega$ )
<a href="#">TEMD2100</a>	SOT23	75°	2.5(>2) $\mu$ A	2.5 ns (50V, 50 $\Omega$ )



## Detectors

### Photo PIN Diodes with Filter Matched for GaAlAs IREDs in Plastic Package

Type	Package	+/- $\varphi$	$I_{ra}$	$t_{on}$
BPW82*	side view, flat	65°	48(>41) $\mu$ A	100 ns (10 V, 1000 $\Omega$ )
BPW83*	side view, flat	65°	50(>41) $\mu$ A	100 ns (10 V, 1000 $\Omega$ )
BPV10F	5 mm	15°	60(>30) $\mu$ A	2.5 ns (50 V, 50 $\Omega$ )
BPV10NF	5 mm	20°	55(>30) $\mu$ A	2.5 ns (50 V, 50 $\Omega$ )
BPV22NF	side view, lens	60°	85(>55) $\mu$ A	100 ns (10 V, 1000 $\Omega$ )
BPV23NF BPV23NFL*	side view, lens	60°	65(>45) $\mu$ A	70 ns (10 V, 1000 $\Omega$ )

\* long lead packages optional: suffix "L", e.g. BPV23NFL

### Photo PIN Diodes with Filter Matched for GaAs IREDs in Plastic Package

Type	Package	+/- $\varphi$	$I_{ra}$	$t_{on}$
BP104	TO5	65°	45(>40) $\mu$ A	100 ns (10 V, 1000 $\Omega$ )
BPW41N*	side view, flat	65°	45(>41) $\mu$ A	100 ns (10 V, 1000 $\Omega$ )
S186P*	side view, flat	65°	45(>41) $\mu$ A	100 ns (10 V, 1000 $\Omega$ )
BPV20F BPV20NFL*	side view, cyl. lens	65°	60(>40) $\mu$ A	100 ns (10 V, 1000 $\Omega$ )
BPV21F*	side view, cyl. lens	65°	38(>27) $\mu$ A	70 ns (10V, 1000 $\Omega$ )
BPV22F*	side view, lens	60°	80(>55) $\mu$ A	100 ns (10 V, 1000 $\Omega$ )
BPV23F	side view, lens	60°	63(>45) $\mu$ A	70 ns (10 V, 1000 $\Omega$ )

\* long lead packages optional: suffix "L", e.g. BPV23NFL



## Detectors

### Photo PIN Diodes in Hermetically Sealed Package for Standard Applications

Type	Package	+/- $\varphi$	$I_{ra}$	$t_{on}$
<a href="#">S153P</a>	TO5	50°	50(>40) $\mu$ A	100 ns (10V, 1000 $\Omega$ )
<a href="#">BPW24R</a>	TO18	12°	65(>45) $\mu$ A	7 ns (20 V, 50 $\Omega$ )

### Photo PIN Diodes in Hermetically Sealed Package for Glass Fiber Applications (Anode and Cathode Insulated from Case)

Type	Package	+/- $\varphi$	$I_{ra}$	$t_{on}$
<a href="#">BPW97</a>	TO18	55°	1.3(>1) $\mu$ A	0.6 ns (10V, 50 $\Omega$ )

### Photo Diodes for Light Measurement Applications

Type	Package	+/- $\varphi$	$I_{ra}$	$t_{on}$
<a href="#">BPW20R</a>	TO5	50°	61(>20) $\mu$ A	3.5 $\mu$ s (100 $\mu$ A, 1000 $\Omega$ )
<a href="#">BPW21R</a>	TO5	50°	9(>4.5) $\mu$ A	3.5 $\mu$ s (100 $\mu$ A, 1000 $\Omega$ )



## Photo Modules

### Photo Modules for Pulse Code Remote Control Systems

#### I. Standard Applications

Type	Package	$f_0$	$\lambda$	$V_s$	$E_{e\ min}$
<a href="#">TFMS5300</a>	side view	30 kHz	950 nm	5 V	0.35 mW/m <sup>2</sup>
<a href="#">TFMS5330</a>		33 kHz			
<a href="#">TFMS5360</a>		36 kHz			
<a href="#">TFMS5380</a>		38 kHz			
<a href="#">TFMS5400</a>		40 kHz			
<a href="#">TFMS5560</a>		56 kHz			
<a href="#">TFMT5300</a>	top view	30 kHz	950 nm	5 V	0.35 mW/m <sup>2</sup>
<a href="#">TFMT5330</a>		33 kHz			
<a href="#">TFMT5360</a>		36 kHz			
<a href="#">TFMT5380</a>		38 kHz			
<a href="#">TFMT5400</a>		40 kHz			
<a href="#">TFMT5560</a>		56 kHz			



## Photo Modules

### II. Modules for Short Bursts or High Duty Cycles

Type	Package	$f_o$	$\lambda$	$V_s$	$E_{e\ min}$
<a href="#">TFMS1300</a>	side view	30 kHz	950 nm	5 V	0.5 mW/m <sup>2</sup>
<a href="#">TFMS1330</a>		33 kHz			
<a href="#">TFMS1360</a>		36 kHz			
<a href="#">TFMS1380</a>		38 kHz			
<a href="#">TFMS1400</a>		40 kHz			
<a href="#">TFMS1560</a>		56 kHz			
<a href="#">TFMT1300</a>	top view	30 kHz	950 nm	5 V	0.5 mW/m <sup>2</sup>
<a href="#">TFMT1330</a>		33 kHz			
<a href="#">TFMT1360</a>		36 kHz			
<a href="#">TFMT1380</a>		38 kHz			
<a href="#">TFMT1400</a>		40 kHz			
<a href="#">TFMT1560</a>		56 kHz			



## Infrared Emitting Diodes

### IR Emitter GaAs (950 nm) in Plastic Package

Type	Package	+/- $\varphi$	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
<a href="#">CQY36N</a>	1.8 mm	40°	1.5(>0.7) @ 50 mA	1.2(<1.6) @ 50 mA
<a href="#">CQY37N</a>	1.8 mm	12°	4.5(>2.2) @ 50 mA	1.2(<1.6) @ 50 mA
<a href="#">TSUS4300</a>	3 mm	20°	18(>7) @ 100 mA	1.3(<1.7) @ 100 mA
<a href="#">TSUS4400</a>	3 mm	16°	15(>7) @ 100 mA	1.3(<1.7) @ 100 mA
<a href="#">CQX48A</a>	side view, flat	25°	1-3 @ 50 mA	1.2(<1.7) @ 50 mA
<a href="#">CQX48B</a>	side view, flat	25°	4(>2.0) @ 50 mA	1.2(<1.7) @ 50 mA
<a href="#">TSSS2600</a>	side view, cyl.	25°	1.5(>0.6) @ 50 mA	1.2(<1.6) @ 50 mA
<a href="#">TSUS5200</a>	5 mm	15°	20(>10) @ 100 mA	1.3(<1.7) @ 100 mA
<a href="#">TSUS5201</a>			25(>15) @ 100 mA	
<a href="#">TSUS5202</a>			30(>20) @ 100 mA	
<a href="#">TSUS5400</a>	5 mm	22°	14(>7) @ 100 mA	1.3(<1.7) @ 100 mA
<a href="#">TSUS5401</a>			17(>10) @ 100 mA	
<a href="#">TSUS5402</a>			20(>15) @ 100 mA	

### IR Emitter GaAlAs (875 nm) in Plastic Package

Type	Package	+/- $\varphi$	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
<a href="#">TSHA4400</a>	3 mm	20°	20(>12) @ 100 mA	1.5(<1.8) @ 100 mA
<a href="#">TSHA4401</a>			30(>16) @ 100 mA	
<a href="#">TSCA6000</a>	5 mm	4°	120(>70) @ 100 mA	1.5(<1.8) @ 100 mA
<a href="#">TSHA5200</a>	5 mm	12°	40(>25) @ 100 mA	1.5(<1.8) @ 100 mA
<a href="#">TSHA5201</a>			50(>30) @ 100 mA	
<a href="#">TSHA5202</a>			60(>36) @ 100 mA	
<a href="#">TSHA5203</a>			65(>50) @ 100 mA	



## Infrared Emitting Diodes

Type	Package	+/- $\varphi$	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
TSHA5500	5 mm	24°	20(>12) @ 100 mA	1.5(<1.8) @ 100 mA
TSHA5501			25(>16) @ 100 mA	
TSHA5502			30(>20) @ 100 mA	
TSHA5503			35(>24) @ 100 mA	
TSHA6200	5 mm	12°	40(>25) @ 100 mA	1.5(<1.8) @ 100 mA
TSHA6201			50(>30) @ 100 mA	
TSHA6202			60(>36) @ 100 mA	
TSHA6203			65(>50) @ 100 mA	
TSHA6500	5 mm	24°	20(>12) @ 100 mA	1.5(<1.8) @ 100 mA
TSHA6501			25(>16) @ 100 mA	
TSHA6502			30(>20) @ 100 mA	
TSHA6503			35(>24) @ 100 mA	
TSSA4500	side view	20°	23 @ 100 mA	1.5(<1.8) @ 100 mA

### IR Emitter Double Hetero GaAlAs (870 nm) in Plastic Package

Type	Package	+/- $\varphi$	$t_r, t_f$ (ns)	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
TSHF5400	5 mm	24°	30	40(>22) @ 100 mA	1.35(<1.6) @ 100 mA
TSSF4500	side view	22°	30	20(>10) @ 100 mA	1.35(<1.6) @ 100 mA



## Infrared Emitting Diodes

### IR Emitter GaAlAs/GaAs (950 nm) in Plastic Package

Type	Package	+/- $\varphi$	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
TSIP4400	3 mm	20°	25(>12) @ 100 mA	1.3(<1.8) @ 100 mA
TSIP4401			30(>16) @ 100 mA	
TSSP4400	side view	20°	23(>10) @ 100 mA	1.3(<1.8) @ 100 mA
TSIP5200	5 mm	17°	40(>20) @ 100 mA	1.3(<1.8) @ 100 mA
TSIP5201			50(>30) @ 100 mA	
TSIP7600	5 mm	30°	15(>8) @ 100 mA	1.3(<1.8) @ 100 mA
TSIP7601			20(>12) @ 100 mA	

### IR Emitter GaAs (950 nm) in SMD Package

Type	Package	+/- $\varphi$	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
TSMS3700	PL-CC-2	60°	4.5 @ 100 mA	1.3(<1.7) @ 100 mA
TSML3700	PL-CC-2	60°	7 @ 100 mA	1.3(<1.7) @ 100 mA





## Infrared Emitting Diodes

### IR Emitter GaAs (950 nm) in Hermetically Sealed Package

Type	Package	+/- $\varphi$	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
<a href="#">TSTS7100</a>	TO18	5°	25(>10) @ 100 mA	1.4(<1.7) @ 100 mA
<a href="#">TSTS7101</a>			12 - 25 @ 100 mA	
<a href="#">TSTS7102</a>			20 - 40 @ 100 mA	
<a href="#">TSTS7103</a>			32 - 64 @ 100 mA	
<a href="#">TSTS7300</a>	TO18	12°	15(>4.0) @ 100 mA	1.4(<1.7) @ 100 mA
<a href="#">TSTS7301</a>			6.3 - 12.5 @ 100 mA	
<a href="#">TSTS7302</a>			10 - 20 @ 100 mA	
<a href="#">TSTS7303</a>			16 - 32 @ 100 mA	
<a href="#">TSTS7500</a>	TO18	40°	3(>1.2) @ 100 mA	1.4(<1.7) @ 100 mA
<a href="#">TSTS7501</a>			1.6 - 3.2 @ 100 mA	
<a href="#">TSTS7502</a>			2.5 - 5.0 @ 100 mA	
<a href="#">TSTS7503</a>			4.0 - 8.0 @ 100 mA	



## Infrared Emitting Diodes

### IR Emitter GaAlAs (875 nm) in Hermetically Sealed Package

Type	Package	+/- $\varphi$	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
<a href="#">TSTA7100</a>	TO18	5°	30(>20) @ 100 mA	1.4(<1.8) @ 100 mA
<a href="#">TSTA7300</a>		12°	15(>10) @ 100 mA	
<a href="#">TSTA7500</a>		40°	6(>3.2) @ 100 mA	

### IR Emitter GaAs (950 nm) with Metal Socket and Plastic Lens

Type	Package	+/- $\varphi$	$I_e$ (mW/sr) @ $I_F$	$V_F$ (V) @ $I_F$
<a href="#">CQX19</a>	TO5	20°	40 @ 250 mA	1.2 @ 250 mA



