

DIP 14



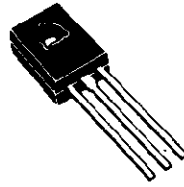
TO-18



TO-72



TO-39



TC 126/SOT-32



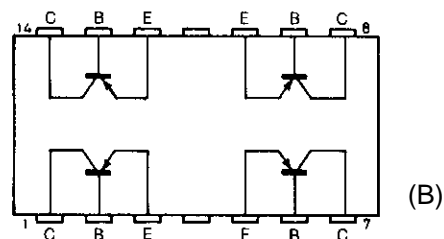
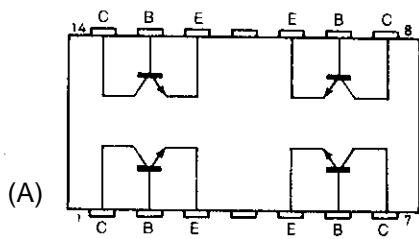
SOT 223



SOT-23

**QUAD SMALL SIGNAL TRANSISTORS**

These devices offer all the performance of discrete small signal transistors in a package which is compatible with automatic insertion equipment. They may be used as effective input buffers, level shifters and current boosters to drive high fan out loads, LEDs, relays and other peripheral loads from boards of logic circuitry.



**QUAD SILICON TRANSISTORS IN DUAL IN LINE PLASTIC PACKAGE**

Type	Polarity	P <sub>D</sub> (W)	V <sub>CB0</sub> (V)	V <sub>CE0</sub> (V)	I <sub>c</sub> (mA)	h <sub>FE</sub> and V <sub>CEsat</sub> @ I <sub>c</sub>			f <sub>r</sub> min (MHz)	Package	Connections
						min	max (V)	(mA)			
MPO2222	NPN	1.9	60	40	500	100	0.4	150	200	DIP-14	(A)
MPO2907	PNP	1.9	60	40	600	100	0.4	150	200	DIP-14	(B)

**TRANSISTORS FOR RADIO FREQUENCY APPLICATIONS**

Polarity	Max rating			Type	Main function	Trans. Freq.		Noise figure			Gain		Package
	V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub>			f <sub>T</sub> @ I <sub>c</sub>		NF @ I <sub>c</sub> / f <sub>T</sub>			P <sub>G</sub> @ f		
	(V)	(mA)	(mW)			(MHz)	(mA)	(dB)	(mA)	(MHz)	(dB)	(MHz)	
NPN	15	40	200	2N2857	VHF/UHF amp./osc	1200	5	3.8	1.5	450	16	450	TO-72
NPN	12	50	200	2N5179	VHF amp./osc	1400	5	3	1.5	200	21	200	TO-72
NPN	15	50	200	BFX89	UHF amplifier	1200	25	5	2	500	12	500	TO-72
PNP	25	50	225	BFR99A	UHF amplifier	1400	10	5	3	800	10	800	TO-72
PNP	25	50	225	BFR99	UHF amplifier	2000	10	3.5	3	800	12	800	TO-72
NPN	25	150	700	BFW16A	CATV-MATV amplifier	1200	150	6	30	200	6.5	800	TO-39
NPN	25	150	700	BFW17A	CATV-MATV amplifier	1100	150	-	-	-	16	200	TO-39
NPN	20	500	3500	2N4427	VHF power amplifier	500	50	-	-	-	10	175	TO-39
NPN	30	500	3500	2N3866	UHF/VHF power amp.	500	50	-	-	-	10	400	TO-39
NPN	15	25	200	BFY90	VHF amplifier	1400	25	4.5	2	800	8	800	TO-72
NPN	15	50	200	2N918	UHF amplifier	900	4	3.5	1	60	22	200	TO-72
NPN	20	200	600	2N3137	VHF amplifier	750	50	-	-	-	7	250	TO-39
NPN	30	200	800	BFR36	CATV-MATV amplifier	1200	100	4	30	200	16	200	TO-39
NPN	20	400	1000	2N5109	CATV-MATV amplifier	1400	50	3	10	200	14	200	TO-39

