SEMICONDUCTORS AND INTEGRATED CIRCUITS

This booklet is intended as a concise guide for designers of electronic equipment.

Although the guide is completely up-to-date, modern research is continually establishing new types and application, which expand the available range. For this reason the booklet will be re-issued at regular intervals.

For complete specifications, and for information on types developed since publication, the Data Handbook System should be consulted.

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The issue of this list is not intended as restriction on availability of other types for developments. However, if a type not included is required it is advisable to consult us beforehand.

DESIGNERS GUIDE

for Philips Semiconductor Devices

ELECTRONIC COMPONENTS AND MATERIALS DIVISION

CONTENTS

STATUS CODE KEY

D* = DESIGN RANGE TYPE. New type recommended for equipment design.

D = DESIGN RANGE TYPE. Recommended for equipment design.

C = COMMITMENT TYPE. Available for the continuation of existing equipment and not recommended for equipment design.

M = MAINTENANCE TYPE. For servicing of existing equipment.

MIL = Device can be delivered according to a Military specification.

DIODES (Germanium-Silicon)

type	D*	D	C	M	successor type	MIL.	description
Germanium							
AA119		X					AM detector
2-AA119		X					FM ratio detector, matched pair
AAY11			X		BAX14	X	OA86 in DO-7 envelope
AAY21			X		BAX13	X	High conductance, high speed switching, point contact
AAY30		X					Higher voltage version of OA47
AAY32		X					Higher speed version of OA47
AAY33		X					Very high speed, gold bonded type, DO-7 envelope
AAY34		X					Point contact mixer for Q-band
AAY39		X					Point contact mixer for X-band
AAY40		X					Mixer for X-band
AAZ12			X		BAX78	X	High speed switching, junction
AAZ13			X		BAX13	X	Very high speed switching, gold bonded
AAZ15		X					OA5 in DO-7 envelope
AAZ17		X				X	OA7 in DO-7 envelope
AAZ18		X				X	OA9 in DO-7 envelope
AEY13		X					Tunnel diode for low noise microwave amplifier in S-band
AEY16	X						Tunnel diode for low noise microwave amplifier in S-band, higher frequency
Silicon							
BA100		X					General purpose diode
BA102		X					Variable capacitance diode
BA114		X					Low voltage stabilizer diode
BA145		X					Double diffussed, in epoxy envelope, for clamping circuits in colour TV
BA148		X					High speed general purpose diode
BAX13		X					Very high speed switching diode, in whiskerless construction, hard glass
BAX14		X					High speed, high voltage switching diode, in whiskerless construction
BAX16		X					Whiskerless diode for general purpose
BAX78		X					Very high speed, high conductance planar epitaxial diode, DO-7 envelope
BAY32				X	BAX16		Planar construction DO-7 envelope for general purpose
BAY33				X	BAX16		Planar construction DO-7 envelope for general purpose and switching

DIODES (Silicon)

type	D*	D	C	M	successor type	MIL.	description
BAY38		X				X	Very high speed switching planar epitaxial diode, D0-7 envelope
BAY39			X		BAX78	X	High speed, high conductance, planar epitaxial diode, D0-7 envelope
BAY66			X		BAY96		Double diffused varactor diode
BAY96		X					Planar epitaxial high power varactor
BPY10		X					Photovoltaic cell for tape and card reading
BY100			X		BY127	X	T.V. rectifier for 220 V mains voltage
BY114			X		BY126		T.V. rectifier for 110 V mains voltage
BY118		X					Booster diode
BY122		X					Bridge rectifier for use as power supply up to 60 V 0.6 A in transistorized mains powered equipment
BY123		X					Bridge rectifier for mains powered equipment up to 400 V, 0.5 A
BY126		X					T.V. rectifier in epoxy envelope, for 110 V mains voltage
BY127		X					T.V. rectifier in epoxy envelope, for 220 V mains voltage
BY138	X						Controlled avalanche rectifier for 220 V mains voltage, epoxy envelope
BY140	X						E.H.T. stack, 2 mA, 12.5 kV
BYX10	X						Double diffused low current rectifier, epoxy envelope
BYX13-400		X					20 A rectifier, for 400 V r.p.r.v.
BYX13-400R		X					Reverse polarity type of BYX13-400
⋮							⋮ } 20 A series
BYX13-1600		X					20 A rectifier, for 1600 V r.p.r.v.
BYX13-1600R		X					Reverse polarity type of BYX13-1600
BYX14-400		X					150 A rectifier, for 400 V r.p.r.v.
BYX14-400R		X					Reverse polarity type of BYX14-400
⋮							⋮ } 150 A serie
BYX14-1200		X					150 A rectifier, for 1200 V r.p.r.v.
BYX14-1200R		X					Reverse polarity type of BYX14-1200
BYX15		X					40 A rectifier, for 1600 V r.p.r.v.
BYX16		X					Reverse polarity type of BYX15 } 40 A series

type	D*	D	C	M	successor type	MIL.	description	
BYX20-200			X		BYX21-200		25 A rectifier, for 75 V d.c.	
BYX20-200R*			X		BYX21-200R		Reverse polarity type of BYX20-200	
BYX21-100		X					25 A rectifier for 100 V r.p.r.v.	25 A series
BYX21-100R*		X					Reverse polarity type of BYX21-100	
BYX21-200		X					25 A rectifier for 200 V r.p.r.v.	
BYX21-200R		X					Reverse polarity type of BYX21-200	
BYX23-400		X					100 A contr. aval. rect. for 400 V cr.v.w.	100 A series
⋮								
BYX23-1000		X					idem for 1000 V r.p.r.v.	
BYX24	X						Bridge rect. for general industrial eq. 0.55 A, 800 V r.p.r.v.	
BYX25-600		X					20 A contr. aval. rect. for 600 V cr.w.v.	20 A series
BYX25-600R*		X						
⋮								
BYX25-1000		X						
BYX25-1000R*		X					idem for 1000 V r.p.r.v.	
BYX27-400		X					250 A contr. aval. rect. for 400 V cr.w.v.	250 A series
BYX27-600		X						
BYX27-800		X						
BYX27-1000		X					idem for 1000 V cr.w.v.	
BYX28-200		X					25 A rect. for 200 V r.p.r.v.	25 A series
BYX28-200R*		X						
BYX28-400		X						
BYX28-400R*		X					idem for 400 V r.p.r.v.	
BYX29-75000	X						50 mA contr. aval. rect. for 75 kV	50 mA series
⋮								
BYX29-150000	X						idem for 150 kV	
BYX30-200		X					14 A contr. aval. rect. for 200 V cr.w.v.	14 A series
BYX30-200R*		X						
⋮								
BYX30-500		X						
BYX30-500R*		X					idem for 500 V cr.w.v.	
BYX32-200		X					100 A rect. for 200 V r.p.r.v.	100 A series
⋮								
BYX32-1600		X					idem for 1600 V r.p.r.v.	
BYX33-200		X					250 A rect. for 200 V r.p.r.v.	250 A series
⋮								
BYX33-1600		X					idem for 1600 V r.p.r.v.	

* Reverse polarity type.

DIODES (Silicon)

type	D*	D	C	M	successor type	MIL.	description	
BYX34-200	X						60 A fast contr. aval. rect. for 200 V cr.w.v.	
BYX34-500	X						idem for 500 V cr.w.v.	
BYX36-100	X						1 A rect. in plastic envelope for 100 V r.p.r.v.	
BYX36-300	X						idem for 300 V r.p.r.v.	
BYY15 and 16		X					40 A rect. for 800 V r.p.r.v.	
BYY20				X	BYX21-200R			
BYY21				X	BYX21-200			
BYY22		X				X	10 A rectifier, for 400 V r.p.r.v.	
BYY23		X				X	Reverse polarity type of BYY22	
BYY24		X				X	10 A rectifier, for 800 V r.p.r.v.	
BYY25		X				X	Reverse polarity type of BYY24	
BYY67		X				X	10 A rectifier, for 600 V r.p.r.v.	
BYY68		X				X	Reverse polarity type of BYY67	
BYY73		X					40 A rectifier, for 600 V r.p.r.v.	
BYY74		X					Reverse polarity type of BYY73	
BYY75		X					40 A rectifier, for 1000 V r.p.r.v.	
BYY76		X					Reverse polarity of BYY75	
BYY77		X					40 A rectifier, for 1200 V r.p.r.v.	
BYY78		X					Reverse polarity type of BYY77	
BYZ10		X				X	6 A rectifier, for 1200 V r.p.r.v.	
BYZ11		X				X	6 A rectifier, for 900 V r.p.r.v.	
BYZ12		X				X	6 A rectifier, for 600 V r.p.r.v.	
BYZ13		X				X	6 A rectifier, for 300 V r.p.r.v.	
BYZ14		X					40 A rectifier, for 400 V r.p.r.v.	
BYZ15		X					Reverse polarity type of BYZ14	
BZ100			X				Zener diode for FM car radio	
BZY56			X		BZY88-C4V7	X	Double-ended subminiature, zener voltage 4.7 V, tolerance ±5 %, 280 mW	280 mW serie
BZY57			X		BZY88-C5V1	X	Idem 5.1 V	
BZY58			X		BZY88-C5V6	X	Idem 5.6 V	
BZY59			X		BZY88-C6V2	X	Idem 6.2 V	
BZY60			X		BZY88-C6V8		Idem 6.8 V	
BZY61			X		BZY88-C7V5	X	Idem 7.5 V	
BZY62			X		BZY88-C8V2		Double-ended subminiature, zener voltage 8.2, tolerance ±5 %, 280 mW	
BZY63			X		BZY88-C9V1	X	Idem 9.1 V	