## Optoisolators

### 6 Pin Optoisolators - with Transistor Output

Type	Package	$V_{IO}$	CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_C$ ( $R_L=100\Omega$ )	
		$V_{RMS}$			V	mA	mA	$\mu s$	mA
4N25	6-pin DIP	3750	100 (> 20)	> 32	< 0.5	50	2	4	10
4N26		3750	100 (> 20)	> 32	< 0.5	50	2	4	10
4N27		3750	100 (>10)	> 32	< 0.5	50	2	4	10
4N28		3750	100 (>10)	> 32	< 0.5	50	2	4	10
4N35		3750	150 (>100)	> 32	< 0.3	10	0.5	< 10	2
4N36		3750	150 (>100)	> 32	< 0.3	10	0.5	< 10	2
4N37		3750	150 (>100)	> 32	< 0.3	10	0.5	< 10	2
4N38A		3750	100 (> 20)	> 80	< 1	20	4	< 5.5	2

### 6 Pin Optoisolators - with Darlington Output

Type	Package	$V_{IO}$	CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_C$ ( $R_L=100\Omega$ )	
		$V_{RMS}$			V	mA	mA	$\mu s$	mA
4N32	6-pin DIP	3750	> 500	> 55	< 1	8	2	50	50
4N33		3750	> 500	> 55	< 1	8	2	50	50



## Optoisolators

### Multichannel Optoisolators - with Transistor Output

Type	Package	$V_{IO}$		$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_C$ ( $R_L=100\Omega$ )	
		$V_{RMS}$	CTR ( $I_F=10mA$ ) %		V	mA	mA	$\mu s$	mA
MCT6	8-pin DIP	2800	>60	> 70	< 0.3	10	1	6	2
CNY74-2		2800	50 - 600 <sup>1)</sup>						
MCT62		2800	>100 <sup>1)</sup>						
K827P		2800	50 - 600 <sup>1)</sup>						
TCDT2204		2800	63 - 200						
CNY74-4	16-pin DIP	2800	50 - 600 <sup>1)</sup>	> 70	< 0.3	10	1	6	2
K847P		2800	50 - 600 <sup>1)</sup>	> 70	< 0.3	10	1	6	2

<sup>1)</sup>  $I_F = 5 mA$

### Surface Mount Optoisolators - with Transistor Output

Type	Package	$V_{IO}$		$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_C$ ( $R_L=100\Omega$ )	
		$V_{RMS}$	CTR ( $I_F=10mA$ ) %		V	mA	mA	$\mu s$	mA
MOC205	SO-8	2500	40 - 80	> 70	< 0.3	10	1	6	5
MOC206			63 - 125						
MOC207			100 - 200						
TCMT1020	SO-8	2500	> 40	> 70	< 0.3	10	1	6	5
TCMT1021			40 - 80						
TCMT1022			63 - 125						
TCMT1023			100 - 200						
TCMT1024			160 - 320						



## Optoisolators

### Surface Mount Optoisolators - with Transistor Output

Type	Package	$V_{IO}$	CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_C$ ( $R_L=100\Omega$ )	
		$V_{RMS}$			V	mA	mA	$\mu s$	mA
MOC211	SO-8	2500	> 20	> 70	< 0.3	10	1	6	5
MOC212			> 50						
MOC213			> 100						
MOC215			> 20 <sup>1)</sup>						
MOC216			> 50 <sup>1)</sup>						
MOC217			> 100 <sup>1)</sup>						
TCMT1030	SO-8	2500	> 10 <sup>1)</sup>	> 70	< 0.3	10	1	6	5
TCMT1031			> 20 <sup>1)</sup>						
TCMT1032			> 50 <sup>1)</sup>						
TCMT1033			> 100 <sup>1)</sup>						
TCMT1034			> 200 <sup>1)</sup>						

<sup>1)</sup>  $I_F = 1 mA$



## Optoisolators

### Metal Can Optoisolators

Type	Package	$V_{IO}$	CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_C$ ( $R_L=100\Omega$ )	
		$V_{RMS}$			V	mA	mA	$\mu s$	mA
CNY18III	TO72	500	25 - 50	> 32	< 0.2	10	1	5	5
CNY18IV		500	40 - 80	> 32	< 0.2	10	1	5	5
CNY18V		500	60 - 120	> 32	< 0.2	10	1	5	5
K120P		800	50 (> 25)	> 35	< 0.3	20	2.5	5	3
3C91C		1000	100 (> 40)	> 50	< 0.3	20	2.5	10	2
3C92C		800	100 (> 40)	> 50	< 0.3	20	2.5	6	2

### Optoisolators for Telecommunications - with Transistor Output

Type	Package	$V_{IO}$	CTR @ $I_F$		$V_{(BRCEO)}$ @ $I_C$		$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_C$ and $R_L$			
		$V_{RMS}$	%	mA	V	mA	V	mA	mA	$\mu s$	$\mu s$	mA	k $\Omega$
K258P(SL5500)	6-pin DIP	1500	50 - 300	10	> 30	10	< 0.4	50	10	< 20	< 50	16	1
K259P(SL5501)		1500	25 - 400	10	> 30	10	< 0.4	20	2	< 20	< 50	16	1
K104P(SL5504)		1500	25 - 400	10	> 80	10	< 0.4	20	2	50	150	16	1
K109P(SL5511)		1500	> 20	0.5	> 30	10	< 0.4	20	2	< 20	< 50	16	1
K102P1		> 20	4400	10	> 32	1	< 0.3	10	1	11	7	5	0.1
K102P2		40 - 80											
K102P3		62 - 125											
K241P(PO41)		1500	> 25	20	> 32	1	< 0.5	10	1	< 7	< 7	2	0.1
K243P(PO43)		1500	> 30	5	> 32	1	< 0.5	10	1	< 7	< 7	2	0.1
K244P(PO44)		1500	> 30	3	> 32	1	< 0.6	10	1	< 10	< 10	2	0.1



## Optoisolators

### Optoisolators - with Schmitt Trigger Output

Type	Package	$V_{IO}$ $V_{RMS}$	$V_{CC}$ V	$I_{FT}$ mA	$t_{on}$ $\mu s$	$t_{off}$ $\mu s$	$t_r$ ns	$t_f$ ns
<a href="#">TCDS1001</a>	6-pin DIP	2500	3 - 16	< 1.6	1	2	90	30

### Optoisolators - with FET Transistor Output (Solid State Relay)

Type	Package	$V_{IO}$ $V_{RMS}$	$V_{OFF}$ V	$I_{FT}$ mA	$I_{on}$ mA	$R_{on}$ $\Omega$	$t_{on}$ ms	$t_{off}$ ms
<a href="#">TCDF1900</a>	6-pin DIP	2500	> 400	< 5	< 150	< 24	0.1	0.2
<a href="#">TCDF1910</a>	6-pin DIP		> 250		< 220	< 12		

### Optoisolators - for Intrinsic Safety Requirements, with Transistor Output

Type	Package	$V_{IO}$	CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_F$ ( $R_L=100\Omega$ )	
		$V_{DC}$			V	mA	mA	$\mu s$	mA
<a href="#">CNY21Exi</a> <a href="#">Ex-90.C.21060</a>	4-pin DIP	10000	80 (> 50)	> 32	< 0.3	10	1	5	5
<a href="#">CNY65Exi</a> <a href="#">Ex-81/21580</a>		11600	63 - 125	> 32	< 0.3	10	1	5	5



## Optoisolators

### VDE 0884 Approved Optoisolators

#### Standard Optoisolators - with Transistor Output

Type	Package	$V_{IO}$		CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_F$ ( $R_L=100\Omega$ )	
		$V_{IOTM}$				V	mA	mA	$\mu s$	mA
<a href="#">4N25(G)V<sup>1)</sup></a>	6-pin DIP	6000		100 (> 20)	> 32	< 0.5	50	2	4	10
<a href="#">4N35(G)V<sup>1)</sup></a>	6-pin DIP	6000		150 (> 100)	> 70	< 0.3	10	0.5	10	2

<sup>1)</sup> Water proofed construction: Suitable for cleaning process with pure water. For your orders attach "S" to the order-No.

#### No Base Connection

Type	Package	$V_{IO}$		CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_F$ ( $R_L=100\Omega$ )	
		$V_{IOTM}$				V	mA	mA	$\mu s$	mA
<a href="#">TCDT1110(G)</a>	6-pin DIP	6000		150 (> 100)	> 70	< 0.3	10	0.5	10	2

Order "G" Devices e.g. TCDT1110(G) with wide spaced 04. lead form, for 8 mm pc board spacing safety requirements !





## Optoisolators

### - With CTR Ranking

Type	Package	V <sub>IO</sub>	CTR (I <sub>F</sub> =10mA) %	V <sub>(BRCEO)</sub> (I <sub>C</sub> =1mA) V	V <sub>CEsat</sub> @ I <sub>F</sub> and I <sub>C</sub>			t <sub>on</sub> / t <sub>off</sub> @ I <sub>F</sub> (R <sub>L</sub> =100Ω)	
		V <sub>IOTM</sub>			V	mA	mA	μs	mA
CQY80N(G) <sup>1)</sup>	6-pin DIP	6000	90 (> 50)	> 32	< 0.3	10	1	9	5
CNY17(G)-1 <sup>1)</sup>		6000	40 - 80	> 32	< 0.3	10	1	9	5
CNY17(G)-2 <sup>1)</sup>		6000	63 - 125	> 32	< 0.3	10	1	9	5
CNY17(G)-3 <sup>1)</sup>		6000	100 - 200	> 32	< 0.3	10	1	9	5

<sup>1)</sup> Water proofed construction: Suitable for cleaning process with pure water. For your orders attach "S" to the order-No.

### No Base Connection

Type	Package	V <sub>IO</sub>	CTR (I <sub>F</sub> =10mA) %	V <sub>(BRCEO)</sub> (I <sub>C</sub> =1mA) V	V <sub>CEsat</sub> @ I <sub>F</sub> and I <sub>C</sub>			t <sub>on</sub> / t <sub>off</sub> @ I <sub>F</sub> (R <sub>L</sub> =100Ω)	
		V <sub>IOTM</sub>			V	mA	mA	μs	mA
TCDT1100(G)	6-pin DIP	6000	90 (> 50)	> 32	< 0.3	10	1	9	5
TCDT1101(G)		6000	40 - 80	> 32	< 0.3	10	1	9	5
TCDT1102(G)		6000	63 - 125	> 32	< 0.3	10	1	9	5
TCDT1103(G)		6000	100 - 200	> 32	< 0.3	10	1	9	5



## Optoisolators

### - With CTR Ranking and High Output Voltage

Type	Package	$V_{IO}$		CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_F$ ( $R_L=100\Omega$ )	
		$V_{IOTM}$				V	mA	mA	$\mu s$	mA
<a href="#">CNY75(G)A<sup>1)</sup></a>	6-pin DIP	6000		63 - 125	> 90	< 0.3	10	1	4	10
<a href="#">CNY75(G)A<sup>1)</sup></a>		6000		100 - 200	> 90	< 0.3	10	1	6	10
<a href="#">CNY75(G)A<sup>1)</sup></a>		6000		160 - 320	> 90	< 0.3	10	1	7	10

<sup>1)</sup> Water proofed construction: Suitable for cleaning process with pure water. For your orders attach "S" to the order-No.

### No Base Connection

Type	Package	$V_{IO}$		CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_F$ ( $R_L=100\Omega$ )	
		$V_{IOTM}$				V	mA	mA	$\mu s$	mA
<a href="#">TCDT1120(G)</a>	6-pin DIP	6000		63	> 90	< 0.3	10	1	4	10
<a href="#">TCDT1122(G)</a>		6000		63 - 125	> 90	< 0.3	10	1	5	10
<a href="#">TCDT1123(G)</a>		6000		100 - 200	> 90	< 0.3	10	1	6	10
<a href="#">TCDT1124(G)</a>		6000		160 - 320	> 90	< 0.3	10	1	7	10

Order "G" Devices e.g. TCDT1110(G) with wide spaced 04. lead form, for 8 mm pc board spacing safety requirements !