**NPN GENERAL PURPOSE TRANSISTORS - TO-18**

V <sub>CEO</sub> V <sub>CER</sub> *	h <sub>FE</sub> @ I <sub>c</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>		f <sub>T</sub>	t <sub>s</sub>	P <sub>tot</sub>	Also available
	(V)	min/max		(mA)	max	(mA)	min		
55	50/-	50	BSX33	0.3	150 / 15	60	800	500	
30	100/300	150	2N2222	1.6	500 / 50	250	225	500	2N2221
40	40/120	150	2N2221A	1	500 / 50	250	225	500	
40	100/300	150	2N2222A	1	500 / 50	250	225	500	
80	40/-	150	2N720A	5	150 / 15	50	-	500	
80	100/300	150	2N3700	0.5	500 / 50	100 typ.	-	500	

## NPN GENERAL PURPOSE TRANSISTORS - TO-39

V <sub>CEO</sub> V <sub>CER</sub> *	h <sub>FE</sub> @ I <sub>c</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>		f <sub>T</sub>	t <sub>s</sub> t <sub>off</sub> *	P <sub>tot</sub>	Also available
	(V)	min/max		(mA)	max (V)				
40 60	40/250 40/250	100 100	BC140 BC141	0.35 typ. 0.35 typ.	500/50 500/50	50 50	850* 850*	800 800	h <sub>FE</sub> groups -6, -10, -16
30 30 35 40 40 40 50* 50* 55 65 80 80 80 80	40/- 100/300 30/- 40/120 50/250 100/300 40/120 100/300 40/120 40/120 40/120 40/120 40/120 100/300	150 150 150 150 150 150 150 150 150 150 150 150 150 150	BFY51 2N2219 BFY50 2N2218A 2N3053 2N2219A 2N1613 2N1711 BFY56A 2N 2102 2N 1893 2N 3020 BC300 2N 3019	0.35 1.6 0.2 1 1.4 1 1.5 1.5 0.25 0.5 1.5 0.5 0.5 0.5	150/15 500/50 150/15 500/50 150/15 500/50 150/15 150/15 150/15 150/15 500/50 150/15 500/50	50 250 60 250 100 typ. 300 60 70 60 60 50 80 120 typ. 100	300 typ. 225 300 typ. 225 - 225 - - - 30* - - - -	800 800 800 800 800 800 800 800 800 1000 800 800 800 800	BFY52  2N2218   BFY56
50 60 75	40/250 40/250 30/130	500 500 500	2N5321 BC441 2N5320	0.8 1 0.5	500/50 1000/100 500/50	50 50 50	800* - 800*	1000 1000 1000	-4, -5, -6

## PNP GENERAL PURPOSE TRANSISTORS - TO-18

V <sub>CEO</sub>	h <sub>FE</sub> @ I <sub>c</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>		f <sub>T</sub>	t <sub>s</sub> t <sub>off</sub> *	P <sub>tot</sub>	Also available
	(V)	min/max		(mA)	max (V)				
30 40 40 45 45	90/- 50/- 100/300 100/600 100/260	10 10 10 10 100	BFX48 BCY70 2N3251 BCY71 BC297	0.3 0.5 0.5 0.5 0.7	50/5 50/5 50/5 50/5 500/50	400 250 300 200 250 typ.	160* 350 200 - -	360 350 360 350 375	
40 40 45 60 60	40/120 100/300 100/300 40/120 100/300	150 150 150 150 150	2N2906 2N2907 2N3504 2N2906A 2N2907A	1.6 0.4 0.4 0.4 0.4	500/50 150/15 150/15 150/15 150/15	200 200 200 200 200	80 80 40 80 80	400 400 400 400 400	

**PNP GENERAL PURPOSE TRANSISTORS - TO-39**

V <sub>CEO</sub> (V)	h <sub>FE</sub> @ I <sub>c</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>		f <sub>T</sub> (MHz)	t <sub>s</sub> t <sub>off</sub> * (ns)	P <sub>tot</sub> (mW)	Also available
	min/max	(mA)		max (V)	(mA)				
40	80/200	100	BFY64	1.8	500/50	250 typ.	120*	700	
55	85/-	100	BFX38	0.5	500/50	100	350	800	
60	63/160	100	BSV16-10	1	500/25	-	500	5000	
60	100/300	100	2N4032	0.5	500/50	100	350	800	
75	40/-	100	BFX41	0.5	500/50	100	350	800	
75	85/-	100	BFX40	0.5	500/50	100	350	800	
80	100/300	100	2N4033	0.5	500/50	150	350	800	2N4031/2
40	40/120	150	2N2904	0.4	150/15	200	80	600	
40	100/230	150	2N2905	0.4	150/15	200	80	600	
45	100/300	150	2N3502	1.2	500/50	200	100*	700	
60	40/120	150	2N2904A	0.4	150/15	200	80	600	
60	100/300	150	2N2905A	0.4	150/15	200	80	600	
50	40/250	500	2N5323	1.2	500/50	50	-	1000	
60	40/250	500	BC461	1	1000/100	50	-	1000	
75	30/130	500	2N5322	0.7	500/50	50	1000*	1000	
60	40/120	100	2N4030	0.5	500/50	100	350	800	
40	40/250	100	BC160	0.35 typ.	500/50	50	600*	650	
60	40/250	100	BC161	0.35 typ.	500/50	50	600*	650	