* reverse polarity type

type	D*	D	C	M	successor type	MIL.	description	
BZY64			X		BZY88-C4V3		Double-ended subminiature type, zener voltage 4.3 V, tolerance ±15 %, 280 mW	
BZY65		X			BZY88-C5V1		Idem 5.1 V	
BZY66		X			BZY88-C6V2		Idem 6.2 V	
BZY67		X			BZY88-C7V5		Idem 7.5 V	
BZY68		X			BZY88-C9V1	X	Idem 9.1 V	
BZY69		X			BZY88-C12	X	Idem 12.0 V	
BZY74		X			BZY88-C6V2		Double-ended subminiature type, zener voltage 6.2 V, tolerance ±15 %, 7.5 W	
BZY75		X			BZY88-C7V5		Idem 7.5 V	
BZY76		X			BZY88-C9V1		Idem 9.1 V	
BZY78	X						Double ended subminiature type, zener voltage 5.3 V, tolerance ±5 %, 280 mW	
BZY88-C3V3	X						Double-ended subminiature type, zener voltage 3.3 V, tolerance ±5 %, 400 mW	400 mW series
⋮							⋮	
BZY88-C9V1	X						Idem 9.1 V	
BZY91-C10	X						Power type, zener voltage 10 V, tolerance ±5 %, 75 W	75 W series
⋮							⋮	
BZY91-C75	X						Idem 75 V	
BZY93-C6V8		X					Medium power type, zener voltage 6.8 V tolerance ±5 %, 20 W	20 W series
⋮							⋮	
BZY93-C75	X	X					Idem 75 V	
BZY94-C10	X						Double-ended subminiature type, zener voltage 10 V, tolerance ±5 %, 400 mW	400 mW series
⋮							⋮	
BZY94-C75	X						Idem 75 V	
BZY95-C9V1	X						Diffused type, zener voltage 9.1 V, tolerance ±5 %, 1.5 W	1.5 W series
⋮							⋮	
BZY95-C62	X						Idem 62 V	
BZY96-C5V6	X						Alloy type, zener voltage 5.6 V, tolerance ±5 %, 1.5 W	1.5 W series
⋮							⋮	
BZY96-C8V2	X						Idem 8.2 V	

type	D*	D	C	M	successor type	MIL.	description	
Silicon								
BZZ10			X		BZY88-C6V2		Double-ended all glass type, zener voltage 6.0 V, tolerance ±10 %, 280 mW	280 mW series
BZZ11			X		BZY88-C6V8		Idem 6.5 V	
BZZ12			X		BZY88-C7V5		Idem 7.2 V	
BZZ13			X		BZY88-C8V2		Idem 8.0 V	
BZZ14		X					Alloy power type, zener voltage 5.6 V, tolerance ±5 %, 7.5 W	7.5 W series
BZZ15		X					Idem 6.2 V	
BZZ16		X					Idem 6.8 V	
BZZ17		X					Idem 7.5 V	
BZZ18		X					Idem 8.2 V	
BZZ19		X					Idem 9.1 V	
BZZ20		X					Idem 10.0 V	
BZZ21		X					Idem 11 V	
BZZ22		X					Idem 12 V	
BZZ23		X					Idem 13 V	
BZZ24		X					Idem 15 V	
BZZ25		X					Idem 16 V	
BZZ26		X					Idem 18 V	
BZZ27		X					Idem 20 V	
BZZ28		X					Idem 22 V	
BZZ29		X					Idem 24 V	
Gallium Arsenide								
CAY10		X					Low power varactor for GHz operation	
CAY11		X					Ultra high speed switching diode, D0-7 envelope	

DIODES

Type	D*	D	C	M	successor type	MIL.	description
Germanium							
OA5			X		AAZ15	X	High voltage, low forward resistance, gold bonded single ended
OA7			X		AAZ17	X	High speed switching, gold bonded single ended
OA9			X		AAZ18		High speed switching, low forward resistance, gold bonded single ended
OA31		X				X	Power rectifier 3.8 A, 120 V r.p.r.v.
OA47			X		AAY30/32	X	Medium speed, gold bonded, D0-7 envelope
OA70		X				X	Video detector
OA72				X	AA119		Ratio detector
OA73				X		X	Video detector, higher voltage
OA79			X		AA119	X	AM detector
2-OA79			X		2-AA119		FM ratio detector, matched pair
OA81		X				X	High inverse voltage
OA85		X				X	High inverse voltage, with lower forward resistance
OA86				X	BAX14		High voltage, medium speed switching, point contact
OA90		X				X	Video detector, D0-7 envelope
OA91		X					General purpose, D0-7 envelope
OA92		X					Low voltage high speed switching, D0-7 envelope, point contact
OA95		X				X	General purpose, D0-7 envelope

DIODES

type	D*	D	C	M	successor type	MIL.	description
Silicon							
OA200			X		BAX16	X	General purpose, DO-7 envelope
OA202			X		BAX16	X	High voltage diode, DO-7 envelope
OA210				X	BY126	X	TV rectifier
OA211				X	BY127	X	TV rectifier
OA214				X	BY127	X	TV rectifier
Germanium							
OAP12	X						Photo diode, single ended
Silicon							
OAZ200				X	BZY88-C4V7	X	Single ended, zener voltage 4.7 V, tolerance ±5 %, 320 mW
OAZ201				X	BZY88-C5V1	X	Idem 5.1 V
OAZ202				X	BZY88-C5V6	X	Idem 5.6 V
OAZ203				X	BZY88-C6V2	X	Idem 6.2 V
OAZ204				X	BZY88-C6V8	X	Idem 6.8 V
OAZ205				X	BZY88-C7V5	X	Idem 7.5 V
OAZ206				X	BZY88-C8V2	X	Idem 8.2 V
OAZ207				X	BZY88-C9V1	X	Idem 9.1 V
OAZ208				X	BZY88-C4C3	X	Single-ended, zener voltage 4.3 V, tolerance ±15 %, 320 mW
OAZ209				X	BZY88-C5V1	X	Idem 5.1 V
OAZ210				X	BZY88-C6V2	X	Idem 6.2 V
OAZ211				X	BZY88-C7V5	X	Idem 7.5 V
OAZ212				X	BZY88-C9V1	X	Idem 9.1 V
OAZ213				X	BZY94-C12	X	Idem 12.0 V

type	D*	D	C	M	successor type	MIL.	description
Indium antimonide							
ORP10		X					Photoconductive cell on copper heatsink
ORP13		X					Photoconductive cell in glass dewar vessel
Lead sulphide							
61SV		X					Photoconductive cell

RECTIFIER STACKS (Silicon)

type	D*	D	C	M	successor type	MIL.	description
OSH02-200	X						Single phase bridge module V_o = 125 V, I_o = 1.9 A
OSH02-400	X						Idem V_o = 250 V, I_o = 1.9 A
OSH02-800	X						Idem V_o = 500 V, I_o = 1.9 A
OSH2504		X					Single phase bridge V_o = 125 V, I_o = 47 A
OSH4502		X					Idem V_o = 250 V, I_o = 47 A
OSH4503		X					Idem V_o = 375 V, I_o = 47 A
OSK2503		X					Three phase bridge V_o = 185 V, I_o = 63 A
OSK4509		X					Idem V_o = 375 V, I_o = 63 A
OSK4510		X					Idem V_o = 565 V, I_o = 63 A
OSS9210-3	X						Single phase high voltage stack 3 kV cr.w.v. — 5 A series
OSS9210-30	X						Idem 30 kV cr.w.v.
OSB9210-4	X						Two phase half wave high voltage stack 2 kV cr.w.v. — 10 A series
OSB9210-30	X						Idem 15 kV cr.w.v.
OSM9210-4	X						High voltage doubler stack 2 kV cr.w.v. — 10 A series
OSM9210-30	X						Idem 15 kV cr.w.v.