## Optoisolators

### Optoisolators - for High Isolation Voltages

Type	Package	$V_{IO}$	CTR ( $I_F=10mA$ ) %	$V_{(BRCEO)}$ ( $I_C=1mA$ ) V	$V_{CEsat}$ @ $I_F$ and $I_C$			$t_{on} / t_{off}$ @ $I_F$ ( $R_L=100\Omega$ )	
		$V_{IOTM}$			V	mA	mA	$\mu s$	mA
<a href="#">CNY21N</a>		8000	60 (> 25)	>32	< 0.3	10	1	4	10
<a href="#">CNY64</a>		8000	50 - 300	> 32	< 0.3	10	1	5	10
<a href="#">CNY64A</a>	63 - 125		6						
<a href="#">CNY64B</a>	100 - 200		7						
<a href="#">CNY65</a>	50 - 300		4						
<a href="#">CNY65A</a>		8000	63 - 125	> 32	< 0.3	10	1	5	10
<a href="#">CNY65B</a>	100 - 200		6						
<a href="#">CNY66</a>	50 - 300		7						

### Optoisolators - with Triac Driver Output

Type	Package	$V_{IO}$ $V_{IOTM}$	$V_{DRM}$ V	$I_{TRMS}$ mA	$I_{FT}$ mA	$V_{TM}$ V	$dv/dt$ V / $\mu s$
<a href="#">K3010P(G)</a>	6-pin DIP	6000	250	100	< 15	< 3	10
<a href="#">K3011P(G)</a>					< 10		
<a href="#">K3012P(G)</a>					< 5		
<a href="#">K3020P(G)</a>			400	100	< 30	< 3	10
<a href="#">K3021P(G)</a>					< 15		
<a href="#">K3022P(G)</a>					< 10		
<a href="#">K3023P(G)</a>					< 5		
<a href="#">K3051P(G)</a>			600	100	< 15	< 3	50
<a href="#">K3052P(G)</a>					< 10		



## Optical Sensors

### Reflective Optical Sensors

Type	I <sub>C</sub> mA	CTR @ I <sub>F</sub>		V <sub>(BR)CEO</sub> @ 1mA V	V <sub>CEsat</sub> @ I <sub>F</sub> and I <sub>C</sub>		
		%	mA		V	mA	mA
<a href="#">CNY70</a>	> 0.3	> 1.5	20	> 32	< 0.3	20	0.1
<a href="#">TCRT1000</a>							
<a href="#">TCRT1010</a>							
<a href="#">TCRT5000</a>	> 0.35	> 3.5	10	> 32	< 0.4	10	0.1
<a href="#">TCRT9000</a>	0.1 - 0.7	>1	10	> 70	-	-	-
<a href="#">TCRT9050</a>							

- with Aperture - with Transistor Output

Type	I <sub>C</sub> mA	CTR @ I <sub>F</sub>		V <sub>(BR)CEO</sub> @ 1mA V	Gap mm	Resolution mm	Aperture mm
		%	mA				
<a href="#">TCST1103</a>	4 (> 2)	20 (> 10)	20	70	3.2	0.6	1
<a href="#">TCST2103</a>	4 (> 2)	20 (> 10)	20	70	3.2	0.6	1
<a href="#">TCST1202</a>	2 (> 1)	10 (> 5)	20	70	3.2	0.6	0.5
<a href="#">TCST2202</a>	2 (> 1)	10 (> 5)	20	70	3.2	0.6	0.5
<a href="#">TCST1300</a>	0.5 (> 0.25)	2.5 (> 1.25)	20	70	3.2	0.6	0.25
<a href="#">TCST2300</a>	0.5 (> 0.25)	2.5 (> 1.25)	20	70	3.2	0.6	0.25



## Optical Sensors

### - without Aperture - with Transistor Output

Type	I <sub>C</sub> mA	CTR @ I <sub>F</sub>		V <sub>(BR)CEO</sub> @ 1mA V	Gap mm	Resolution mm	Aperture mm
		%	mA				
<a href="#">TCST1000</a>	0.5 (> 0.25)	2.5 (> 1.25)	20	70	3.1	0.8	-
<a href="#">TCST2000</a>	0.5 (> 0.25)	2.5 (> 1.25)	20	70	3.1	0.8	-

### Miniature Transmissive Optical Sensors - with Transistor Output

Type	I <sub>C</sub> mA	CTR @ I <sub>F</sub>		V <sub>(BR)CEO</sub> @ 1mA V	Gap mm	Resolution mm	Aperture mm
		%	mA				
<a href="#">TCST1230</a>	1 (> 0.5)	5 (> 2.5)	20	70	3	0.8	-
<a href="#">TCST1030</a>	2.5 (> 1.2)	25 (> 12)	10	70	3	0.8	-
<a href="#">TCST5123</a>	5 (> 2.4)	25 (> 12)	20	70	2.8	0.8	-

### Miniature Optical Encoder- with Transistor Output (Dual Channel)

Type	I <sub>C</sub> mA	CTR @ I <sub>F</sub>		V <sub>(BR)CEO</sub> @ 1mA V	Gap mm	Resolution mm	Aperture mm
		%	mA				
<a href="#">TCVT1300</a>	0.6 (> 0.4)	2 (> 1.3)	30	70	1.5	0.2	0.2



## Optical Sensors

### Matched Pairs (Emitter and Detector)

Type	$I_C$	CTR @ $I_F$		$V_{(BR)CEO}$ @ 1mA V	Gap mm	Resolution mm	Aperture mm
	mA	%	mA				
<a href="#">TCZT8012</a>	2 (> 1)	10 (> 5)	20	70	< 0.4	20	0.1
<a href="#">TCZT8020</a>	0.5 (> 0.25)	2.5 (> 1.25)	20	70	< 0.4	20	0.025

### Transmissive Optical Sensors - with Schmitt Trigger Logic<sup>1)</sup>

Type	$I_{FT}$ mA	$t_{on} / t_{off}$ $\mu s$	$t_r / t_f$ $\mu s$	$V_{CC}$ V	Gap mm	Resolution mm	Aperture mm
<a href="#">TCSS1100</a>	< 10	2	0.03	5	3.2	0.6	1
<a href="#">TCSS2100</a>	< 10	2	0.03	5	3.2	0.6	1

### Matched Pairs (Emitter and Detector)- with Schmitt Trigger Logic<sup>1)</sup>

Type	$I_{FT}$ mA	$t_{on} / t_{off}$ $\mu s$	$t_r / t_f$ $\mu s$	$V_{CC}$ V	Gap mm	Resolution mm	Aperture mm
<a href="#">TCZS8000</a>	< 20	2	0.03	5	-	-	-
<a href="#">TCZS8100</a>	< 10	2	0.03	4.5 - 16	-	-	-

<sup>1)</sup> Inverted, open collector output



## Optical Sensors

### Optical Sensors with Wires and Connectors

#### Transmissive Optical Sensors - with Schmitt Trigger Logic Output

Type	I <sub>FT</sub> mA	V <sub>OL</sub> V	I <sub>S</sub> mA	V <sub>CC</sub> V	Gap mm	Resolution mm	Aperture mm
<a href="#">TCYS5201</a>	-	0.35	30	5	5	0.4	0.5
<a href="#">TCYS6201</a>	-	0.35	30	5	5	0.4	0.5
K502PA	10 (< 20)	0.4	12	5	3.2	0.4	0.5

#### - with Transistor Output

Type	I <sub>C</sub> mA	CTR @ I <sub>F</sub>		V <sub>(BR)CEO</sub> @ 1mA V	Gap mm	Resolution mm	Aperture mm
		%	mA				
K507PA	1 (> 0.5)	3.8	26	70	6	0.4	0.5
K512PA	5 (> 2)	14	35	70	5	0.8	1

#### Reflective Optical Sensors - with Darlington Output

Type	Distance <sup>1)</sup> mm	V <sub>CEO</sub> @ I <sub>C</sub>		I <sub>C</sub> mA	CTR @ I <sub>F</sub>	
		V	mA		%	mA
K517PA	1 - 30	15	0.1	1 (> 0.5)	5	20

<sup>1)</sup> Sensor to Object



## LEDs

### Standard LEDs

High Efficiency LEDs T1 (3 mm), Untinted, Non-Diffused Lens,  $\phi = \pm 16^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
<a href="#">TLHR4900</a>	Hi. eff. Red (635 nm)	13.0 (> 6.3)		2.0 (< 3.0)	20
<a href="#">TLHY4900</a>	Yellow (585 nm)	26.0 (> 10.0)	10	2.4 (< 3.0)	20
<a href="#">TLHG4900</a>	Green (565 nm)	37.0 (> 16)		2.4 (< 3.0)	20
<a href="#">TLHO4900</a>	Orange (605 nm)	26 (> 10)	10	2.4 (< 3.0)	20

High Efficiency LEDs T1 (3 mm), Tinted, Non-Diffused Lens,  $\phi = \pm 22^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
<a href="#">TLHR4200</a>	Hi. eff. Red (635 nm)	8.0 (> 4.0)	10	2.0 (< 3.0)	20
<a href="#">TLHR4201</a>		10.0 (> 6.3)		2.0 (< 3.0)	
<a href="#">TLHR4205</a>		15.0 (> 10.0)		2.0 (< 3.0)	
<a href="#">TLHO4200</a>	Orange (605 nm)	10.0 (> 4.0)	10	2.4 (< 3.0)	20
<a href="#">TLHY4200</a>	Yellow (585 nm)	10.0 (> 4.0)	10	2.4 (< 3.0)	20
<a href="#">TLHY4201</a>		15.0 (> 6.3)		2.4 (< 3.0)	
<a href="#">TLHY4205</a>		20.0 (> 10.0)		2.4 (< 3.0)	
<a href="#">TLHG4200</a>	Green (565 nm)	10.0 (> 6.3)	10	2.4 (< 3.0)	20
<a href="#">TLHG4201</a>		15.0 (> 10.0)		2.4 (< 3.0)	
<a href="#">TLHG4205</a>		20.0 (> 16.0)		2.4 (< 3.0)	
<a href="#">TLHP4200</a>	Pure Green (555 nm)	7 (> 2.5)	10	2.4 (< 3.0)	20
<a href="#">TLHB4200</a>	Blue (470 nm)	3.5 (> 1.6)	20	3.1 (< 3.5)	20





## LEDs

### High Efficiency LEDs T1 (3 mm), Tinted, Diffused Lens, $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLHR4400	Hi. eff. Red (635 nm)	3.0 (> 1.6)	10	2.0 (< 3.0)	20
TLHR4401		5.0 (> 2.5)		2.0 (< 3.0)	
TLHR4405		10.0 (> 6.3)		2.0 (< 3.0)	
TLHO4400	Orange (605 nm)	4.0 (> 1.6)	10	2.4 (< 3.0)	20
TLHY4400	Yellow (585 nm)	3.0 (> 1.6)	10	2.4 (< 3.0)	20
TLHY4401		5.0 (> 2.5)		2.4 (< 3.0)	
TLHY4405		10.0 (> 6.3)		2.4 (< 3.0)	
TLHG4400	Green (565 nm)	4.0 (> 2.5)	10	2.4 (< 3.0)	20
TLHG4401		6.0 (> 4.0)		2.4 (< 3.0)	
TLHG4405		12.0 (> 6.3)		2.4 (< 3.0)	
TLHP4400	Pure Green (555 nm)	2.0 (> 0.63)	10	2.4 (< 3.0)	20
TLHB4400	Blue (470 nm)	1.5 (> 0.63)	20	3.1 (< 3.5)	20

### High Intensity DH LED T 1 (3 mm), Tinted, Diffused Lens, $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ V_S / \text{V}$		$I_F / \text{mA} @ V_S / \text{V}$	
TLDR4400	Hi. int. Red (650 nm)	45 (> 25)	20	1.8 (< 2.2)	20



## LEDs

### High Efficiency LEDs T1 (3 mm), Tinted, Diffused Lens, $\phi = \pm 60^\circ$

Type	Color (wavelength)	$I_V$ / mcd @ $I_F$ / mA		$V_F$ / V @ $I_F$ / mA	
TLHR4600	Hi. eff. Red (635 nm)	2.0 (> 1.0)	10	2.0 (< 3.0)	20
TLHR4601		3.5 (> 1.6)		2.0 (< 3.0)	
TLHR4605		6.0 (> 2.5)		2.0 (< 3.0)	
TLHY4600	Yellow (585 nm)	2.0 (> 0.63)	10	2.4 (< 3.0)	20
TLHY4601		3.5 (> 1.0)		2.4 (< 3.0)	
TLHY4605		5.0 (> 2.5)		2.4 (< 3.0)	
TLHG4600	Green (565 nm)	2.0 (> 1.0)	10	2.4 (< 3.0)	20
TLHG4601		3.5 (> 1.6)		2.4 (< 3.0)	
TLHG4605		6.0 (> 4.0)		2.4 (< 3.0)	

### High Efficiency LEDs T1 $\frac{3}{4}$ (5 mm), Tinted, Non-Diffused Lens, $\phi = \pm 14^\circ$

Type	Color (wavelength)	$I_V$ / mcd @ $I_F$ / mA		$V_F$ / V @ $I_F$ / mA	
TLHR5200	Hi. eff. Red (635 nm)	20 (> 10)	10	2.0 (< 3.0)	20
TLHR5201		30 (> 16)		2.0 (< 3.0)	
TLHR5205		40 (> 25)		2.0 (< 3.0)	
TLHY5200	Yellow (585 nm)	30 (> 10)	10	2.4 (< 3.0)	20
TLHY5201		40 (> 16)		2.4 (< 3.0)	
TLHY5205		50 (> 25)		2.4 (< 3.0)	
TLHG5200	Green (565 nm)	30 (> 16)	10	2.4 (< 3.0)	20
TLHG5201		40 (> 25)		2.4 (< 3.0)	
TLHG5205		50 (> 40)		2.4 (< 3.0)	