**NPN TRANSISTORS FOR LOW LEVEL, LOW NOISE APPLICATIONS - TO-18**

V <sub>CEO</sub> (V)	h <sub>FE</sub> @ I <sub>c</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>		f <sub>T</sub> (MHz)	NF max (db)	P <sub>tot</sub> (mW)	Also available
	min/max	(mA)		max (V)	(mA)				
45	100/300	0.01	2N930	1	10/0.5	30	3	300	
60	100/500	0.01	2N2484	0.35	1/0.1	60	3	360	
60	150/300	1	BFY76	0.35	1/0.1	100	3	360	
20	110/800	2	BC108	0.6	100/5	100	10	300	
20	200/800	2	BC109	0.6	100/5	100	4	300	
32	120/630	2	BCY58	0.7	100/2.5	200 typ.	6	390	
45	110/450	2	BC107	0.6	100/5	100	10	300	
45	120/630	2	BCY59	0.7	100/2.5	100	6	360	

## PNP TRANSISTORS FOR LOW LEVEL, LOW NOISE APPLICATIONS - TO-18

V <sub>CEO</sub> (V)	h <sub>FE</sub> @ I <sub>C</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>C</sub> / I <sub>B</sub>		f <sub>T</sub>	NF	P <sub>tot</sub>	Also available
	min/max	(mA)		max (V)	(mA)	min (MHz)	max (dB)	(mW)	
45	250/500	0.01	2N3964	0.25	10/0.5	50	2	360	
60	100/300	0.01	2N3962	0.25	10/0.5	40	3	360	
80	70/230	0.01	BFX37	0.4	50/5	40	3.5	360	
80	100/300	0.01	2N3963	0.25	10/0.5	40	3	360	
20	240/500	2	BC179	0.25	10/0.5	200 typ.	-	300	BC179
25	125/500 <sup>(1)</sup>	2	BC178	0.25	10/0.5	200 typ.	10	300	
32	120/460	2	BCY78	0.8	100/2.5	180 typ.	6	360	
40	200/-	2	BC479	0.25	10/0.5	-	4	360	
45	120/460	2	BCY79	0.8	100/2.5	180 typ.	6	390	
45	125/500 <sup>(1)</sup>	2	BC177	0.25	10/0.5	200 typ.	10	300	
40	110/450	2	BC478	0.25	10/0.5	150 typ.	6	360	
80	110/250	2	BC477	0.25	10/0.5	150 typ.	10	360	

(1) h<sub>FE</sub> @ 1KHz.