THYRISTORS (Silicon)

type	D*	D	C	M	successor type	MIL.	description	
BTX12-100R		X					Controlled rectifier for 100 V r.p.r.v.	20 A series
BTX12-600R		X					Idem 600 V r.p.r.v.	
BTX13-100E		X					Controlled rectifier for 100 V r.p.r.v.	30 A series
BTX13-600R		X					Idem 600 V r.p.r.v.	
BTX35-500R		X					Controlled avalanche for 500 V cr.w.v.	12 A series (controlled avalanche)
BTX35-800R		X					Idem 800 V cr.w.v.	
BTX36-500R		X					Controlled avalanche for 500 V cr.w.v.	16 A series (controlled avalanche)
BTX36-800R		X					Idem 800 V cr.w.v.	
BTX37-500R		X					Controlled avalanche for 500 V cr.w.v.	50 A series (controlled avalanche)
BTX37-800R		X					Idem 800 V cr.w.v.	
BTX38-500R		X					Controlled avalanche for 500 V cr.w.v.	70 A series (controlled avalanche
BTX38-800R		X					Idem 800 V cr.w.v.	
BTX41-200R	X						Controlled rectifier for 200 V r.p.r.v.	200 A series
BTX41-1200R	X						Idem 1200 V r.p.r.v.	
BTX46-200R	X						Controlled rectifier for 200 V r.p.r.v.	150 A series
BTX46-1200R	X						Idem 1200 V r.p.r.v.	
BTX47-1000R		X					Controlled avalanche for 1000 $V_{BR.}$	16 A series (controlled avalanche)
BTX47-1200R		X					Idem 1200 $V_{BR.}$	
BTX47-1400R		X					Idem 1400 $V_{BR.}$	
BTX49-1000R		X					Controlled avalanche for 1000 $V_{BR.}$	70 A series (controlled avalanche)
BTX49-1200R		X					Idem 1200 $V_{BR.}$	
BTX49-1400R		X					Idem 1400 $V_{BR.}$	
BTX64-100R	X						Fast controlled rectifier for 100 V r.p.r.v.	16 A series
BTX64-500R	X						Idem 500 V r.p.r.v.	

THYRISTORS (Silicon)

type	D*	D	C	M	successor type	MIL.	description	
BTX66-100R	X						Fast controlled rectifier for 100 V r.p.r.v.	70 A series
BTX66-500R	X						Idem 500 V r.p.r.v.	
BTX68-500R	X						Controlled avalanche for 500 V cr.w.v.	6.4 A series (controlled avalanche)
BTX68-800R	X						Idem 800 V cr.w.v.	
BTY79				X	BTY79-200R		Controlled rectifier for 150 V r.p.r.v.,	6.4 A
BTY79-100R		X					Controlled rectifier for 100 V r.p.r.v.	6.4 A series
BTY79-800R		X					Idem 800 V r.p.r.v.	
BTY80				X	BTY79-300R		Controlled rectifier for 250 V r.p.r.v.,	4.7 A
BTY81				X	BTY79-400R		Controlled rectifier for 400 V r.p.r.v.,	4.7 A
BTY84				X	BTY87-100R			
BTY85				X	BTY87-200R			
BTY86				X	BTY87-300R			
BTY87-100R		X					Controlled rectifier for 100 V r.p.r.v.	12 A series
BTY87-800R		X					Idem 800 V r.p.r.v.	
BTY88				X	BTY91-100R			
BTY89				X	BTY91-200R			
BTY90				X	BTY91-300R			
BTY91-100R		X					Controlled rectifier for 100 V r.p.r.v.	16 A series
BTY91-800R		X					Idem 800 V r.p.r.v.	
BTY95-100R		X					Controlled rectifier for 100 V r.p.r.v.	50 A series
BTY95-800R		X					Idem 800 V r.p.r.v.	
BTY99-100R		X					Controlled rectifier for 100 V r.p.r.v.	70 A series
BTY99-800R		X					Idem 800 V r.p.r.v.	

TRANSISTORS (Germanium)

type	D*	D	C	M	successor type	MIL.	description
AC107				X	AC172 BC109		Low-noise input transistor
AC125		X					Pre-amplifier, driver
AC126		X					Pre-amplifier, driver
AC127		X					NPN pre-amplifier, driver
AC127/AC128		X					Output transistors, complementary matched pair (1.2 W)
AC127/AC132		X					Output transistors, complementary matched pair (0.5 W)
AC128		X					Output transistor
AC128/AC176				X	AC187/188		Output transistors, complementary matched pair (2 W)
2-AC128		X					Output transistors, matched pair
AC130		X					NPN symmetrical ampl.
AC132		X					Output transistor
2-AC132		X					Output transistors, matched pair
AC172		X					NPN low-noise transistor
AC176				X	AC187		NPN output transistor
AC187/AC188		X					Output transistors, complementary matched pair (3.5 W)
2-AC188		X					Output transistors, matched pair
AD139				X	AD162		Power output transistor
2-AD139				X	2-AD162		Power output transistor, matched pair
AD140				X	AD149		Output transistor
AD149		X					PNP power ampl.
2-AD149		X					PNP power ampl., matched pair
AD161		X					NPN output ampl.
2-AD161		X					NPN output ampl., matched pair
AD162		X					Output ampl.
2-AD162		X					Output ampl., matched pair
AD161/AD162		X					Output ampl., complementary matched pair (14 W)
ADY26		X				X	80 V high power ampl., 25 A
ADZ11		X				X	40 V high power ampl., 15 A
ADZ12		X				X	80 V high power ampl., 15 A
AF102			X		BF200		VHF-low-noise amplifier
AF114			X		AF124 BF195		FM-pre-amplifier
AF115					AF125 BF195		FM-mixer (oscillator) AM-mixer (oscillator for short wave reception up to 26 MHz)

TRANSISTORS (Germanium)

type	D*	D	C	M	successor type	MIL.	description
AF116				X	AF126 BF194		FM-IF-amplifier AM-mixer (oscillator up to 16 MHz)
AF117				X	AF127 BF194		AM-mixer (oscillator up to 6 MHz) AM-IF amplifier
AF118			X		BF177 BF178		Video amplifier
AF121			X		BF167 BF173		High gain IF vision and FM up to 100 MHz
AF124			X		BF195		FM-pre-amplifier up to 100 MHz
AF125			X		BF195		FM-mixer (oscillator) AM-mixer (oscillator for short wave reception up to 26 MHz)
AF126			X		BF194		FM-IF-amplifier AM-mixer (oscillator up to 16 MHz)
AF127			X		BF194		AM-mixer (oscillator up to 6 MHz) AM-IF-amplifier
AF139			X		AF239		Forward gain controlled ampl. and mixer/osc. for UHF and integrated tuners
AF178				X	BF115		VHF-mixer and oscillator
AF179			X		BF173		IF-video amplifier
AF180				X	BF200		VHF-RF amplifier } forward gain controlled
AF181				X	BF167		IF video amplifier } forward gain controlled
AF185			X		BF115 BF195		AM-mixer/oscillator and IF amplifier
AF186			X		AF239		UHF forward gain controlled amplifier and mixer/oscillator
AF239		X					UHF forward gain controlled low noise pre-amplifier and mixer oscillator
AFY16			X		BFX43		UHF amplifier mesa
AFY19			X		BFX43		Alloy-diffused transmitting for HF medium power stages
AFY40			X		BFX44		UHF aerial amplifier
AFZ12			X			X	VHF amplifier alloy diffused
ASY26		X					PNP medium speed switching
ASY27		X					PNP medium speed switching, higher gain
ASY28		X					NPN medium speed switching
ASY29		X					NPN medium speed switching, higher gain
ASY31			X		ASY26		PNP medium speed switching
ASY32			X		ASY27		PNP medium speed switching, higher gain