## LEDs

### High Efficiency LEDs T1 ¾ (5 mm), Tinted, Diffused Lens, $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLHR5400	Hi. eff. Red (635 nm)	3.5 (> 1.6)	10	2.0 (< 3.0)	20
TLHR5401		7.0 (> 4.0)		2.0 (< 3.0)	
TLHR5405		10.0 (> 6.3)		2.0 (< 3.0)	
TLHY5400	Yellow (585 nm)	3.5 (> 1.6)	10	2.4 (< 3.0)	20
TLHY5401		7.0 (> 4.0)		2.4 (< 3.0)	
TLHY5405		10.0 (> 6.3)		2.4 (< 3.0)	
TLHG5400	Green (565 nm)	4.0 (> 1.6)	10	2.4 (< 3.0)	20
TLHG5401		7.0 (> 4.0)		2.4 (< 3.0)	
TLHG5405		15.0 (> 6.3)		2.4 (< 3.0)	
TLHB5400	Blue (470 nm)	1.5 (> 0.63)	20	3.1 (< 3.5)	20

### High Intensity DH LED T1 ¾ (5 mm), Tinted, Diffused Lens, $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ V_S / \text{V}$		$I_F / \text{mA} @ V_S / \text{V}$	
TLDR5400	Hi. int. Red (650 nm)	70 (> 35)	20	1.8 (< 2.2)	20

### Universal Red LEDs T 1 (3 mm), Tinted, Diffused Lens, $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLUR4400	Red (660 nm)	0.8 (> 0.4)	10	1.6 (< 2.0)	20
TLUR4401		2.5 (> 1.0)	10	1.6 (< 2.0)	20



LEDs

**Universal Red LEDs T 1 ¾ (5 mm), Tinted, Diffused Lens,  $\phi = +/- 30^\circ$**

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLUR5400	Red (660 nm)	0.8 (> 0.4)	10	1.6 (< 2.0)	20
TLUR5401	Red (660 nm)	2.5 (> 1.0)	10	1.6 (< 2.0)	20

**Bi color LED T 1 ¾ (5 mm), Untinted, Diffused Lens,  $\phi = +/- 30^\circ$**

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLUV5300	Green (565 nm)	2.5 (> 1.0)	10	2.4 (< 3.0)	20
	Hi. eff. Red (635 nm)	2.5 (> 1.0)	10	2.0 (< 3.0)	20

**SMD LEDs (PLCC-2),  $\phi = +/- 60^\circ$**

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLMH3100	Hi. eff. Red (635 nm)	6.0 (> 2.5)	10	2.0 (< 3.0)	20
TLMO3100	Orange (605 nm)	8.0 (> 2.5)	10	2.4 (< 3.0)	20
TLMY3100	Yellow (585 nm)	5.0 (> 2.5)	10	2.4 (< 3.0)	20
TLMG3100	Green (565 nm)	6.0 (> 2.5)	10	2.4 (< 3.0)	20
TLMP3100	Pure Green (555 nm)	5.0 (> 1.6)	10	2.4 (< 3.0)	20
TLMB3100	Blue (470 nm)	0.5 (> 0.16)	20	3.1 (< 3.5)	20

**High Brightness SMD LED (PLCC-2),  $\phi = +/- 60^\circ$**

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLMD3100	Hi. int. Red (650 nm)	15.0 (> 6.3)	10	1.8 (< 2.2)	20
TLME3100	Hi. int. Yellow (585 nm)	20 (> 10)	10	1.8 (< 2.2)	20
TLMF3100	Soft Orange (				



LEDs

**Low Current SMD LED (PLCC-2),  $\phi = \pm 60^\circ$**

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLMT3100	Hi. eff. Red (635 nm)	2.5 (> 0.25)	10	2.4 (< 2.9)	2
TLMA3100	Yellow (585 nm)	2.5 (> 0.25)	10	2.4 (< 2.9)	2
TLMC3100	Green (565 nm)	1.6 (> 0.25)	10	2.4 (< 2.9)	2

**Bi Color SMD LED (PLCC-2),  $\phi = \pm 60^\circ$**

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLMV3100	Green (565 nm)	6.0 (> 2.5)	10	2.4 (< 3.0)	20
	Hi. eff. Red (635 nm)	6.0 (> 2.5)		2.0 (< 3.0)	

**SMD LEDs (SOT 23),  $\phi = \pm 70^\circ$**

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TLMR2200	Hi. eff. Red (635 nm)	1.6 (> 1.0)	10	2.0 (< 3.0)	20
TLMY2200	Yellow (585 nm)	0.63 (> 0.4)		2.4 (< 3.0)	
TLMG2200	Green (565 nm)	0.63 (> 0.4)		2.4 (< 3.0)	



## LEDs

### Mini Plast LEDs T $\frac{3}{4}$ (1.8 mm), $\phi = +/- 20^\circ$

Type	Color (wavelength)	$I_V$ / mcd @ $I_F$ / mA		$V_F$ / V @ $I_F$ / mA	
TLUR2400	Red (660 nm)	0.8 (> 0.4)	10	1.6 (< 2.0)	20
TLUR2401		1.5 (> 1.0)			
TLUO2400	Orange (605 nm)	2 (> 1.6)	10	2.4 (< 3.0)	20
TLUO2401		5 (> 4)			
TLUY2400	Yellow (585 nm)	1.0 (> 0.4)	10	2.4 (< 3.0)	20
TLUY2401		2.0 (> 1.0)			
TLUG2400	Green (565 nm)	1.0 (> 0.4)	10	2.4 (< 3.0)	20
TLUG2401		2.0 (> 1.0)			

### Side View LEDs, $\phi = +/- 80^\circ$

Type	Color (wavelength)	$I_V$ / mcd @ $I_F$ / mA		$V_F$ / V @ $I_F$ / mA	
TLPR5600	Red (660 nm)	0.5 (> 0.25)	10	1.6 (< 2.0)	20
TLPH5600	Hi. eff. Red (635 nm)	1.5 (> 0.63)	10	2.0 (< 3.0)	20
TLPY5600	Yellow (585 nm)	1.5 (> 0.63)	10	2.4 (< 3.0)	20
TLPP5600	Pure Green (555 nm)	1.6 (> 0.63)	10	2.4 (< 3.0)	20
TLPG5600	Green (565 nm)	1.5 (> 0.63)	10	2.4 (< 3.0)	20



## LEDs

### Symbol LEDs 2 x 5 mm, Tinted Top-Diffused, $\phi = \pm 50^\circ$

Type	Color (wavelength)	$I_V$ / mcd @ $I_F$ / mA		$V_F$ / V @ $I_F$ / mA	
TLSH2100	Red (660 nm)	2.0 (> 0.63)	10	2.0 (< 3.0)	20
TLSH2101		2.5 (> 1.0)			
TLSY2100	Yellow (585 nm)	1.0 (> 0.63)	10	2.4 (< 3.0)	20
TLSY2101		2.0 (> 1.0)			
TLSG2100	Green (565 nm)	2.0 (> 1.0)	10	2.4 (< 3.0)	20
TLSG2101		2.5 (> 1.6)			

### Symbol LEDs 2.5 x 5 mm, Tinted Top-Diffused, $\phi = \pm 50^\circ$

Type	Color (wavelength)	$I_V$ / mcd @ $I_F$ / mA		$V_F$ / V @ $I_F$ / mA	
TLSH5100	Red (660 nm)	1.5 (> 0.63)	10	2.0 (< 3.0)	20
TLSH5101		2.0 (> 1.0)			
TLSY5100	Yellow (585 nm)	1.0 (> 0.4)	10	2.4 (< 3.0)	20
TLSY5101		3.0 (> 1.0)			
TLSG5100	Green (565 nm)	1.0 (> 0.4)	10	2.4 (< 3.0)	20
TLSG5101		2.0 (> 1.0)			

### Bi Color Symbol LEDs 2.5 x 5 mm, Tinted Top-Diffused, $\phi = \pm 50^\circ$

Type	Color (wavelength)	$I_V$ / mcd @ $I_F$ / mA		$V_F$ / V @ $I_F$ / mA	
TLSV5100	Green (565 nm)	1.0 (> 0.63)	10	2.4 (< 3.0)	20
	Hi. eff. Red (635 nm)	1.0 (> 0.63)	10	2.0 (< 3.0)	20



## LEDs

### Low Current LEDs T1 (3 mm), Tinted, Diffused Lens, $\phi = \pm 25^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
<a href="#">TLLR4400</a>	Hi. eff. Red (635 nm)	1.2 (> 0.63)	2	1.9 (< 2.4)	2
<a href="#">TLLR4401</a>		2.0 (> 1.0)			
<a href="#">TLLY4400</a>	Yellow (585 nm)	1.2 (> 0.63)	2	2.4 (< 2.9)	2
<a href="#">TLLY4401</a>		2.0 (> 1.0)			
<a href="#">TLLG4400</a>	Green (565 nm)	1.2 (> 0.63)	2	1.9 (< 2.4)	2
<a href="#">TLLG4401</a>		2.0 (> 1.0)			

### Low Current LEDs T1 $\frac{3}{4}$ (5 mm), Tinted, Diffused Lens, $\phi = \pm 25^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
<a href="#">TLLR5400</a>	Hi. eff. Red (635 nm)	1.2 (> 0.63)	2	1.9 (< 2.4)	2
<a href="#">TLLR5401</a>		2.0 (> 1.0)			
<a href="#">TLLY5400</a>	Yellow (585 nm)	1.2 (> 0.63)	2	2.4 (< 2.9)	2
<a href="#">TLLY5401</a>		2.0 (> 1.0)			
<a href="#">TLLG5400</a>	Green (565 nm)	1.2 (> 0.63)	2	1.9 (< 2.4)	2
<a href="#">TLLG5401</a>		2.0 (> 1.0)			

### High Intensity LED T1 $\frac{3}{4}$ (5 mm), Untinted, Non-Diffused Lens, $\phi = \pm 4^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
<a href="#">TLHY5800</a>	Yellow (585 nm)	250 (> 100)		2.4 (< 3.0)	20
<a href="#">TLHG5800</a>	Green (565 nm)	700 (> 400)	20	2.4 (< 3.0)	20
<a href="#">TLHP5800</a>	Pure Green (555 nm)	100 (> 25)	10	2.4 (< 3.0)	20
<a href="#">TLHB5800</a>	Blue (470 nm)	15.0 (> 6.3)		3.1 (< 3.5)	20





## LEDs

### Resistor LEDs

Resistor LEDs for  $V_S = 5\text{ V}$ , T 1 (3 mm), Tinted, Diffused Lens,  $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ V_S / \text{V}$		$I_F / \text{mA} @ V_S / \text{V}$	
<a href="#">TLRR4450</a>	Red (660 nm)	4.0 (> 1.6)	5	10	5
<a href="#">TLRH4450</a>	Hi. eff. Red (635 nm)	4.0 (> 1.6)	5	10	5
<a href="#">TLRY4450</a>	Yellow (585 nm)	4.0 (> 1.6)	5	10	5
<a href="#">TLRG4450</a>	Green (565 nm)	4.0 (> 1.6)	5	10	5

Resistor LEDs for  $V_S = 5\text{ V}$ , T 1 ¼ (5 mm), Tinted, Diffused Lens,  $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ V_S / \text{V}$		$I_F / \text{mA} @ V_S / \text{V}$	
<a href="#">TLRR5450</a>	Red (660 nm)	4.0 (> 1.6)	5	10	5
<a href="#">TLRH5450</a>	Hi. eff. Red (635 nm)	4.0 (> 1.6)	5	10	5
<a href="#">TLRY5450</a>	Yellow (585 nm)	4.0 (> 1.6)	5	10	5
<a href="#">TLRG5450</a>	Green (565 nm)	4.0 (> 1.6)	5	10	5

Resistor LEDs for  $V_S = 12\text{ V}$ , T 1 (3 mm), Tinted, Diffused Lens,  $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ V_S / \text{V}$		$I_F / \text{mA} @ V_S / \text{V}$	
<a href="#">TLRR4420</a>	Red (660 nm)	4.0 (> 1.6)	12	10	12
<a href="#">TLRH4420</a>	Hi. eff. Red (635 nm)	4.0 (> 1.6)	12	10	12
<a href="#">TLRY4420</a>	Yellow (585 nm)	4.0 (> 1.6)	12	10	12
<a href="#">TLRG4420</a>	Green (565 nm)	4.0 (> 1.6)	12	10	12
<a href="#">TLRP4400</a>	Pure Green (555 nm)	3.0 (> 0.63)	12	10	12