## HIGH VOLTAGE TRANSISTORS

Polarity	V <sub>CEO</sub>	h <sub>FE</sub> @ I <sub>C</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>C</sub> / I <sub>B</sub>		f <sub>T</sub>	P <sub>tot</sub>	Package
	(V)	min/max	(mA)		max (V)	(mA)	min (MHz)	(mW)	
PNP	150	40/-	10	BFW43	0.5	10/1	60	400	TO-18
NPN	180	30/-	10	BC394	0.3	10/1	50	400	TO-18
PNP	180	50/-	10	BC393	0.3	10/1	50	400	TO-18
PNP	180	80/300	10	2N3930	0.25	10/1	40	400	TO-18
PNP	180	80/300	10	BFX90	0.25	10/1	160	400	TO-18
PNP	200	35/150	30	BSS74S	0.5	50/5	50	500	TO-18
NPN	200	50/-	10	BSS71S	0.5	50/5	50	500	TO-18
NPN	200	40/-	30	BSS72S	0.5	50/5	200	500	TO-18
PNP	200	40/250	30	BSS75S	0.4	30/3	200	500	TO-18
PNP	150	40/-	10	BFW44	0.5	10/1	60	700	TO-39
NPN	160	25/-	30	BF257	1	30/6	90 typ.	1000	TO-39
PNP	180	80/300	10	BFX91	0.25	10/1	40	700	TO-39
PNP	180	80/300	10	2N3931	0.25	10/1	60	700	TO-39
PNP	200	30/150	10	2N5415S	2.5	50/5	15	1000	TO-39
NPN	300	25/-	30	BF259	1	30/6	90 typ.	1000	TO-39
NPN	250	25/-	30	BF258	1	30/6	90 typ.	1000	TO-39
NPN	150	30/-	30	2N3114	1	50/5	40	800	TO-39
NPN	250	30/-	30	BF458	1	50/10	90 typ.	1250	TO-126
NPN	300	30/-	30	BF459	1	50/10	90 typ.	1250	TO-126

**NPN TRANSISTORS FOR FAST AND ULTRA FAST SWITCHING**

V <sub>CEO</sub> (V)	h <sub>FE</sub> @ I <sub>C</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>C</sub> / I <sub>B</sub>		f <sub>T</sub>	t <sub>s</sub>	P <sub>tot</sub> (mW)	Package
	min/max	(mA)		max (V)	(mA)	min (MHz)	t <sub>off</sub> * (ns)		
12	30/120	10	BSX28	0.25	30/3	400	13	360	TO-18
15	20/60	10	BSX19	0.6	100/10	400	10	360	TO-18
15	20/60	10	2N2368	0.25	10/1	400	10	360	TO-18
15	30/120	10	2N708	0.4	10/1	300	75*	360	TO-18
15	30/120	10	2N914	0.7	200/20	300	20	360	TO-18
15	40/120	10	BSX20	0.6	100/10	450	13	360	TO-18
15	40/120	10	2N2369	0.25	10/1	500	13	360	TO-18
15	40/120	10	2N2369A	0.2	10/1	500	13	360	TO-18
15	30/120	30	BSX26	0.5	300/30	350	18	360	TO-18
20	30/120	30	2N3014	0.18	100/10	350	18	360	TO-18
20	40/120	30	BSX39	0.28	100/10	350	18	360	TO-18
15	25/-	100	2N3013	0.5	300/30	350	18	360	TO-18
30	30/120	150	2N2845	0.4	150/15	350	40*	360	TO-18
30	60/150	100	2N4013	0.20	100/10	300	60*	500	TO-18
50	60/150	100	2N4014	0.52	500/50	300	60*	360	TO-18
30	60/150	100	2N3724	0.2	100/10	-	60*	800	TO-39
40	60/150	100	BSX32	0.5	500/50	300	60*	800	TO-39
50	60/150	100	2N3725	0.52	500/50	300	60*	800	TO-39

**PNP TRANSISTORS FOR FAST AND ULTRA FAST SWITCHING**

V <sub>CEO</sub> (V)	h <sub>FE</sub> @ I <sub>C</sub>		Type	V <sub>CE(sat)</sub> @ I <sub>C</sub> / I <sub>B</sub>		f <sub>T</sub>	t <sub>off</sub>	P <sub>tot</sub> (mW)	Package
	min/max	(mA)		max (V)	(mA)	min (MHz)	(ns)		
12	30/120	30	BSX29	0.2	30/3	400	90	360	TO-18
12	40/120	30	2N2894	0.2	100/10	400	90	360	TO-18
20	30/120	30	2N3209	0.2	30/3	400	90	360	TO-18