TRANSISTORS (Germanium-silicon)

type	D*	D	C	M	successor type	MIL.	description
Germanium							
ASY73		X				X	NPN symmetrical, medium speed switching, low gain
ASY74		X				X	NPN symmetrical, medium speed switching, medium gain
ASY75		X				X	NPN symmetrical, medium speed switching, high gain
ASY76		X				X	PNP medium power low speed switching
ASY77		X				X	PNP medium power low speed switching, higher voltage
ASY80		X				X	PNP medium power low speed switching, higher current
ASZ15		X				X	High voltage power switching
ASZ16		X				X	High gain power switching
ASZ17		X				X	Medium gain power switching
ASZ18		X				X	Medium gain, high voltage power switching
ASZ20			X			X	Wide-band amplifier and current mode switch
ASZ21			X			X	PNP high speed voltage mode switching
ASZ23		X				X	High speed avalanche switching
AU101				X	AU103		Line deflection, output ampl.
AU102				X	AC128		Line deflection driver
AU103		X					Line deflection, output ampl.
AU104		X					Power, switching
AUY10			X		BSX60	X	PNP high speed high power switching
Silicon							
BC107		X					NPN audio frequency
BC108		X					NPN planar epit. low frequency ampl.
BC109		X					NPN planar epit. low noise ampl.
BC112		X					NPN microminiature audio freq. for hearing aids and other small devices
BC147		X					NPN AF ampl. in plastic encapsulation, medium voltage
BC148		X					Idem, low voltage
BC149		X					NPN AF ampl. low noise in plastic encapsulation
BCY10			X				Output ampl.
BCY11			X				High voltage output ampl.
BCY12			X				General purpose output ampl.

TRANSISTORS (Silicon)

type	D*	D	C	M	successor type	MIL.	description
BCY30		X				X	Small signal, high voltage, low gain ampl. alloy technique
BCY31		X				X	Small signal, high voltage, medium gain ampl. alloy technique
BCY32		X				X	Small signal, high voltage, high gain ampl. alloy technique
BCY33		X				X	Small signal, low voltage, low gain ampl. alloy technique
BCY34		X				X	Small signal, low voltage, medium gain ampl. alloy technique
BCY38		X				X	Medium power, low voltage, low gain ampl. alloy technique
BCY39		X				X	Medium power, high voltage, low gain ampl. alloy technique
BCY40		X				X	Medium power, low voltage, high gain ampl. alloy technique
BCY54		X				X	Medium power, medium voltage, medium gain ampl. alloy technique
BCY55		X					Low noise, low level differential ampl.
BCY56		X					Low noise, low level, medium gain
BCY57		X					Low noise, low level, high gain
BCZ10		X				X	Pre-amplifier driver
BCZ11		X				X	Pre-amplifier driver, high gain
BCZ12		X					Pre-amplifier driver, high voltage
BCZ13				X	BCY33		Alloy technique subminiature
BCZ14				X	BCY34		Alloy technique subminiature, higher gain
BD115	X						High voltage transistor, output class A 2 W
BD121	X						NPN power ampl., supply voltage 12 V, output 4 W
BD123	X						NPN power ampl. for HiFi, supply voltage 2 x 25 V, output 35 W (2 transistors)
BDY10		X				X	NPN diffused power ampl.
BDY11		X				X	NPN diffused power, high voltage
BF109			X		BF178		NPN mesa video ampl.
BF115		X				X	NPN planar epitaxial RF ampl. for freq., up to 200 MHz
BF167		X					NPN IF amplifier forward gain controlled for TV
BF173		X					NPN video last IF stage
BF177	X						Video output ampl. for tiny-vision receivers
BF178	X						Video output ampl. for full-performance black and white receivers
BF179	X						Video output ampl. for colour-difference amplifiers
BF180	X						RF stage for integrated or UHF tuners

TRANSISTORS (Silicon)

type	D*	D	C	M	successor type	MIL.	description
BF181	X						Self oscillating mixer stage for integrated and UHF tuners
BF182	X						Separated mixer in integrated tuners
BF183	X						Separated oscillator in integrated tuners
BF184		X					NPN planar HF, for IF amplifier
BF185		X					NPN planar HF ampl. for pre-ampl. and mixer/osc. stages
BF194	X						Plastic encapsulated HF ampl. AM/FM
BF195	X						Low noise RF plastic encapsulated ampl. for AM/FM input and mix. osc.
BF200	X						RF stage for VHF tuners
BFX43		X					Aerial output ampl. for freq. up to 230 MHz
BFX44		X					Broad-band ampl. NPN
BFX63	X						N-channel depletion MOST type, mainly intended for impedance converters
BFY10				X	BFY55	X	NPN mesa
BFY11				X	BFY50	X	NPN mesa, medium gain
BFY44		X				X	NPN planar epitaxial for transmitting
BFY50		X					NPN planar epitaxial
BFY51		X					NPN planar epitaxial
BFY52		X					NPN planar epitaxial
BFY55		X				X	NPN planar epitaxial
BFY67		X					NPN planar
BFY68		X					NPN planar
BFY70		X				X	NPN planar epitaxial VHF medium power
BFY90		X					NPN planar epitaxial UHF
BLY14		X					NPN planar epitaxial VHF power
BLY17		X					NPN diffused HF power
BSX19		X				X	NPN planar epitaxial, very high speed, high voltage switching
BSX20		X				X	NPN planar epitaxial, very high speed, high voltage switching, higher gain
BSX21		X					NPN double diffused mesa, high voltage switching
BSX44		X					NPN planar epitaxial ultra high speed switching
BSX59	X						NPN planar epitaxial, high speed, high voltage, medium current switching
BSX60	X						NPN planar epitaxial, high speed, high voltage, medium current switching
BSX61	X						NPN planar epitaxial, high speed, high voltage, medium current switching

TRANSISTORS

type	D*	D	C	M	successor type	MIL.	description
Silicon							
BSX82	X						N-channel depletion MOST type, intended for chopper applications
BSY10				X	BFY50	X	NPN mesa, high voltage, switching
BSY11				X	BFY50	X	NPN mesa, high gain, switching
BSY38		X				X	NPN planar epitaxial, very high speed switching
BSY39		X				X	NPN planar epitaxial, very high speed switching, higher gain
Germanium							
OC22			X				RF power amplifier
OC23			X			X	RF power switching
OC24			X				RF power transmitting
OC26				X	AD149	X	Output ampl.
OC30				X	AD139		Output amplifier (1 W in class A)
OC44		X				X	HF general purpose ampl. for freq. up to 15 MHz
OC45		X					HF general purpose ampl. for freq. up to 12 MHz
OC46				X	ASY26		PNP medium speed switching
OC47				X	ASY27		PNP medium speed switching higher gain
OC57			X				Subminiature hearing aid, low gain
OC58		X					Subminiature hearing aid, medium gain
OC59		X					Subminiature hearing aid, high gain
OC60		X					Subminiature hearing aid output
OC70				X		X	Pre-amplifier driver, low gain
OC71				X	AC125	X	Pre-amplifier driver, medium gain
2-OC72				X	2-AC132	X	Output transistor (300 mW in class B)
OC74				X	AC128	X	Output transistor (1 W in class B)
2-OC74				X	2-AC128		Output transistor, matched pair
OC75				X	AC126	X	Pre-amplifier driver, high gain
OC76			X		ASY76	X	PNP medium power, low speed switching
OC77			X		ASY77	X	PNP medium power, low speed switching, higher voltage
OC79				X	AC128		Driver for 12 V supply voltage
OC80				X	ASY80	X	PNP medium power, low speed switching, higher current
OC122			X				RF medium power amplifier
OC123			X			X	Medium power switching