## LEDs

Resistor LEDs for  $V_S = 5\text{ V}$ , T 1 ¾ (5 mm), Tinted, Diffused Lens,  $\phi = \pm 30^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ V_S / \text{V}$		$I_F / \text{mA} @ V_S / \text{V}$	
<a href="#">TLRR5420</a>	Red (660 nm)	4.0 (> 1.6)	12	10	12
<a href="#">TLRH5420</a>	Hi. eff. Red (635 nm)	4.0 (> 1.6)	12	10	12
<a href="#">TLRY5420</a>	Yellow (585 nm)	4.0 (> 1.6)	12	10	12
<a href="#">TLRG5420</a>	Green (565 nm)	4.0 (> 1.6)	12	10	12

### Backlighting LEDs

Backlighting LEDs T 1 (3 mm), Tinted, Non-Diffused Lens,  $\phi = \pm 85^\circ$

Type	Color (wavelength)	$\Phi_V / \text{mlm} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
<a href="#">TLVD4200</a>	Hi. int. Red (650 nm)	80 (> 40)	15	1.8 (< 2.2)	20
<a href="#">TLVH4200</a>	Hi. eff. Red (635 nm)	25 (> 10)	15	2.0 (< 3.0)	20
<a href="#">TLVS4200</a>	Orange (605 nm)	25 (> 10)	15	2.4 (< 3.0)	20
<a href="#">TLVY4200</a>	Yellow (585 nm)	20 (> 10)	15	2.4 (< 3.0)	20
<a href="#">TLVG4200</a>	Green (565 nm)	30 (> 10)	15	2.4 (< 3.0)	20
<a href="#">TLVP4200</a>	Pure Green (555 nm)	10 (> 4)	15	2.4 (< 3.0)	20

### Blinking LEDs

Blinking LEDs T 1 ¾ (5 mm), Tinted, Diffused Lens,  $\phi = \pm 40^\circ$

Type	Color (wavelength)	$I_V / \text{mcd} @ I_{Son} / \text{mA}$		Mode
<a href="#">TLBR5410</a>	Red (660 nm)	1.6 (> 0.5)	10 (10-30)	Blink: $f = 3\text{Hz}$



## Displays

### 7 Segment LED Displays

Character Size 7 mm (0.27 inch)

Type	Color	Circuitry	$I_V / \mu\text{cd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TDSR1150	Red (660 nm)	Comm. Anode	> 180	10	1.6 (< 2.0)	20
TDSR1160		Comm. Cathode				
TDSO1150	Hi. eff. Red (635 nm)	Comm. Anode	> 450	10	2.0 (< 3.0)	20
TDSO1160		Comm. Cathode				
TDSY1150	Yellow (585 nm)	Comm. Anode	> 450	10	2.4 (< 3.0)	20
TDSY1160		Comm. Cathode				
TDSG1150	Green (565 nm)	Comm. Anode	> 450	10	2.4 (< 3.0)	20
TDSG1160		Comm. Cathode				
TDSL1150	Low Curr. Red (635 nm)	Comm. Anode	> 180	2	1.8	2
TDSL1160		Comm. Cathode				

Character Size 10 mm (0.4 inch)

Type	Color	Circuitry	$I_V / \mu\text{cd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
TDSR3150	Red (660 nm)	Comm. Anode	> 180	10	1.6 (< 2.0)	20
TDSR3160		Comm. Cathode				
TDSO3150	Hi. eff. Red (635 nm)	Comm. Anode	> 450	10	2.0 (< 3.0)	20
TDSO3160		Comm. Cathode				
TDSY3150	Yellow (585 nm)	Comm. Anode	> 450	10	2.4 (< 3.0)	20
TDSY3160		Comm. Cathode				
TDSG3150	Green (565 nm)	Comm. Anode	> 450	10	2.4 (< 3.0)	20
TDSG3160		Comm. Cathode				
TDSL3150	Low Curr. Red (635 nm)	Comm. Anode	> 180	2	1.8	2
TDSL3160		Comm. Cathode				



## Displays

### Character Size 13 mm (0.51 inch)

Type	Color	Circuitry	$I_V / \mu\text{cd} @ I_F / \text{mA}$		$V_F / \text{V} @ I_F / \text{mA}$	
<a href="#">TDSR5150</a>	Red (660 nm)	Comm. Anode	> 280	10	1.6 (< 2.0)	20
<a href="#">TDSR5160</a>		Comm. Cathode				
<a href="#">TDSO5150</a>	Hi. eff. Red (635 nm)	Comm. Anode	> 700	10	2.0 (< 3.0)	20
<a href="#">TDSO5160</a>		Comm. Cathode				
<a href="#">TDSY5150</a>	Yellow (585 nm)	Comm. Anode	> 700	10	2.4 (< 3.0)	20
<a href="#">TDSY5160</a>		Comm. Cathode				
<a href="#">TDSG5150</a>	Green (565 nm)	Comm. Anode	> 700	10	2.4 (< 3.0)	20
<a href="#">TDSG5160</a>		Comm. Cathode				
<a href="#">TDSL5150</a>	Low Curr. Red (635 nm)	Comm. Anode	> 280	2	1.8	2
<a href="#">TDSL5160</a>		Comm. Cathode				



## RF Transistors

### Dual Gate Si-MOSFETs (N-Channel Depletion Mode)

Type	Package	Marking	$V_{DS}$	$I_{Dmax}$	$P_{tot}$ at $T_{amb}$		$Y_{fs}$ at $I_{DS}$		$G_{PS}$ and $F$ at $f$			$C_{glss}$ and $C_{dss}$ at $f$			$I_{DSS}$ at $V_{DS}$	
			V	mA	mW	°C	mS	mA	dB	dB	MHz	pF	pF	MHz	mA	V
BF961	TO-50		20	30	200	60	15	10	20	1.8	200	3.7	1.3	1	4 to 20	15
BF964S	TO-50		20	30	200	60	18.5	10	25	1.5	200	2.5	1.0	1	4 to 18	15
BF966S	TO-50		20	30	200	60	18.5	10	18	2.0	800	2.2	0.8	1	4 to 18	15
BF988	TO-50		12	30	200	60	24	10	20	1.6	800	2.1	1.05	1	4 to 18	8
BF994S <sup>1)</sup>	SOT-143	MG	20	30	200	60	18	10	25	1.5	200	2.5	0.8	1	4 to 18	15
BF995 <sup>1)</sup>	SOT-143	MB	20	30	200	60	15	10	20	1.8	200	3.7	1.2	1	4 to 18	15
BF996S <sup>1)</sup>	SOT-143	MH	20	30	200	60	17	10	18	2.0	800	2.2	0.8	1	4 to 18	15
BF998 <sup>1)</sup>	SOT-143	MO	12	30	200	60	24	10	20	1.6	800	2.1	1.05	1	4 to 18	8
BF543	SOT-23	LD	20	30	200	60	12	4	22	1.0	200	2.2	0.9	1	1.5 to 8	10
S525T	SOT-23	LB	20	30	200	60	16	10	25	1.0	200	2.2	1.0	1	5 to 14	10
S888T <sup>1)</sup>	SOT-143	888	10	20	160	75	24	7	20	1.3	800	1.8	0.8	1	1 to 12	5

<sup>1)</sup> Reverse pin configuration on request



RF Transistors

**PNP Small Signal Transistors for Tuner and Broadband Amplifier**

Type	Package	Marking	$V_{CE0}$	$I_{Cmax}$	$P_{tot}$ at $T_{amb}$		$h_{FE}$ at $I_C$ and $V_{CE}$			$f_T$ at $I_C$		$C_{CBO}$ at $V_{CB}$ and $f$			$F$ at $f$ and $I_C$		
			V	mA	mW	°C		mA	V	MHz	mA	pF	V	MHz	dB	MHz	mA
<a href="#">BF569</a>	SOT-23	LH	35	30	200	60	60	3	10	1000	3	3	10	1	4.2	800	3
<a href="#">BF579</a>	SOT-23	G7	20	25	200	60	50	10	10	1750	10	0.45	10	1	3.4	800	10
<a href="#">BF970</a>	TO-50		35	30	300	60	60	3	10	1000	3	0.4	10	1	4.2	800	3
<a href="#">BF979</a>	TO-50		20	50	300	60	50	10	10	1750	10	0.6	10	1	3.4	800	10

**MOSMICs (MOS Monolithic Integrated Circuit)**

Type	Package	$V_{DS}$	$I_{Dmax}$	$P_{tot}$ at $T_{amb}$		$Y_{fs}$ at $I_{DSP}$	$G_{PS}$ and $F$ at $f$			$C_{issg1}$ and $C_{oss}$ at $f$			$I_{DSP}$ at $V_{DS}$	
		V	mA	mW	°C	ms	dB	dB	MHz	pF	pF	MHz	mA	V
<a href="#">S849T</a>	SOT-143	12	30	200	60	24	20	1.3	800	2.1	0.9	1	8 to 16	12
<a href="#">S886T</a>	SOT-143	12	30	200	60	30	22	1.4	800	2.2	0.9	1	8 to 16	12
<a href="#">S918T</a>	SOT-143	12	30	200	60	40	22	1.3	800	3.0	1.0	1	8 to 16	12



## RF Transistors

Type	Package	V <sub>DS</sub>	I <sub>Dmax</sub>	P <sub>tot</sub> at T <sub>amb</sub>		Y <sub>fs</sub> at I <sub>DSP</sub>	G <sub>PS</sub> and F at f			C <sub>issg1</sub> and C <sub>oss</sub> at f			I <sub>DSP</sub> at V <sub>DS</sub>	
		V	mA	mW	°C	ms	dB	dB	MHz	pF	pF	MHz	mA	V
<a href="#">S913T</a>	SOT-143	9	30	200	60	24	20	1.3	800	2.1	0.9	1	7 to 14	9
<a href="#">S949T</a>	SOT-143	9	30	200	60	30	20	1.3	800	2.2	1.0	1	8 to 16	9
<a href="#">S594T</a>	SOT-143	5	20	160	78	24	20	1.3	800	2.1	0.9	1	7 to 14	5
<a href="#">S595T</a>	SOT-143	5	20	160	78	30	20	1.3	800	2.3	1.1	1	8 to 16	5
<a href="#">S593T</a>	SOT-143	5	30	160	78	40	23	1.3	800	3.2	1.5	1	9 to 18	5



## RF Transistors

### BIPMICs (Bipolar Monolithic Integrated Circuit)

Part Number	Package	$J_{\text{bias}}$ (mA)	$V_d^{(V)}$	$G_p$ (dB) (50Ω)	GF(dB) (50 Ω)	$IM_3$ (dB) $V_{\text{imp in}}$ (V)	$f_{3dB}$ (MHz) (50 Ω)	$P_{1dB}$ (dBm) (50 Ω)	VSWR
<a href="#">S858TA1</a>	SOT-143	30	5	17.5	3.3	52 (23mV)	550	5	1.8:1
<a href="#">S858TA3</a>	SOT-143	30	3.6	17.5	3.3	52 (23mV)	500	10	1.8:1
<a href="#">S868T</a>	SOT-143	45	5	19	2.9	55 (23mV)	550	13	1.8:1
<a href="#">S872T</a>	TO 50	85	5	14.5	3.9	52 (71mV)	450	17	1.6:1
<a href="#">S860T</a>	SOT-143	3	1.8	8	5.5	40 (7mV)	2500	--	--





## RF Transistors

### NPN Small Signal Transistors for Tuner, Broadband Amplifier and Cordless Phone

Type	Package	Marking	$V_{CE0}$	$I_{Cmax}$	$P_{tot}$ at $T_{amb}$		$h_{FE}$ at $I_C$ and $V_{CE}$		$f_T$ at $I_C$		$G_{popt}$ at $I_C$ and $f$			$F$ at $f$ and $I_C$			
			V	mA	mW	°C	mA	V	MHz	mA	dB	mA	MHz	dB	MHz	mA	
BFP67	SOT-143	67	10	50	200	60	100	15	5	8500	30	18	15	800	0.8	800	5
										7500	15	10	15	2000	2.5	2000	5
BFP81	SOT-143	FA	16	30	200	60	100	5	10	5800	15	15.5	5	800	1.4	800	5
BFP92A	SOT-143	92V	15	30	200	60	100	14	10	5500	14	18	14	800	1.8	800	2
BFP93A	SOT-143	FE	12	50	200	60	100	30	5	6000	30	17	25	800	1.6	800	5
BFQ65	TO-50		10	50	300	60	100	15	5	7500	15	8.0	15	2000	1.3	800	5
										8500	30						
BFQ67	SOT-23	V2	10	50	200	60	100	15	5	8500	30	8	15	2000	0.8	800	5
										7500	15	15.5	15	800	2.5	2000	5
BFQ81	SOT-23	RA	16	30	200	60	100	5	10	5800	15	15.5	5	800	1.4	800	5
BFR90	TO-50		15	30	300	60	50	14	10	5000	14	19.5	14	500	2.2	500	2
BFR90A	TO-50		15	30	300	60	100	14	10	5500	14	16	14	800	1.8	800	2