## NPN GENERAL PURPOSE TRANSISTORS - SOT-23

V <sub>CB0</sub> V <sub>CES</sub> *	V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub>	Type	h <sub>FE</sub> @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>t</sub> max min *
					min/max	(mA)	(V)	max (mV)	(mA)	(mA)	
30	20	100	200	BCW31	110/220	2	5	250	10	0.5	300
30	20	100	200	BCW32	200/450	2	5	250	10	0.5	300
30	20	100	200	BCW33	420/800	2	5	250	10	0.5	300
30	30	100	310	BC848A	110/220	2	5	600	100	5	300
30	30	100	310	BC848B	200/450	2	5	600	100	5	300
30	30	100	310	BC849B	200/450	2	5	600	100	5	300
32 *	32	200	310	BCW60A	120/220	2	5	550	50	1.25	125 *
32 *	32	200	310	BCW60B	180/310	2	5	550	50	1.25	125 *
32 *	32	200	310	BCW60C	250/460	2	5	550	50	1.25	125 *
45 *	45	200	310	BCX70G	120/220	2	5	550	50	1.25	125 *
45 *	45	200	310	BCX70H	180/310	2	5	550	50	1.25	125 *
45 *	45	200	310	BCX70J	250/460	2	5	550	50	1.25	125 *
50 *	45	200	310	BCX19	100/600	100	1	620	500	50	200
50	45	100	200	BCW71	110/220	2	5	250	10	0.5	300
50	45	100	200	BCW72	200/450	2	5	250	10	0.5	300
50	45	100	200	BCW81	420/800	2	5	250	10	0.5	300
50	50	100	310	BC847A	110/220	2	5	600	100	5	300
50	50	100	310	BC847B	200/450	2	5	600	100	5	300
50	50	100	310	BC850B	200/450	2	5	600	100	5	300
60 *	32	800	360	BCW65A	120/250	100	1	700	500	50	100 *
60 *	32	800	360	BCW65B	160/400	100	1	700	500	50	100 *
60 *	32	800	360	BCW65C	250/600	100	1	700	500	50	100 *
60	60	100	200	BCV71	110/220	2	5	250	10	0.5	300
60	60	100	200	BCV72	200/450	2	5	250	10	0.5	300
75 *	45	800	360	BCW66F	100/250	100	1	700	500	50	100 *
75 *	45	800	360	BCW66G	160/400	100	1	700	500	50	100 *
75 *	45	800	360	BCW66H	250/600	100	1	700	500	50	100 *
80	80	100	310	BC846A	110/220	2	5	600	100	5	300
80	80	100	310	BC846B	200/450	2	5	600	100	5	300
120	80	100	200	BSS64	20/—	4	1	200	50	15	60 *

**PNP GENERAL PURPOSE TRANSISTORS - SOT-23**

V <sub>CB0</sub> V <sub>CES</sub> *	V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub>	Type	hFE @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>T</sub>
					min/max	(mA)	(V)	max	(mA)	(mA)	min *
(V)	(V)	(mA)	(mW)					(mV)			(MHz)
30	20	100	200	BCW29	120/260	2	5	300	10	0.5	150
30	20	100	200	BCW30	215/600	2	5	300	10	0.5	150
30	30	100	310	BC858A	110/220	2	5	650	50	5	150
30	30	100	310	BC858B	200/450	2	5	650	50	5	150
30	30	100	310	BC859A	110/220	2	5	650	50	5	150
30	30	100	310	BC859B	200/450	2	5	650	50	5	150
32 *	32	200	310	BCW61A	120/220	2	5	550	50	1.25	180
32 *	32	200	310	BCW61B	180/310	2	5	550	50	1.25	180
32 *	32	200	310	BCW61C	250/460	2	5	550	50	1.25	180
45 *	32	800	360	BCW67A	100/250	100	1	700	500	50	100 *
45 *	32	800	360	BCW67B	160/400	100	1	700	500	50	100 *
45 *	32	800	360	BCW67C	250/630	100	1	700	500	50	100 *
45 *	45	200	310	BCX71G	120/220	2	5	550	500	50	180
45 *	45	200	310	BCX71H	180/310	2	5	550	500	50	180
45 *	45	200	310	BCX71J	250/460	2	5	550	500	50	180
50	45	100	200	BCW69	120/260	2	5	300	10	0.5	150
50	45	100	200	BCW70	215/500	2	5	300	10	0.5	150
50 *	45	100	310	BCX17	100/600	100	1	620	500	50	100
50	50	100	310	BC857A	110/220	2	5	650	50	5	150
50	50	100	310	BC857B	200/450	2	5	650	50	5	150
50	50	100	310	BC860A	110/220	2	5	650	50	5	150
50	50	100	310	BC860B	200/450	2	5	650	50	5	150
60 *	45	800	360	BCW68F	100/250	100	1	700	500	50	100 *
60 *	45	800	360	BCW68G	160/400	100	1	700	500	50	100 *
60 *	45	800	360	BCW68H	250/630	100	1	700	500	50	100 *
60	60	100	200	BCW89	120/260	2	5	300	10	0.5	150
80	80	100	310	BC856A	110/220	2	5	650	50	5	150
80	80	100	310	BC856B	200/450	2	5	650	50	5	150
110	100	100	200	BSS63	30/---	25	1	900	75	7.5	50