TRANSISTORS - PACKAGES (Germanium-silicon)

type	D*	D	C	M	successor type	MIL.	description
Germanium							
OC139			X		ASY73	X	NPN symmetrical medium speed switching, low gain
OC140			X		ASY74		NPN symmetrical medium speed switching, medium gain
OC141			X		ASY75	X	NPN symmetrical medium speed switching, high gain
OC169				X	AF126 AF127 BF194		FM-IF amplifier (10.7 MHz) AM-medium and long wave mixers (oscillators) AM-IF amplifier
OC170				X	AF125 AF126 BF195		FM-IF amplifier AM-mixer (oscillator for short wave reception)
OC171				X	AF124 AF125 BF195		FM-pre-amplifier and mixer (oscillator)
OCP70		X					Photo transistor
40809		X					AF transistor package, transformerless stages output 1.2 W
40819	X						AF transistor package with AC187/188 output 3.5 W
Silicon							
40820	X						High gain AM package with BF194 and BF195 for low voltage applications
40822	X						Package for colour difference ampl. with BF179A, BF179B, BF179C

type	D*	D	C	M	successor type	MIL.	description
FCH 101	X						Single NAND gate
FCH 102	X						Single NAND gate
FCH 111	X						Single NAND gate, with collector resistor
FCH 112	X						Single NAND gate, with collector resistor
FCH 121	X						Dual NAND gate
FCH 122	X						Dual NAND gate
FCH 131	X						Dual NAND gate, with collector resistor
FCH 132	X						Dual NAND gate, with collector resistor
FCH 141	X						Triple NAND gate
FCH 142	X						Triple NAND gate
FCH 151	X						Triple NAND gate
FCH 152	X						Triple NAND gate
FCH 161	X						Triple NAND gate, with collector resistor
FCH 162	X						Triple NAND gate, with collector resistor
FCH 171	X						Triple NAND gate, with collector resistor
FCH 172	X						Triple NAND gate, with collector resistor
FCH 181	X						Quadruple NAND gate
FCH 182	X						Quadruple NAND gate
FCH 191	X						Quadruple NAND gate, with collector resistor
FCH 192	X						Quadruple NAND gate, with collector resistor
FCH 201	X						Sextuple Inverter
FCH 202	X						Sextuple Inverter
FCH 211	X						Sextuple Inverter, with collector resistor
FCH 212	X						Sextuple Inverter, with collector resistor
FCH 221	X						Dual Line Driving gate (buffers)
FCH 222	X						Dual Line Driving gate (buffers)
FCJ 101	X						J-K flip-flop
FCJ 102	X						J-K flip-flop
FCJ 111	X						J-K Master-Slave flip-flop (direct coupled)
FCJ 112	X						J-K Master-Slave flip-flop (direct coupled)
FCK 101	X						Monostable Multivibrator
FCK 102	X						Monostable Multivibrator
FCL 101	X						Level Detector (Schmitt trigger)
FCL 102	X						Level Detector (Schmitt trigger)
FCY 101	X						Triple Gate Input Expander
FCY 102	X						Triple Gate Input Expander

INTEGRATED CIRCUITS

type	D*	D	C	M	successor type	MIL.	description
OM 200	X						Hearing-aid amplifier
TAA 103	X						General purpose amplifier
TAA 263	X						General purpose amplifier
TAA 293	X						General purpose amplifier
TAA 310	X						Audio pre-amplifier
TAA 320	X						Audio pre-amplifier

PHILIPS MILITARY SPECIFICATION SEMICONDUCTORS

Below are listed the Philips semiconductor types that meet the various military specifications.

A. Semiconductor types meeting CV specifications:

CV number	Philips type	Nato stock number
CV425	–	5960-99-000-0425
CV442	OA70	-000-0442
CV448	OA81	-000-0448
CV1353	OA81	-000-1353
CV1354	OA85	-000-1354
CV2389	OC71	-000-2389
CV2400	OC71	-000-2400
CV5710	OC44	-037-2543
CV5711	OC77	-037-2544
CV5712	OC71	-037-2545
CV5713	OC72	-037-2546
CV7001	OC72	-037-2001
CV7002	OC72	-037-2002
CV7003	OC44	-037-2003
CV7004	OC45	-037-2004
CV7005	OC71	-037-2005
CV7006	OC72	-037-2006
CV7007	OC77	-037-2007
CV7026	BY100	-037-2045
CV7027	BY100	-037-2046
CV7028	BY100	-037-2047
CV7029	BY100	-037-2048
CV7030	BY100	-037-2049
CV7040	OA202	-037-2016
CV7041	OA95	-037-2017
CV7043	BCZ10	-037-2086
CV7047	OA5	-037-2056
CV7048	OA5	-037-2077
CV7054	OC23	-037-2100
CV7075	BCZ11	-037-2133
CV7076	OA47	-037-2134
CV7083	ASZ16	-037-2158
CV7084	ASZ17	-037-2159
CV7085	ASZ15	-037-2160
CV7086	ASZ18	-037-2161
CV7089	OC171	-037-2207
CV7099	BZY64	-037-2199
CV7100	BZY56	-037-2200
CV7101	BZY57	5960-99-037-2201
CV7102	BZY58	-037-2202
CV7103	BZY59	-037-2203
CV7104	BZY60	-037-2204
CV7105	BZY61	-037-2205
CV7111	OC139	-037-2241
CV7112	OC140	-037-2242
CV7113	OA210	-037-2244
CV7114	OA211	-037-2257
CV7118	OC72	–
CV7127	AAZ17	-037-2302
CV7128	–	-037-3140
CV7130	OA91	-037-3373
CV7141	BZY64	-037-2391
CV7142	BZY63	-037-2392
CV7143	BZY68	-037-2393
CV7144	BZY69	-037-2394
CV7188	BCY11	-037-2529
CV7311	BYZ13	-037-2718
CV7312	BYZ13	-037-2719
CV7313	BYZ12	-037-2720
CV7314	BYZ11	-037-2721
CV7315	BYZ10	-037-2722
CV7321	2-OC72	-037-2730
CV7332	OA202	-037-2903
CV7335	AFZ12	-037-3135
CV7338	ASZ21	-037-3138
CV7341	BCY33	-037-2955
CV7342	BCY34	-037-2956
CV7344	BCY30	-037-2958
CV7345	BCY31	-037-2959
CV7346	BCY32	-037-2960
CV7348	2N1302	-037-2972
CV7349	2N1304	-037-2973
CV7350	2N1306	-037-2974
CV7351	2N1308	-037-2975
CV7352	2N1303	-037-2976
CV7353	2N1305	-037-2977

A. Semiconductor types meeting CV specifications (continuation)

CV number	Philips type	Nato stock number
CV7354	2N1307	5960-99-037-2978
CV7355	2N1309	-037-2979
CV7363	BCZ11	-037-3121
CV7364	AAZ12	-037-3131
CV7369	OA91	-037-3177
CV7389	AAZ13	-037-3359
CV7430	BSY38	-037-3488
CV7431	BSY39	-037-3489
CV7460	AUY10	-037-3595
CV7492	2N929	-037-3703
CV7493	2N930	-037-3704
CV7555	2N2369A	-037-3808
CV7606	ADZ11	–
CV7607	ADZ12	–
CV7608	ADY26	–

PHILIPS MILITARY SPECIFICATION SEMICONDUCTORS

B. Semiconductor types meeting Dutch military specifications

Type number	Philips type	Mil. spec. number	Nato stock number
MIL-OC75	OC75	MMR-6/1A	5960-17-015-1861
MIL-OC74	OC74	11	-015-2082
MIL-2N1314	OC26	12	-015-2048
MIL-OC140	OC140	13C	-015-2106
MIL-OC141	OC141	13C	-706-5936
MIL-2N284	OC76	16B	-015-1881
MIL-OA73	OA73	28 (ARMY)	-024-1721
MIL-AAY11	AAY11	32A	-024-5437
MIL-OA95	OA95	33A	-024-1728
MIL-AAZ18	AAZ18	34A	-021-7601
MIL-OA79	OA79	35A	-705-1031
MIL-OA47	OA47	43A	-706-5933
MIL-BSY38	BSY38	48A	-027-6038
MIL-BSY39	BSY39	48A	-024-5261
MIL-AFY19	AFY19	49A	-024-5438
MIL-OA31	OA31	50A	-025-7453
MIL-OAZ200	OAZ200	51	–
MIL-OAZ201	OAZ201	51	-025-9150
MIL-OAZ202	OAZ202	51	-029-0100
MIL-OAZ203	OAZ203	51	-025-7460
MIL-OAZ204	OAZ204	51	-025-7452
MIL-OAZ205	OAZ205	51	-025-7449
MIL-OAZ206	OAZ206	51	-025-9153
MIL-OAZ207	OAZ207	51	-029-0101
MIL-OAZ208	OAZ208	51	-032-2263
MIL-OAZ209	OAZ209	51	-032-2264
MIL-OAZ210	OAZ210	51	–
MIL-OAZ211	OAZ211	51	–
MIL-OAZ212	OAZ212	51	-032-2265
MIL-OAZ213	OAZ213	51	–
MIL-OC80	OC80	54	-025-3668
MIL-BCY12	BCY12	62 (ARMY)	-026-4308
MIL-BSY10	BSY10	66A	-024-5441
MIL-BSY11	BSY11	66A	-024-5442
MIL-BFY10	BFY10	67A	-024-5439
MIL-BFY11	BFY11	67A	-024-5440
MIL-BAY38	BAY38	68	-027-6027
MIL-BAY39	BAY39	69	-027-6028
MIL-ASY76	ASY76	71	-027-6025
MIL-ASY77	ASY77	71	-027-6078