## RF Transistors

Type	Package	Marking	$V_{CEO}$	$I_{Cmax}$	$P_{tot}$ at $T_{amb}$		$h_{FE}$ at $I_C$ and $V_{CE}$		$f_T$ at $I_C$		$G_{popt}$ at $I_C$ and $f$			$F$ at $f$ and $I_C$			
			V	mA	mW	°C	mA	V	MHz	mA	dB	mA	MHz	dB	MHz	mA	
<a href="#">BFR91</a>	TO-50		12	50	300	60	50	30	5	5000	30	18	30	500	1.9	500	2
<a href="#">BFR91A</a>	TO-50		12	50	300	60	100	30	5	6000	30	14	30	800	1.6	800	5
<a href="#">BFR92</a>	SOT-23	P1	15	30	200	60	50	14	10	5000	14	19.5	14	500	2.2	500	2
<a href="#">BFR92A</a>	SOT-23	P2	15	30	200	60	100	14	10	5500	14	16	14	800	1.8	800	4
<a href="#">BFR93</a>	SOT-23	R1	12	40	200	60	50	30	5	5000	30	18	30	500	1.9	500	4
<a href="#">BFR93A</a>	SOT-23	R2	12	50	200	60	100	30	5	6000	30	14	25	800	1.6	800	5
<a href="#">BFR96T</a>	TO-50		15	75	500	60	75	50	10	5000	50	16	50	500	3.8	800	50
<a href="#">BFR96TS</a>	TO-50		15	100	700	70	75	70	10	5000	70	11.5	70	800	4.0	800	70
<a href="#">BFS17</a>	SOT-23	E1	15	25	200	60	90	25	1	2100	25	23	14	200	3.5	800	2
<a href="#">BFS17A</a>	SOT-23	E2	15	25	200	60	90	25	1	3200	25	13	14	800	2.5	800	2
<a href="#">BFW92</a>	TO-50		15	25	300	60	90	25	1	1600	25	23	10	200	4.0	500	2
<a href="#">BFW92A</a>	TO-50		15	25	300	60	90	25	1	3200	25	13	14	800	2.5	800	2
<a href="#">S822T</a>	SOT-143	822	6	8	30	125	90	1	3	5200	1.5	14	1.5	945	1.1	945	1
<a href="#">S852T</a>	SOT-23	852	6	8	30	125	90	1	3	5200	1.5	12	1.5	945	1.1	945	1
<a href="#">S897T</a>	SOT-23	897	15	60	200	60	75	3	6	5000	50	10	30	800	1.9	500	3
<a href="#">BFP181T</a>	SOT-143	18	10	20	200	60	100	10	6	7800	10	17	8	900	1.5	900	3



## RF Transistors

Type	Package	Marking	$V_{CEO}$	$I_{Cmax}$	$P_{tot}$ at $T_{amb}$		$h_{FE}$ at $I_C$ and $V_{CE}$		$f_T$ at $I_C$		$G_{popt}$ at $I_C$ and $f$			$F$ at $f$ and $I_C$			
			V	mA	mW	°C	mA	V	MHz	mA	dB	mA	MHz	dB	MHz	mA	
<a href="#">BFR181T</a>	SOT-23	RF	10	20	200	60	100	10	6	7800	10	14.8	8	900	1.5	900	3
<a href="#">BFP182T</a>	SOT-143	82 P	10	35	200	60	100	15	8	7500	15	18	15	900	1.5	900	5
<a href="#">BFR182T</a>	SOT-23	RG	10	35	200	60	100	15	8	7500	15	15	15	900	1.5	900	5
<a href="#">BFP183T</a>	SOT-143	83 P	10	65	200	60	110	20	8	7400	30	17	30	900	1.2	900	5
<a href="#">BFR183T</a>	SOT-23	RH	10	65	200	60	110	20	8	7400	30	14	30	900	1.2	900	5
<a href="#">BFP280T</a>	SOT-143	28	8	10	200	60	100	3	1	7000	6	16	3	900	1.6	900	3
<a href="#">BFR280T</a>	SOT-23	RE	8	10	200	60	100	3	1	7000	6	13.5	3	900	1.6	900	3



## RF Transistors

### Bipolar NPN High Voltage High Speed Switching Transistors

Type	Package	Maximum Ratings					Characteristics							
		P <sub>tot</sub> at T <sub>case</sub>		I <sub>C</sub>	V <sub>CES</sub>	V <sub>CEO</sub>	t <sub>f</sub> at I <sub>C</sub>		h <sub>FE</sub> at I <sub>C</sub> and V <sub>CE</sub>			V <sub>CEsat</sub> at I <sub>C</sub> and h <sub>FE</sub>		
		W	°C	A	V	V	μs	A		A	V	V	A	
<a href="#">BUD86</a>	DPAK	20	< 60	0.5	800	400	0.4	0.4	50	0.05	5	<1.0	0.2	10
<a href="#">BUD87</a>	DPAK	20	< 60	0.5	1000	450	0.4	0.4	50	0.05	5	< 1.0	0.2	10
<a href="#">BUD600</a>	DPAK	12	< 60	2	600	250	0.5	0.3	> 15	0.3	2	< 0.4	1.0	3
<a href="#">BUD620</a>	DPAK	25	< 60	4	700	400	0.2	0.6	> 15	0.6	2	< 0.3	2.0	3
<a href="#">BUD630</a>	DPAK	40	< 25	6	700	400	0.3	1.0	> 15	1.0	2	< 0.4	3.0	3
<a href="#">BUD636A</a>	DPAK	40	< 25	5	1000	450	0.3	0.8	> 15	0.8	2	< 0.4	2.5	3
<a href="#">BUF620</a>	TO-220	40	< 25	4	700	400	0.2	0.6	> 15	0.6	2	< 0.3	2.0	3
<a href="#">BUF630</a>	TO-220	50	< 25	6	700	400	0.3	1.0	> 15	1.0	2	< 0.4	3.0	3
<a href="#">BUF636A</a>	TO-220	50	< 25	5	1000	450	0.3	0.8	> 15	0.8	2	< 0.4	2.5	3
<a href="#">BUF640</a>	TO-220	70	< 25	6	850	400	< 0.4	2.5	> 15	1.0	2	< 0.75	2.5	5
<a href="#">BUF640A</a>	TO-220	70	< 25	6	1000	450	< 0.4	2.5	> 15	1.0	2	< 0.75	2.5	5
<a href="#">BUF642</a>	TO-220	70	< 25	6	900	400	< 0.3	1.0	> 15	1.0	2	< 1.0	3.0	3
<a href="#">BUF644</a>	TO-220	70	< 25	8	700	400	< 0.3	3.0	> 12	1.3	2	< 0.4	4.0	3
<a href="#">BUF646</a>	TO-220	70	< 25	7	850	400	0.4	4.0	> 10	1.0	2	0.4	4.0	5
<a href="#">BUF646A</a>	TO-220	70	< 25	7	1000	450	0.4	4.0	> 10	1.0	2	0.4	4.0	5



## RF Transistors

Type	Package	Maximum Ratings					Characteristics							
		P <sub>tot</sub> at T <sub>case</sub>		I <sub>C</sub>	V <sub>CES</sub>	V <sub>CEO</sub>	t <sub>f</sub> at I <sub>C</sub>		h <sub>FE</sub> at I <sub>C</sub> and V <sub>CE</sub>			V <sub>CEsat</sub> at I <sub>C</sub> and h <sub>FE</sub>		
		W	°C	A	V	V	µs	A		A	V	V	A	
<a href="#">BUF650</a>	TO-220	70	< 25	10	700	400	0.3	1.6	> 15	1.6	2	< 0.4	5.0	3
<a href="#">BUF654</a>	TO-220	80	< 25	12	700	400	0.15	5.0	> 15	2.0	2	< 1.5	5.0	5
<a href="#">TD13002</a>	DPAK	20	< 60	1.5	600	300	< 0.3	1.0	> 8	0.5	2	< 1.0	1.0	4
<a href="#">TD13003</a>	DPAK	20	< 60	1.5	700	400	< 0.3	1.0	> 8	0.5	2	< 1.0	1.0	4
<a href="#">TD13004D</a> <sup>1)</sup>	DPAK	30	< 60	4	600	300	< 0.3	2.0	> 10	1.0	5	< 0.6	2.0	4
<a href="#">TD13005D</a> <sup>1)</sup>	DPAK	30	< 60	4	700	400	< 0.3	2.0	> 10	1.0	5	< 0.6	2.0	4
<a href="#">TE13004D</a> <sup>1)</sup>	TO-220	57	< 25	4	600	300	< 0.3	2.0	> 10	1.0	2	< 0.5	2.0	5
<a href="#">TE13005D</a> <sup>1)</sup>	TO-220	57	< 25	4	700	400	< 0.3	2.0	> 10	1.0	2	< 0.5	2.0	5
<a href="#">TE13008</a>	TO-220	100	< 25	12	600	300	< 0.7	8.0	> 8	5.0	5	< 1.5	8.0	5
<a href="#">TE13009</a>	TO-220	100	< 25	12	700	400	< 0.7	8.0	> 8	5.0	5	< 1.5	8.0	5

<sup>1)</sup> With on-chip C-E-freewheeling diode

## Small-Signal Diodes

### Current Regulators

Part Number	Nominal Forward Current (mA)	Forward Current Tolerance ( $\pm\%$ )	Limiting Voltage Max (V)	Peak Operating Voltage Min (V)	Dynamic Impedance Min (k $\Omega$ )	Typ Knee Impedance (k $\Omega$ )	Package
J500	0.24	20	1.20	50	4000	2500	TO-226AA
J501	0.33	20	1.30	50	2200	1600	TO-226AA
J502	0.43	20	1.50	50	1500	1100	TO-226AA
J503	0.56	20	1.70	50	1200	800	TO-226AA
J504	0.75	20	1.90	50	800	550	TO-226AA
J505	1.00	20	2.10	50	500	400	TO-226AA
J506	1.40	20	2.50	50	330	250	TO-226AA
J507	1.80	20	2.80	50	200	190	TO-226AA
J508	2.40	20	3.10	50	200	130	TO-206AA
J509	3.00	20	3.50	50	150	90	TO-226AA
J510	3.60	20	3.90	50	150	70	TO-226AA
J511	4.70	20	4.20	50	120	50	TO-226AA
CR160	1.60	10	1.65	100	475	400	TO-206AA
CR180	1.80	10	1.75	100	420	340	TO-206AA
CR200	2.00	10	1.85	100	395	280	TO-206AA
CR220	2.20	10	1.95	100	370	250	TO-206AA
CR240	2.40	10	2.00	100	345	220	TO-206AA
CR270	2.70	10	2.15	100	320	190	TO-206AA
CR300	3.00	10	2.25	100	300	160	TO-206AA
CR330	3.30	10	2.35	100	280	140	TO-206AA
CR360	3.60	10	2.50	100	265	130	TO-206AA
CR390	3.90	10	2.60	100	255	120	TO-206AA
CR430	4.30	10	2.75	100	245	100	TO-206AA
CR470	4.70	10	2.90	100	235	90	TO-206AA

### Low Leakage

Part Number	Reverse Current Max (pA)	Breakdown Voltage		Forward Voltage Max (V)	Reverse Capacitance Max (pF)	Forward Current Max (mA)	Package
		Min	Max				
<b>Single Configuration</b>							
PAD1	-1	-45	-120	1.5	0.8	50	*TO-206AF
JPAD5	-5	-35		1.5	2	10	*TO-226AA
PAD5	-5	-45	-120	1.5	0.8	50	*TO-206AF
SSTPAD5	-5	-35		1.5	2	10	TO-236
JPAD50	-50	-35		1.5	2	10	*TO-226AA
PAD50	-50	-35		1.5	2	50	*TO-206AA
SSTPAD100	-100	-35		1.5	2	10	TO-236
<b>Dual Configuration</b>							
DPAD1	-1	-45	-120	1.5	0.8	50	*TO-78
DPAD5	-5	-45	-120	1.5	0.8	50	*TO-71
SSTDPAD5	-5	-30		1.5	4	50	SO-8
DPAD50	-50	-35		1.5	2	50	*TO-71
SSTDPAD100	-100	-30		1.5	4	50	SO-8