## PNP DARLINGTONS - SOT-23

VCBO (V)	VCE0 (V)	Ic (mA)	Ptot (mW)	Type	hFE @ Ic / VCE			VCE(sat) @ Ic / IB			fr
					min/max	(mA)	(V)	max (mV)	(mA)	(mA)	typ (MHz)
40	30	500	350	BCV26	4000/-	500	5	1000	100	0.1	200
80	60	500	350	BCV46	2000/-	500	5	1000	100	0.1	200

## NPN DARLINGTONS - SOT-23

VCBO (V)	VCE0 (V)	Ic (mA)	Ptot (mW)	Type	hFE @ Ic / VCE			VCE(sat) @ Ic / IB			fr
					min/max	(mA)	(V)	max (mV)	(mA)	(mA)	typ (MHz)
40	30	500	350	BCV27	4000/-	500	5	1000	100	0.1	200
80	60	500	350	BCV47	3000/-	20	2	1000	100	0.1	220

## NPN SWITCHING TRANSISTORS - SOT-23

VCBO (V)	VCE0 (V)	Ic (mA)	Ptot (mW)	Type	hFE @ Ic / VCE			VCE(sat) @ Ic / IB			fr
					min/max	(mA)	(V)	max (mV)	(mA)	(mA)	min (MHz)
20	12	200	200	BSV52	40/120	10	1	400	50	5	400
40	15	200	200	SO2369	40/120	10	1	250	30	3	400
40	15	200	200	SO2369A	40/120	10	0.35	500	100	10	500

## NPN HIGH FREQUENCY TRANSISTORS - SOT-23

VCBO (V)	VCE0 (V)	Ic (mA)	Ptot (mW)	Type	hFE @ Ic / VCE			VCE(sat) @ Ic / IB			fr
					min/max	(mA)	(V)	max (mV)	(mA)	(mA)	max min *
30	15	50	200	SO918	20/-	3	1	400	10	1	600 *
30	20	25	200	BFS20	40/-	7	10	---	---	---	550
30	20	30	200	BFS19	65/225	1	10	---	---	---	300

**NPN HIGH VOLTAGE TRANSISTORS - SOT-23**

V <sub>CBO</sub>	V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub>	Type	h <sub>FE</sub> @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>T</sub>
					min/max	(mA)	(V)	max	(mA)	(mA)	typ
(V)	(V)	(mA)	(mW)					(mV)			(MHz)
160	140	600	200	SO5550	60/250	10	5	250	50	5	100
180	160	600	200	SO5551	80/250	10	5	200	50	5	100
300	300	100	310	SO642	40/-	30	20	500	10	2	50

**PNP HIGH VOLTAGE TRANSISTORS - SOT-23**

V <sub>CBO</sub>	V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub>	Type	h <sub>FE</sub> @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>T</sub>
					min/max	(mA)	(V)	max	(mA)	(mA)	typ
(V)	(V)	(mA)	(mW)					(mV)			(MHz)
130	120	600	200	SO5400	40/180	10	5	500	50	5	100
160	150	600	200	SO5401	60/240	10	5	500	50	5	100
300	300	100	310	SO692	40/-	10	10	500	20	2	50

**NPN LOW NOISE PREAMPLIFIER TRANSISTORS - SOT-23**

V <sub>CBO</sub>	V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub>	Type	h <sub>FE</sub> @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>T</sub>
					min/max	(mA)	(V)	max	(mA)	(mA)	typ
(V)	(V)	(mA)	(mW)					(mV)			(MHz)
45	45	30	200	SO930	-/600	10	5	1000	10	0.5	200
60	60	50	200	SO2484	-/800	10	5	350	1	0.1	200

**NPN MEDIUM CURRENT SWITCHING TRANSISTORS - SOT-23**

V <sub>CBO</sub>	V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub>	Type	h <sub>FE</sub> @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>T</sub>
					min/max	(mA)	(V)	max	(mA)	(mA)	typ
(V)	(V)	(mA)	(mW)					(mV)			(MHz)
60	30	800	310	BSR13	100/300	150	10	1600	500	50	250
60	30	800	310	SO2222	100/300	150	10	400	150	15	250
75	40	800	310	BSR14	100/300	150	10	1000	500	50	300
75	40	800	310	SO2222A	100/300	150	10	300	150	15	250