B. Semiconductor types meeting Dutch military specifications (continuation)

Type number	Philips type	Mil. spec. number	Nato stock number
MIL-ASY80	ASY80	MMR-6/71	5960-17-027-9190
MIL-2N2368	BSX19	72	-027-6036
MIL-2N2369	BSX20	72	-027-6037
MIL-BFY44	BFY44	73	-027-6033
MIL-BFY70	BFY70	73	-032-2266
MIL-BFY55	BFY55	74	-027-6034
MIL-BF115	BF115	76	-027-6032
MIL-BDY10	BDY10	67A	-027-5439
MIL-BDY11	BDY11	67A	-027-5440
MIL-AAY21	AAY21	79	-027-6022
MIL-ASY73	ASY73	80	-032-2255
MIL-ASY74	ASY74	80	-027-6024
MIL-ASY75	ASY75	80	-032-2256
MIL-ADY26	ADY26	81	-027-6023
MIL-BCY38	BCY38	82	-027-6029
MIL-BCY39	BCY39	82	-027-6030
MIL-BCY40	BCY40	82	-032-2257
MIL-BCY54	BCY54	82	-032-2258
MIL-BYY22	BYY22	83	-027-6066
MIL-BYY23	BYY23	83	-027-6067
MIL-BYY24	BYY24	83	-027-6068
MIL-BYY25	BYY25	83	-027-6069
MIL-BYY67	BYY67	83	-032-2261
MIL-BYY68	BYY68	83	-032-2262

SURVEY OF AVAILABLE JEDEC-REGISTERED TYPES

This survey lists a number of the more popular Jedec types which can be supplied on request. For easy reference the Philips types recommended for development of new equipment have been mentioned on the same line. Please note that this is not a list of equivalents.

Jedec type	Philips type
1N277	AAZ15 / AAZ17
1N904	BAY38
1N914	BAY38
1N914A	BAY38
1N914B	BAY38
1N916	BAY38
1N916A	BAY38
1N916B	BAY38
1N921	BAY39
1N922	BAY39
1N3064	BAY38
1N3604	BAY38
1N4009	BAY38
2N174	–
2N404	ASY26
2N441	–
2N442	–
2N683	BTY91-100R
2N685	BTY91-200R
2N687	BTY91-300R
2N688	BTY91-400R
2N689	BTY91-500R
2N690	BTY91-600R
2N691	BTY91-700R
2N692	BTY91-800R
2N696	–
2N697	–
2N706	BSY38
2N706A	BSY38
2N708	BSX20
2N709	BSX44
2N711	ASZ21
2N743	BSX19
2N744	BSX20
2N753	BSY39
2N914	BSX20
2N918	BFY90

Jedec type	Philips type
2N929	–
2N930	–
2N1100	–
2N1302	ASY28
2N1303	ASY26
2N1304	ASY28; ASY29
2N1305	ASY26; ASY27
2N1306	ASY29
2N1307	ASY27
2N1308	ASY29
2N1309	ASY27
2N1420	BFY67
2N1613	BFY67
2N1711	BFY68
2N1844	BTY87-100R
2N1846	BTY87-200R
2N1848	BTY87-300R
2N1849	BTY87-400R
2N1893	BFY67
2N1911	BTY99-100R
2N1913	BTY99-200R
2N1915	BTY99-300R
2N1916	BTY99-400R
2N2218	–
2N2219	–
2N2221	–
2N2222	–
2N2297	BFY55
2N2368	BSX19
2N2369	BSX20
2N2369A	BSX20
2N2410	BSX61
2N2411	BSY40
2N2412	BSY41
2N2475	BSX44
2N2483	–
2N2484	–
2N2569	–
2N2570	–

Jedec type	Philips type
2N2857	–
2N2904	–
2N2904A	–
2N2905	–
2N2905A	–
2N3250	–
2N3250A	–
2N3251	–
2N3251A	–
2N3252	BSX60
2N3375	–
2N3570	–
2N3571	–
2N3572	–
2N3632	–
2N3924	–
2N3926	–
2N3927	–

SURVEY

of devices for

CONSUMER APPLICATIONS

SWITCHING APPLICATIONS

POWER DEVICES

Diodes, Thyristors, Transistors

ZENER DIODES

Voltage regulator diodes

INTEGRATED CIRCUITS

DIODES FOR CONSUMER APPLICATIONS

use			germanium	silicon
Video det.	miniature		OA70 OA90	
AM det.	miniature		AA119	
FM-ratio det. (matched pairs)	miniature		2-AA119	
General purpose			OA81	
	miniature		OA91	
	miniature	lower forward resistance	OA85 OA95	
	high speed			BA148
	miniature			BA100
Stabilisers	low voltage			BA114
	FM car-radio			BZ100
Colour TV	clamping diode epoxy envelope			BA145
Rectifiers	TV	for mains voltage 110 V		BY114
		voltage 220 V		BY100
	epoxy envelope	for mains voltage 110 V		BY126
		voltage 220 V		BY127
	contr. avalanche	1 A–220 V		BY138
	bridge	0.6 A–160 V		BY122
		0.5 A–400 V		BY123
	EHT stack	2 mA–12.5 kV		BY140
Video and Focus supply				BYX10
Booster				BY118
Voltage dependent cap.				BA102

TRANSISTORS FOR CONSUMER APPLICATIONS

use	germanium p-n-p	silicon n-p-n
TV tuners		
1. UHF tuners		
Pre-amplifier	AF239	BF180
Self-oscillating mixer	AF239 / AF139*	BF181
2. VHF tuners		
Pre-amplifier		BF200
Mixer/oscillator		BF115 / BF194 / BF195
3. Integrated v.h.f./u.h.f. tuners		
Pre-amplifier	AF239	BF180
Self-oscillator/mixer		BF181
Sep. mixer	AF239 / AF139*	BF182
Sep. oscillator		BF183
Sound intercarrier 4.5-5.5 MHz		BF194 / BF195
FM pre-amplifier and mixer/osc.	AF124 / AF121	BF115 / BF194 / BF195
IF-video amplifier	AF121 / AF179	BF167 / BF173
HF pre-amplifier; mixer/osc.	AF126	
AM/FM-IF amplifier	AF126	
pre-ampl. and mixer oscillator 26 MHz	AF125	
car radio 26 MHz	AF125	BF194 / BF195
Mixer oscillator 16 MHz	AF126	
Mixer oscillator 6 MHz	AF127	
FM-IF amplifier	AF121 / AF126 / AF127	
AM-package		40820
Video output amplifiers		
1. Tiny-vision	AF118	BF177
2. Full-performance black and white		BF178
3. Colour-difference amplifier		
(G-Y) / (R-Y) / (B-Y)		BF179A / BF179B / BF179C package 40822
Jungle applications	OC44 / OC45	BC107 / BC147

* Commitment type

TRANSISTORS FOR CONSUMER APPLICATIONS

use		germanium		silicon
		p-n-p	n-p-n	n-p-n
Pre-amplification		AC125	AC127	BC107, BC147, BC108, BC148
		AC126		
	low noise		AC172	BC109, BC149
Microminiature watches				BC112
Hearing aid		OC58, OC59, OC60		BC112
Medium power amplification	symmetrical	AC130		
	class A	AC132, AC128, AC188		
	class B	2-AC132, 2-AC128, 2-AC188	AC187	
Complementary types		AC132/AC127, AC128/AC127, AC188/AC187		