\*Modified



## Small Signal Diodes

Type	Package	V <sub>RRM</sub>	I <sub>FRM</sub>	Function
<a href="#">BAS33...34</a>	DO35	40...70 V	450 mA	Low leakage diode
<a href="#">BAQ33...34</a>	SOD80			
<a href="#">BAQ133...134</a>	Quadro-MELF			
<a href="#">BAV17...21</a>	DO35	25...250 V	625 mA	General purpose
<a href="#">BAV100...103</a>	SOD80	60...250 V		
<a href="#">BAV200...203</a>	Quadro-MELF	60...250 V		
<a href="#">BAW27</a>	DO35	75 V	600 mA	General purpose
<a href="#">BAW75</a>	DO35	35 V	450 mA	General purpose
<a href="#">BAW76</a>	DO35	75 V	450 mA	General purpose
<a href="#">BAY80</a>	DO35	150 V	625 mA	General purpose
<a href="#">BAY135</a>	DO35	140 V	450 mA	Low leakage diode
<a href="#">BAQ35</a>	SOD80			
<a href="#">BAQ135</a>	Quadro-MELF			
<a href="#">1N4148</a>	DO35	100 V	450 mA	General purpose
<a href="#">LL4148</a>	SOD80			
<a href="#">LS4148</a>	Quadro-MELF			
<a href="#">MCL4148</a>	Mini-MELF			
<a href="#">1N4150</a>	DO35	50 V	600 mA	General purpose
<a href="#">LL4150</a>	SOD80			
<a href="#">LS4150</a>	Quadro-MELF			
<a href="#">1N4151</a>	DO35	75 V	450 mA	General purpose
<a href="#">LL4151</a>	SOD80			
<a href="#">LS4151</a>	Quadro-MELF			
<a href="#">1N4154</a>	DO35	35 V	450 mA	General purpose
<a href="#">LL4154</a>	SOD80			
<a href="#">LS4154</a>	Quadro-MELF			



## Small Signal Diodes

Type	Package	V <sub>RRM</sub>	I <sub>FRM</sub>	Function
<a href="#">1N4448</a>	DO35	100 V	450 mA	General purpose
<a href="#">LL4448</a>	SOD80			
<a href="#">LS4448</a>	Quadro-MELF			
<a href="#">BA604</a>	SOD80	80 V	450 mA	General purpose

### Band Switching Diodes

Type	Package	V <sub>RRM</sub>	Function
<a href="#">BA282...283</a>	DO35	35 V	Band switching diodes
<a href="#">BA682...683</a>	SOD80		
<a href="#">BA982...983</a>	Quadro-MELF		

### Small Signal Dual Diodes in SOT23 Package

Type	Package	V <sub>RRM</sub>	I <sub>FRM</sub>	Function
<a href="#">BAV70</a>	SOT23	70 V	450 mA	Common cathode
<a href="#">BAV99</a>				Connected in series
<a href="#">BAW56</a>				Common anode





## Small Signal Diodes

### PIN-Diodes

Type	Package	$V_R$	$I_F$	Function
<a href="#">BA479G.BA479S</a>	DO35	30 V	50 mA	Dual diode
<a href="#">BA679.BA679S</a>	SOD80			
<a href="#">BA779.BA779S</a>	SOT23			
<a href="#">BA779-2</a>	SOT23			
<a href="#">BA979.BA979S</a>	Quadro-MELF			

### Varactors

Type	Package	$V_{RRM}$	$I_F$	Group
<a href="#">BB804</a>	SOT23	20 V	50 mA	Capacitance groups available on request. A packing unit contains diodes from one capacitance group only.
<a href="#">BB814</a>				Capacitance deviation for 4 diodes taped in sequence is max 3 %
<a href="#">BB824</a>				

### GaAsP-Reference Voltage LEDs

Type	Package	$V_{Fnom}$	$I_{Fmax}$	$V_F$ and $r_f$ at $I_F$			$I_R$ at $V_R$		$TK_{VF}$
		V	mA	V	$\Omega$	mA	$\mu A$	V	%K
<a href="#">TRLR3160</a>	3 mm opto	1.6	50	1.5 to 1.7	10	5	< 10	6	0.12



## Zener Diodes

Type	Package	V <sub>Znom</sub>	P <sub>V</sub>
<a href="#">1N4728A...1N4761A</a>	DO41	3.3 - 75 V	1 W
<a href="#">1N5221B...1N5267B</a>	DO41	2.4 - 75 V	500 mW
<a href="#">TZM5221B...TZM5267B</a>	SOD80	2.4 - 75 V	500 mW
<a href="#">BZW03C...</a>	SOD64	7.5 - 270 V	6 W
<a href="#">BZW03D...</a>	SOD64	7.5 - 270 V	6 W
<a href="#">BZX55C...</a>	DO35	2.4 - 270 V	500 mW
<a href="#">TZMC...</a>	SOD80	2.4 - 270 V	500 mW
<a href="#">BZT55C...</a>	Quadro-MELF	2.4 - 270 V	500 mW
<a href="#">BZG03C...</a>	DO214AC	10 - 270 V	3 W
<a href="#">BZG04...</a>	DO214AC	8.2 - 200 V	3 W
<a href="#">BZG05C...</a>	DO214AC	3.1 - 13.8 V	3 W
<a href="#">BZT03C...</a>	SOD57	6.2 - 270 V	3.25 W
<a href="#">BZT03D...</a>	SOD57	6.2 - 270 V	3.25 W



## Rectifiers

### Standard Rectifiers in SMD Package

Type	Package	$V_{RRM}$	$I_{FAV}$	$t_{rr\ max}$
<a href="#">BYG10.</a>	DO214AC	200 - 1000 V	1.5 A	4 $\mu$ s

### Fast Rectifiers - Soft Recovery - in SMD Package

Type	Package	$V_{RRM}$	$I_{FAV}$	$t_{rr\ max}$
<a href="#">BYG20.</a>	DO214AC	200 - 600 V	1.5 A	75 ns
<a href="#">BYG21.</a>	DO214AC	800 - 1000 V	1.5 A	120 ns

### Ultra Fast Epitaxial Rectifiers - Soft Recovery - in SMD Package

Type	Package	$V_{RRM}$	$I_{FAV}$	$t_{rr\ max}$
<a href="#">BYG22.</a>	DO214AC	50 - 200 V	2 A	25 ns

### Schottky Rectifiers in SMD Package

Type	Package	$V_{RRM}$	$I_{FAV}$
<a href="#">BYS10...</a>	DO214AC	25 - 45 V	1.5 A
<a href="#">BYS11-90</a>	DO214AC	90 V	1.5 A
<a href="#">BYS12-90</a>	DO214AC	90 V	1.5 A



## Rectifiers

### Standard Rectifiers in Sinterglass Package

Type	Package	V <sub>RRM</sub>	I <sub>FAV</sub>	t <sub>rr max</sub>
<a href="#">BY228</a>	SOD64	1500 V	3 A	25 ns
<a href="#">BY228/13.BY228/15</a>	SOD64	1000, 1200 V	3 A	20 μs
<a href="#">BY448.BY458</a>	SOD57	1500, 1200 V	2 A	20 μs
<a href="#">BY527</a>	SOD57	800 V	2 A	4 μs
<a href="#">BYT51.</a>	SOD57	50 - 1000 V	1 A	4 μs
<a href="#">BYT62</a>	SOD57	2400 V	0.1 A	10 μs
<a href="#">BYW52...BYW56</a>	SOD57	200 - 1000 V	2 A	4 μs
<a href="#">BYW82...BYW86</a>	SOD64	200 - 1000 V	3 A	4 μs
<a href="#">BYX82...BYX86</a>	SOD57	200 - 1000 V	2 A	4 μs

### Fast Rectifiers - Soft Recovery - in Sinterglass Package

Type	Package	V <sub>RRM</sub>	I <sub>FAV</sub>	t <sub>rr max</sub>
<a href="#">BY203/...S</a>	SOD57	1200 - 2000 V	0.25 A	0.3 μs
<a href="#">BY268.BY269</a>	SOD57	1400, 1600 V	0.8 A	0.4 μs
<a href="#">BYT52.</a>	SOD57	50 - 1000 V	1 A	2 μs
<a href="#">BYT53.</a>	SOD57	50 - 400 V	1.5 A	0.05 μs
<a href="#">BYT54.</a>	SOD57	50 - 1000 V	1.25 A	0.01 μs
<a href="#">BYV12...BYV16</a>	SOD57	100 - 1000 V	1.5 A	0.3 μs
<a href="#">BYV26.</a>	SOD57	200 - 1000 V	1 A	0.3 - 0.075 μs
<a href="#">BYV27/...</a>	SOD57	50 - 200 V	2 A	0.025 μs
<a href="#">BYV37.BYV38</a>	SOD57	800, 1000 V	2 A	0.3 μs
<a href="#">BYW32...BYW36</a>	SOD57	200 - 600 V	2 A	0.2 μs



## Rectifiers

### Fast Rectifiers - Soft Recovery - in Sinterglass Package

Type	Package	V <sub>RRM</sub>	I <sub>FAV</sub>	t <sub>rr max</sub>
<a href="#">BYM36.</a>	SOD64	200 - 1000 V	2.9 - 3 A	0.1 - 0.15 μs
<a href="#">BYT56.</a>	SOD64	50 - 1000 V	3 A	4 μs
<a href="#">BYT77.BYT78</a>	SOD64	800, 1000 V	3 A	0.25 μs
<a href="#">BYV28/...</a>	SOD64	50 - 200 V	3.5 A	0.03 μs
<a href="#">BYW72...BYW76</a>	SOD64	200 - 600 V	3 A	4 μs
<a href="#">BYW178</a>	SOD64	800 V	3 A	0.06 μs
<a href="#">1N5417.1N5418</a>	SOD64	200, 400 V	3 A	0.1 μs

### Fast Power Rectifier Diodes

Type	Package	V <sub>RRM</sub>	I <sub>FAV</sub>	t <sub>rr max</sub>
<a href="#">BYT08P/600A</a>	DO220	600 V	8 A	50 ns
<a href="#">BYT08P/800A</a>	DO220	800 V	8 A	50 ns
<a href="#">BYT08P/1000A</a>	DO220	1000 V	8 A	65 ns
<a href="#">BYT12P/600A</a>	DO220	600 V	12 A	50 ns
<a href="#">BYT12P/800A</a>	DO220	800 V	12 A	50 ns
<a href="#">BYT12P/1000A</a>	DO220	1000 V	12 A	65 ns
<a href="#">BYT85/...</a>	DO220	600 - 1000 V	4 A	80 ns
<a href="#">BYT86/...</a>	DO220	600 - 1000 V	8 A	80 ns
<a href="#">BYT86/1300</a>	DO220	1300 V	5 A	150 ns
<a href="#">BYT87/...</a>	DO220	600 - 1000 V	15 A	80 ns



## Rectifiers

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Type	Package	$V_{RRM}$	$I_{FAV}$	$t_{rr\ max}$
<a href="#">BYT106/1300</a>	DO220	1300 V	5 A	120 ns
<a href="#">BYT108/200</a>	DO220	200 V	8 A	35 ns
<a href="#">BYT108/400</a>	DO220	400 V	8 A	50 ns
<a href="#">BYT115/200/400</a>	DO220	200, 400 V	15 A	35, 50 ns



## 80C51 Family Microcontrollers

Part-number	ROM size (bytes)	RAM size (bytes)	Temp. Range	Maximum Frequencies	
				5 Volt*	3 Volt
<a href="#">80C31</a>	-	128	C, I, A, M	42 MHz	16 MHz
<a href="#">80C51</a>	4K	128	C, I, A, M	36 MHz	16 MHz
<a href="#">80C32</a>	-	256	C, I, A, M	44 MHz	16 MHz
<a href="#">80C52</a>	8K	256	C, I, A, M	36 MHz	16 MHz
<a href="#">80C154</a>	-	256	C, I, A, M	42 MHz	16 MHz
<a href="#">83C154</a>	16K	256	C, I, A, M	36 MHz	16 MHz
<a href="#">83C154D</a>	32K	256	C, I, A, M	30 MHz	16 MHz <sup>1</sup>
<a href="#">80C51PX</a>	CMOS Piggy Back for 80C51 / C52 / C154 / C154D				
Available packages : PDIL40, PLCC44, QFP44 (2.3, 1.4, 1.0mm), Cerdip, Cerquad, Die form					
C : Commercial (0 to 70°C), I : Industrial (-40 to 85°C), A : Automotive (-40 to 125°C), M : Military (-55 to 125°C)					
* : maximum values given for Commercial range <sup>1</sup> : for Commercial range only					
<b>Generic Documents:</b>					
<a href="#">Architectural Overview</a> of the C51 Family <a href="#">Hardware Description</a> of the C51 Family <a href="#">C51 Programmer's Guide</a> and Instruction Set					
<b>Application Notes:</b>					
<a href="#">ANM031</a> : Secret Tag on 80C51 Family Microcontrollers <a href="#">ANM032</a> : How to use a Third Overtone Crystal with a 80C51 Family Microcontroller <a href="#">ANM033</a> : How to Read Out the Internal Memory Code of a 80C51 Family Microcontroller <a href="#">ANM034</a> : Compatibility between 80Cx2 and 8xC154 Microcontrollers <a href="#">ANM053</a> : Encryption on 80C51 Family Microcontrollers <a href="#">ANM055</a> : How to Get a Second Asynchronous Serial Interface on a 80C51 Microcontroller Family					