## PNP MEDIUM CURRENT SWITCHING TRANSISTORS - SOT-23

V <sub>CBO</sub>	V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub>	Type	hFE @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>T</sub>
					min/max	(mA)	(V)	max	(mA)	(mA)	
60	40	600	310	BSR15	100/300	150	10	1600	500	50	200
60	60	800	310	SO2907	40/120	150	10	400	150	15	200
60	60	600	310	BSR16	100/300	150	10	1000	500	50	200
60	60	800	310	SO2907A	100/300	150	10	400	150	15	200

## NPN TRANSISTORS - SOT-223

V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub> •	Type	hFE @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>T</sub>
				min/max	(mA)	(V)	max	(mA)	(mA)	typ min *
30	800	1500	STZT2222	100/300	150	10	1600	500	50	250 *
40	800	1500	STZT2222A	100/300	150	10	1000	500	50	300 *
40	200	1500	STZT3904	100/300	10	1	300	50	5	300 *
45	1500	2000	BCP54	40/250	150	2	500	500	50	130
60	1500	2000	BCP55	40/250	150	2	500	500	50	130
60	1000	2000	BSP40	40/120	100	5	500	500	50	100 *
60	1000	2000	BSP41	100/300	100	5	500	500	50	100 *
80	1500	2000	BCP56	40/250	150	2	500	500	50	130
80	1000	2000	BSP42	40/120	100	5	500	500	50	100 *
80	1000	2000	BSP43	100/300	100	5	500	500	50	100 *

## PNP TRANSISTORS - SOT-223

V <sub>CEO</sub>	I <sub>c</sub>	P <sub>tot</sub> •	Type	hFE @ I <sub>c</sub> / V <sub>CE</sub>			V <sub>CE(sat)</sub> @ I <sub>c</sub> / I <sub>B</sub>			f <sub>T</sub>
				min/max	(mA)	(V)	max	(mA)	(mA)	typ min *
40	600	1500	STZT2907	100/300	150	10	400	150	15	250 *
45	1500	2000	BCP51	100/300	150	2	500	50	5	300 *
60	600	1500	STZT2907A	40/250	150	10	400	150	15	130
60	1500	2000	BCP52	40/250	150	2	500	500	50	130
60	1000	2000	BSP30	40/120	100	5	500	500	50	100 *
60	1000	2000	BSP31	100/300	100	5	500	500	50	100 *
80	1500	2000	BCP53	40/250	150	2	500	500	50	130
80	1000	2000	BSP32	40/120	100	5	500	500	50	100 *
80	1000	2000	BSP33	100/300	100	5	500	500	50	100 *

**NPN HIGH VOLTAGE AND VIDEO AMPLIFIER TRANSISTORS - SOT-223**

$V_{CE0}$ $V_{CER}^*$	$I_C$	$P_{tot}$ •	Type	$h_{FE}$ @ $I_C / V_{CE}$			$V_{CE(sat)}$ @ $I_C / I_B$			$f_T$
				min/max	(mA)	(V)	max (mV)	(mA)	(mA)	min (MHz)
140	600	2000	STZT5550	60/250	10	5	250	50	5	100
160	600	2000	STZT5551	80/250	10	5	200	50	5	100
300	500	2000	STZTA42	40/-	10	10	500	20	2	50

**PNP HIGH VOLTAGE AND VIDEO AMPLIFIER TRANSISTORS - SOT-223**

$V_{CE0}$ $V_{CER}^*$	$I_C$	$P_{tot}$ •	Type	$h_{FE}$ @ $I_C / V_{CE}$			$V_{CE(sat)}$ @ $I_C / I_B$			$f_T$
				min/max	(mA)	(V)	max (mV)	(mA)	(mA)	min (MHz)
120	600		STZT5400	40/180	10	5	500	50	5	100
150	600		STZT5401	60/240	10	5	500	50	5	100
300	500		STZTA92	40/-	10	10	500	20	2	50

• Mounted on a ceramic substrate area of 35 x 35 x 0.7 mm