TRANSISTORS FOR CONSUMER APPLICATIONS

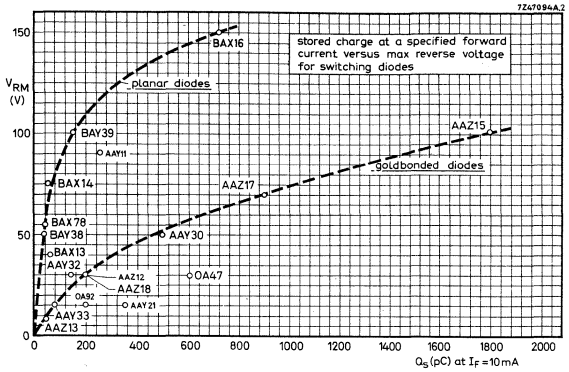
use		germanium		silicon
		p-n-p	n-p-n	n-p-n
Power amplification	class A	AD139		
		AD149		
			AD161	
		AD162		BD115
				BD121
	class B	2-AD139		
		2-AD149		
			2-AD161	
		2-AD162		
	HiFi			2-BD123
Complementary type		AD162/AD161		
Horizontal deflection		AU103		
		AU104		
			AC127	
AF-packages	40809 (1.2 W)	AC128		
		AC128/AC127		
			AC187	
	40819 (3.5 W)	AC188		
		AC188/AC187		

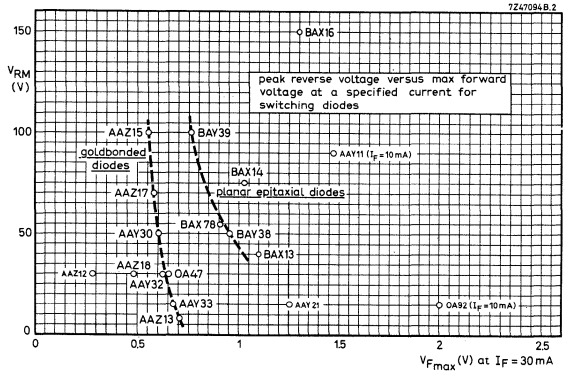
DIODES FOR SWITCHING APPLICATIONS

use	germanium			silicon
	alloy	point contact	gold bonded	
very high speed switching			AAZ13*	BAY38 BAX13 BAX78
high speed switching	AAZ12*	AAY21	AAY32 AAY33	BAX14 BAY39*
medium speed switching		OA92 AAY11	AAY30 OA47* AAZ18	
low speed switching			AAZ17 AAZ15	

* commitment type

See also opposite page


7Z47094A.2
stored charge at a specified forward current versus max reverse voltage for switching diodes
V_{RM} (V)
planar diodes
goldbonded diodes
BAX16
BAY39
AAY11
BAX14
AAZ17
AAZ15
BAX78
BAY38
AAY30
BAX13
AAY32
AAZ12
AAZ18
OA47
OA92
AAY21
AAY33
AAZ13
150
100
50
0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Q_s (pC) at I_F = 10 mA

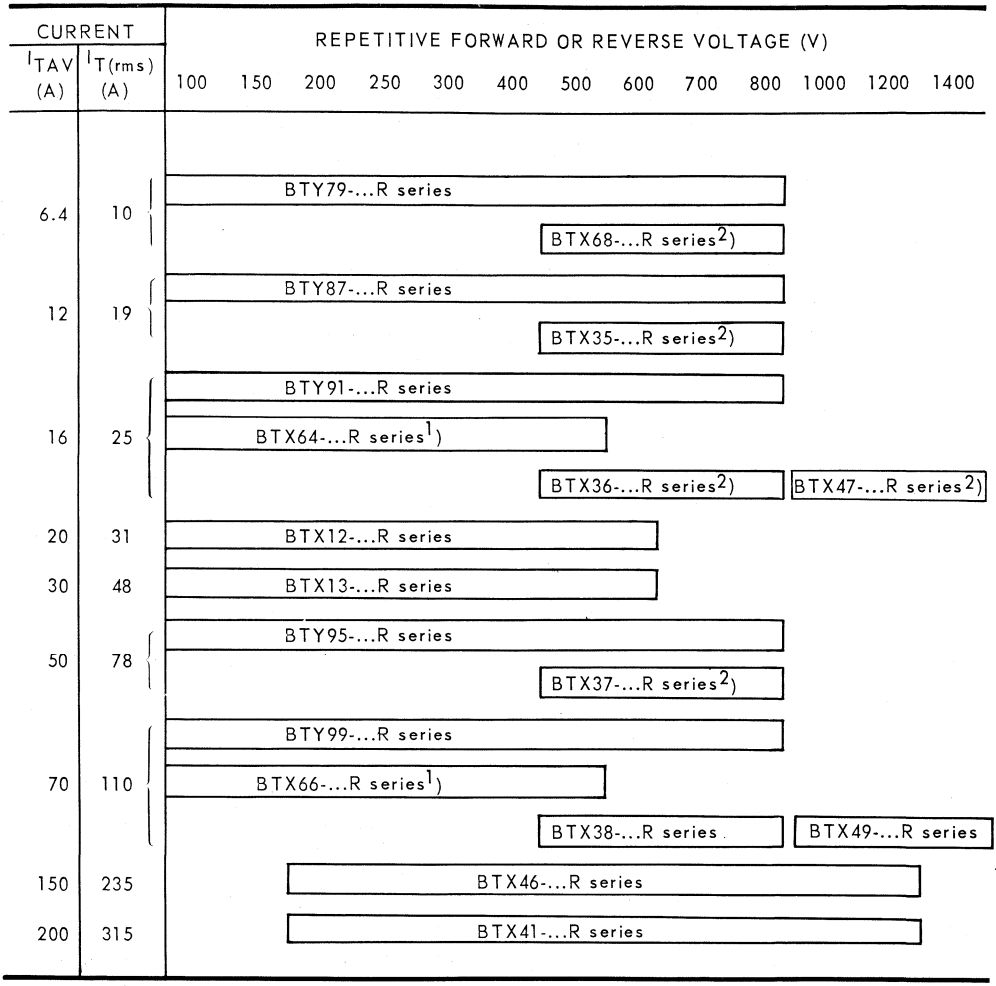

7Z47094B.2
peak reverse voltage versus max forward voltage at a specified current for switching diodes
V_{RM} (V)
BAX16
AAZ15
BAY39
goldbonded diodes
AAY11 (I_F = 10 mA)
BAX14
AAZ17
planar epitaxial diodes
BAX78
AAY30
BAY38
BAX13
AAZ18
AAZ12
OA47
AAY32
AAY33
AAY21
OA92 (I_F = 10 mA)
AAZ13
150
100
50
0
0
0,5
1
1,5
2
2,5
$V_{F_{max}}$ (V) at I_F = 30 mA

TRANSISTORS FOR SWITCHING APPLICATIONS

	f_T min. (MHz)	t_s max. (ns)	germanium		silicon
			p-n-p	n-p-n	n-p-n
ultra high speed switching					BSX44
very high speed switching	500	10			BSX19
		13			BSX20
	200	16			BSY38
					BSY39
high speed switching high voltage	300	60	ASZ21*		
					BSX21
	60				BSX59
					BSX60
					BSX61
medium speed switching		(μs)			
	4	1.35	ASY26		
	6	1.50	ASY27		
	4	0.7		ASY28	
	10	0.8		ASY29	
	4			ASY73	
	6	1.75		ASY74	
	10			ASY75	
low speed switching	0.5		ASY76		
			ASY77		
	0.7		ASY80		

* commitment type

POWER THYRISTORS



1) fast silicon controlled 2) controlled avalanche rect.

POWER DIODES (Silicon)

CURRENT (A)	REPETITIVE PEAK REVERSE VOLTAGE (V)					
	100	120	200	300	400	500
1	BYX36-100		BYX36-200	BYX36-300		
3.8		OA31*[2]				
6				BYZ13*		
				BYZ19**		
10					BYY22*	
					BYY23**	
14			BYX30-200	BYX30-300	BYX30-400	BYX30-500
			BYX30-200R	BYX30-300R	BYX30-400R	BYX30-500R
20					BYX13-400	
					BYX13-400R	
			BYX20-200			
			BYX20-200R			
25	BYX21-100		BYX21-200			
	BYX21-100R		BYX21-200R			
			BYX28-200		BYX28-400	
			BYX28-200R		BYX28-200R	
					BYZ14*	
40					BYZ15**	
60			BYX34-200	BYX34-300[1]	BYX34-400[1]	BYX34-500[1]
100			BYX32-200		BYX32-400	
					BYX23-400[1]	
150					BYX14-400	
					BYX14-400R	
250			BYX33-200		BYX27-400[1]	
					BYX33-400	

*) Normal polarity (stud cathode)
**) Reverse polarity (stud anode)

[1]) controlled avalanche rectifier, voltages are crest working voltages
[2]) Germanium

POWER DIODES (Silicon)