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



## Memories: Static RAMs

Density	Format	Very High Speed	Very Low Power
16K	2Kx8	<a href="#">HM65728B</a>	<a href="#">HM65162</a>
	4Kx4	<a href="#">HM65768B</a>	
	16Kx1	<a href="#">HM65767B</a>	
64K	8Kx8	<a href="#">HM65764</a> <a href="#">L65764</a> (3.3V version)	<a href="#">HM65664A</a> <a href="#">L65664</a> (3.3V version)
	16Kx4	<a href="#">HM65788</a> <a href="#">HM65789</a> with OE <a href="#">HM65790</a> separate I/O	<a href="#">HM65688A</a>
	64Kx1	<a href="#">HM65787</a>	<a href="#">HM65687A</a>
256K	32Kx8	<a href="#">HM65756</a> <a href="#">L65756</a> (3.3 V version)	<a href="#">M65656</a> <a href="#">L65656</a> (3.3V version)
	64Kx4	<a href="#">HM65798</a> <a href="#">HM65799</a> separate I/O	<a href="#">M65698</a>
	256Kx1	<a href="#">HM65797</a>	<a href="#">M65697</a>
	128Kx8		<a href="#">M65608</a>
Access time		15 to 55 ns	25 to 55 ns
Standby current		20 mA	1 mA to 100 $\mu$ A
Available ranges		Commercial, Industrial, Automotive, Military (except restrictions for 3.3V versions)	

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.





## Memories: Dual Port RAMs

Width	Size	Part number
x8	1K	<a href="#">M67130 / M67140</a>
		<a href="#">L67130 / L67140</a> (3.3 V version)
	2K	<a href="#">M67132 / M67142</a>
		<a href="#">L67132 / L67142</a> (3.3 V version)
		<a href="#">M671321 / M671421</a> with interrupt flag
	8K	<a href="#">M67005</a>
<a href="#">L67005</a> (3.3 V version)		
x16	4K	<a href="#">M67024</a>
		<a href="#">L67024</a> (3.3 V version)
	8K	<a href="#">M67025</a>
Access time	25 to 55 ns	
Standby current	10 $\mu$ A to 1 mA	
Available ranges	Commercial, Industrial, Automotive, Military (except restrictions for 3.3V versions)	
Cross Reference	<a href="#">Dual Port RAM Cross Reference</a>	

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## Memories: FIFOs

Density	Part number
512x9	<a href="#">M67201</a> <a href="#">L67201</a> (3.3 V version)
1Kx9	<a href="#">M67202</a> <a href="#">L67202</a> (3.3 V version)
2Kx9	<a href="#">M67203</a> <a href="#">L67203</a> (3.3 V version)
4Kx9	<a href="#">M67204</a> <a href="#">L67204</a> (3.3 V version)
8Kx9	<a href="#">M67205</a>
16Kx9	<a href="#">M67206</a>
Access time	25 ns to 55 ns
Standby current	10 $\mu$ A to 1 mA
Available ranges	Commercial, Industrial, Automotive, Military (except restrictions for 3.3V versions)
Cross Reference	<a href="#">FIFO Cross Reference</a>

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## SPARClet: 32 bit RISC Microcontrollers

<b>Presentation</b>	
<a href="#">SPARClet</a> 32 bit RISC microcontroller family	
<b>Product Documentation</b>	
<a href="#">90C701</a>	Microcontroller for Advanced Communication Systems (Preview)

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



## C251: 8 bit Microcontrollers

<b>Presentation</b>	
<b>C 251 Architecture</b>	The 8 bit microcontroller family
<b>Basic Documentation</b>	
<b>C 251</b>	C 251 Basic Features (Preview)

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



## Digital ASICs

<b>Digital Integration</b>	
<b>Design done by Customer and TEMIC</b>	Design flows, processes , and methodologies adapted to different needs (ULCs, gate arrays, composite arrays, cell based, full custom)
<b>Design done by Customer</b>	
<b>Design done by TEMIC</b>	
<b>Generic Document</b>	
<b>TEMIC the compete ASIC Supplier</b>	ASIC offer presentation

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



## Mixed Signal ASICs

<b>Application Configurable System Cells (ACSC)</b>	
<b>ACSC for Communication</b>	27 groups of functions blocks targeted for Communication applications
<b>ACSC for Automotive</b>	36 groups of functions blocks targeted for Automotive applications
<b>Generic Document</b>	
<b>TEMIC the compete ASIC Supplier</b>	<b>ASIC offer presentation</b>

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## Computer ASSPs Multimedia

Part-number	Function	Main features
<a href="#">29C80A</a>	2D Discrete Cosine Transform Circuit	Compression/Decompression
<a href="#">29C82</a>	JPEG Decoder	2 Mega Pixels/second
<a href="#">29C84A</a>	Digital to Analog Video Decoder	On -chip filtering and DACs
<b>Application Notes:</b>		
<a href="#">ANM020</a>	Interfacing the 29C84A with PAL / NTSC TV	

Click on [Part-number](#) or Document [Title](#) to get the Product Datasheet or Document.



## Microcontroller

### MARC4 - Modular Architecture 4 Bit Microcontroller Family

Type	Package	Function	Key Features
<a href="#">M43C505 (e3505)</a> <a href="#">M45C535 (e3535)</a>	DIT PLCC44 QFP64	3V / 5V low power microcontroller (M45C535 has metal-ROM for fast prototyping)	<ul style="list-style-type: none"><li>• Stack oriented 4-bit Harvard architecture</li><li>• High level language programming in qFORTH</li><li>• 4096 Byte ROM</li><li>• 253 Nibbles RAM</li><li>• I/O 12 bidirectional ports</li><li>• 4 Inputs with interrupt facility</li><li>• 2 internal, 3 external interrupts</li><li>• 32 kHz quartz oscillator</li><li>• RC-oscillator internal 1.7/3.5 MHz (3V / 5V)</li><li>• 1.4 mA / 7 mA operating current</li><li>• Sleep / stop current 4 <math>\mu</math>A / 2.5 <math>\mu</math>A</li><li>• 2.4 V min. supply voltage</li><li>• LCD 20x4 (up to 80 segments)</li></ul>





## Microcontroller

Type	Package	Function	Key Features
<a href="#">M44C260</a> <a href="#">M48C260 (OTP)</a>	SSO-20 SSO-28	2.4 V to 6.2 V	<ul style="list-style-type: none"><li>• 4-bit Harvard architecture</li><li>• High level language programming in qFORTH</li><li>• 1 <math>\mu</math>s instruction cycle</li><li>• 4 K x 8-bit application ROM</li><li>• 256 x 4-bit RAM</li><li>• 16 x 8-bit EEPROM</li><li>• 16 bidirectional I/O's</li><li>• 8 Hard- and software interrupt levels</li><li>• 2 x 8-bit multifunction timer</li><li>• Interval timer with watchdog</li><li>• 32 kHz On-Chip-Oscillator</li><li>• Low power consumption</li><li>• Power down mode &lt; 1<math>\mu</math>A</li><li>• Self test functions</li></ul>



## Microcontroller

Type	Package	Function	Key Features
<a href="#">M44C636</a>	DIT PLCC44 QFP64	1.5 V voltage range low power microcontroller, supply voltage: 0.9 V to 1.8 V or with core voltage regulator 1.8 V to 3.6 V, operating current: < 0.2 mA	<ul style="list-style-type: none"><li>• 4-bit Harvard architecture</li><li>• High level language programming in qFORTH</li><li>• 4096 Byte ROM</li><li>• 256 Nibbles RAM</li><li>• I/O 12 bidirectional ports</li><li>• 4 Inputs with pull-up/pull-down option</li><li>• 4 internal, 3 external interrupts</li><li>• 32 kHz quartz oscillator</li><li>• RC-oscillator internal 05. MHz typ.</li><li>• 0.2 mA operating current</li><li>• Sleep / stop current 08. <math>\mu</math>A / 0.2 <math>\mu</math>A</li><li>• 3 V LCD 20 x 4 (up to 80 segments)</li><li>• Watchdog timer</li><li>• 2 x 8 bit multifunction timer/counter</li><li>• Motor output drive capability at BP40 &amp; BP41 (1 mA @ 2.2 V)</li></ul>



## Microcontroller

Type	Package	Function	Key Features
<a href="#">M43C200</a> <a href="#">M43C201</a>	SO24 SO16L	2.4 V - 6.2 V	<ul style="list-style-type: none"><li>• Stack oriented 4-bit Harvard architecture</li><li>• High level language programming in qFORTH</li><li>• 4096 Byte ROM</li><li>• 256 Nibbles RAM</li><li>• I/O 10 bidirectional ports</li><li>• 4 Inputs</li><li>• 1 internal, 2 external interrupts</li><li>• 4 Mhz quartz oscillator</li><li>• 4 mA operating current</li><li>• Sleep / stop current 300 <math>\mu</math>A / 0.5 <math>\mu</math>A</li></ul>



## Microcontroller

Type	Package	Function	Key Features
<a href="#">M44C510</a>	DIT SO28 DIL40 SSO44	2.4 V to 6 V	<ul style="list-style-type: none"><li>• Stack oriented 4-bit Harvard architecture</li><li>• High level language programming in qFORTH</li><li>• 4096 Byte ROM + 1024 Byte for test purposes</li><li>• 256 Nibbles RAM</li><li>• I/O 30 bidirectional ports:<ul style="list-style-type: none"><li>- 22 standard I/O</li><li>- 8 I/O 20 mA push/pull (5 V) (2.2 V -&gt; 4.3 mA)</li></ul></li><li>• 4 internal, 3 external interrupts</li><li>• 32 kHz quartz oscillator</li><li>• 4 MHz oscillator (internal RC, ext. R, quartz or ceramic resonator)</li><li>• 4 mA (5 V) operating current</li><li>• Sleep current 4 <math>\mu</math>A</li><li>• Watchdog timer</li><li>• 2 x 8-bit timer/counter with 8-bit prescaler</li><li>• 2 complementary buzzer outputs</li></ul>



**Infrared IrDA Integrated Interface Circuits**

Type	Description
<a href="#">TOIM3000</a>	<ul style="list-style-type: none"><li>• Pulse shaping function (shortening and stretching) used in infrared IrDA standard applications</li><li>• Directly interfaces the infrared transceiver <a href="#">TFDS3000</a><sup>*)</sup> to a UART</li><li>• SO16 - package</li></ul>
<a href="#">TOIM3232</a>	<ul style="list-style-type: none"><li>• Pulse shaping function (shortening and stretching) used in infrared IrDA standard applications</li><li>• Directly interfaces the infrared transceiver <a href="#">TFDS3000</a><sup>*)</sup> to an RS232 port</li><li>• Programmable baud clock generator (75 Bd to 115 kBd), 15 baud rates</li><li>• SO16 - package</li></ul>

<sup>\*)</sup> TFDS3000 is an infrared IrDA transceiver, see data sheet before

**IrDA SIR Integrated Transceiver**

Type	Description
<a href="#">TFDS3000</a>	<ul style="list-style-type: none"><li>• Infrared transceiver for data communication systems.</li><li>• Internal AGC (Automatic Gain Control) for EMI immunity</li><li>• Data rates up to 115 kBaud</li><li>• SMD side view package</li></ul>
<a href="#">TFDS3000TR</a>	<ul style="list-style-type: none"><li>• contains tape and reel information</li><li>• Infrared transceiver for data communication systems.</li><li>• Internal AGC (Automatic Gain Control) for EMI immunity</li><li>• Data rates up to 115 kBaud</li><li>• SMD side view package</li></ul>



## IrDA

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### IrDA Evaluation Kit

Description
<ul style="list-style-type: none"><li>• IrDA compatible transceiver front-end</li><li>• Transmission bandwidth 1 MHz</li><li>• Transmission distance 1.5 m</li><li>• Connector for easy installation</li></ul>