CURRENT (A)	REPETITIVE PEAK REVERSE VOLTAGE (V) 600	800	900	1000	1200	1600
0.55		BYX24[2])				
3.8						
6	BYZ12*		BYX11*		BYZ10*	
10	BYY67*	BYY24*				
	BYY68*	BYY25**				
14						
20	BYX25-600[1])	BYX25-800[1])		BYX25-1000[1])		
	BYX25-600R[1])	BYX25-800R[1])		BYX25-1000R[1])		
	BYX13-600	BYX13-800		BYX13-1000	BYX13-1200	BYX13-1600
	BYX13-600R	BYX13-800R		BYX13-1000R	BYX13-1000R	BYX13-1600R
25						
40	BYY73*	BYY15*		BYY75*	BYY77*	BYX15*
	BYY74**	BYY16**		BYY76**	BYY78**	BYX16**
60						
100	BYX32-600	BYX32-800		BYX32-1000	BYX32-1200	BYX32-1600
	BYX23-600[1])	BYX23-800[1])		BYX23-1000[1])		
150	BYX14-600	BYX14-800		BYX14-1000	BYX14-1200	
	BYX14-600R	BYX14-800R		BYX14-1000R	BYX14-1200R	
	BYX27-600[1])	BYX27-800[1])		BYX27-1000[1])		
250	BYX33-600	BYX33-800		BYX33-1000	BYX33-1200	BYX33-1600

*) Normal polarity (stud cathode)
**) Reverse polarity (stud anode)
[1]) controlled avalanche rectifier, voltages are crest working voltages
[2]) bridge rectifier

HIGH VOLTAGE RECTIFIER DIODES (Silicon)

CURRENT (mA)	CREST WORKING VOLTAGE (kV) 75	100	125	150
50	BYX29-75000	BYX29-100000	BYX29-125000	BYX29-150000

POWER TRANSISTORS

use	case	collector current (A)	collector current (V)	germanium p-n-p	silicon n-p-n
MF-high power	T0-3	2	50		BDY10
			100		BDY11
LF-very high power	T0-36*	15	40	ADZ11	
			80	ADZ12	
		25	100	2N1100	
			80	ADY26	

*) except for metric thread

ZENER DIODES (Voltage regulating)

Nominal zener voltage [1] (V)	Dissipation [2] 280 mW	at I_z (mA)	Dissipation [2] 400 mW	at I_z (mA)	Dissipation [2] 1.5 W	at I_z (mA)
3.3			BZY88-C3V3			
3.6			BZY88-C3V6			
3.9			BZY88-C3V9			
4.3			BZY88-C4V3			
4.7			BZY88-C4V7			
5.1			BZY88-C5V1			
5.3	BZY78	11.5				
5.6			BZY88-C5V6	5	BZY96-C5V6	
6.2			BZY88-C6V6		BZY96-C6V2	100
6.8			BZY88-C6V8		BZY96-C6V8	----
7.5			BZY88-C7V5		BZY96-C7V5	
8.2			BZY88-C8V2		BZY96-C8V2	
9.1			BZY88-C9V1	----	BZY95-C9V1	
10			BZY94-C10		BZY95-C10	
11			BZY94-C11		BZY95-C11	50
12			BZY94-C12		BZY95-C12	
13			BZY94-C13		BZY94-C13	
15			BZY94-C15		BZY95-C15	----
16			BZY94-C16		BZY95-C16	
18			BZY94-C18		BZY95-C18	
20			BZY94-C20		BZY95-C20	
22			BZY94-C22		BZY95-C22	20
24			BZY94-C24	5	BZY95-C24	
27			BZY94-C27		BZY95-C27	
30			BZY94-C30		BZY95-C30	
33			BZY94-C33		BZY95-C33	
36			BZY94-C36		BZY95-C36	----
39			BZY94-C39		BZY95-C39	
43			BZY94-C43		BZY95-C43	
47			BZY94-C47		BZY95-C47	
51			BZY94-C51		BZY95-C51	10
56			BZY94-C56		BZY95-C56	
62			BZY94-C62		BZY95-C62	
68			BZY94-C68			
75			BZY94-C75			

[1] Voltage tolerance ±5 %

[2] Max. dissipation at T_j = 25 °C

ZENER DIODES (Voltage regulating)

Nominal zener voltage (V)	Dissipation [3] 7.5 W	at I_z (mA)	Dissipation [3] 7.5 W	at I_z (mA)	Dissipation [3] 20 W	at I_z (A)	Dissipation [4] 75 W	at I_z (A)
5.6	BZZ14 [1]							
6.2	BZZ15		BZY74 [2]	—				
6.8	BZZ16				BZY93-C6V8 [1]			
7.5	BZZ17	20	BZY75	—	BZY93-C7V5	2.-		
8.2	BZZ18				BZY93-C8V2			
9.1	BZZ19		BZY76	—	BZY93-C9V1			
10	BZZ20				BZY93-C10		BZY91-C10	
11	BZZ21				BZY93-C11	1.-	BZY91-C11	
12	BZZ22				BZY93-C12		BZY91-C12	
13	BZZ23				BZY93-C13		BZY91-C13	2.-
15	BZZ24	—			BZY93-C15		BZY91-C15	
16	BZZ25				BZY93-C16		BZY91-C16	
18	BZZ26				BZY93-C18		BZY91-C18	
20	BZZ27				BZY93-C20		BZY91-C20	
22	BZZ28				BZY93-C22	0.5	BZY91-C22	
24	BZZ29				BZY93-C24		BZY91-C24	1.-
27					BZY93-C27		BZY91-C27	
30					BZY93-C30		BZY91-C30	
33					BZY93-C33		BZY91-C33	
36					BZY93-C36		BZY91-C36	
39					BZY93-C39		BZY91-C39	
43					BZY93-C43		BZY91-C43	
47					BZY93-C47		BZY91-C47	
51					BZY93-C51	0.2	BZY91-C51	0.5
56					BZY93-C56		BZY91-C56	
62					BZY93-C62		BZY91-C62	
68					BZY93-C68		BZY91-C68	
75					BZY93-C75		BZY91-C75	

[1] Voltage tolerance ±5 % [2] Voltage tolerance ±15 % [3] T_{mb} = 75 °C [4] T_{mb} = 65 °C

function	use	type number
Digital Applications		
Computing - medium speed		
storage	J-K flip-flop	FCJ 101
	J-K flip-flop	FCJ 102
	J-K Master-Slave flip-flop (direct coupled)	FCJ 111
	J-K Master-Slave flip-flop (direct coupled)	FCJ 112
time delay	Monostable Multivibrator	FCK 101
	Monostable Multivibrator	FCK 102
pulse shaping	Level detector (Schmitt trigger)	FCL 101
	Level detector (Schmitt trigger)	FCL 102
logic	Triple Gate Input Expander	FCY 101
	Triple Gate Input Expander	FCY 102
	Single NAND gate	FCH 101
	Single NAND gate	FCH 102
	Single NAND gate, with collector resistor	FCH 111
	Single NAND gate, with collector resistor	FCH 112
	Dual NAND gate	FCH 121
	Dual NAND gate	FCH 122
	Dual NAND gate, with collector resistor	FCH 131
	Dual NAND gate, with collector resistor	FCH 132
	Triple NAND gate	FCH 141
	Triple NAND gate	FCH 142
	Triple NAND gate	FCH 151
	Triple NAND gate	FCH 152
	Triple NAND gate, with collector resistor	FCH 161
	Triple NAND gate, with collector resistor	FCH 162
	Triple NAND gate, with collector resistor	FCH 171
	Triple NAND gate, with collector resistor	FCH 172
	Quadruple NAND gate	FCH 181
	Quadruple NAND gate	FCH 182
	Quadruple NAND gate, with collector resistor	FCH 191
	Quadruple NAND gate, with collector resistor	FCH 192
	Sextuple Inverter	FCH 201
	Sextuple Inverter	FCH 202
	Sextuple Inverter, with collector resistor	FCH 211
	Sextuple Inverter, with collector resistor	FCH 212
power ampl.	Dual Line Driving gate	FCH 221
	Dual Line Driving gate	FCH 222
Analogue Applications		
	Hearing-aid amplifier	OM 200
	General purpose amplifier	TAA 103
	General purpose amplifier	TAA 263
	General purpose amplifier	TAA 293
	Audio pre-amplifier-tape recorders	TAA 310
	Audio pre-amplifier-grammophone	TAA 320

TYPE DESIGNATION CODE

FOR SEMICONDUCTOR DEVICES

This type designation code applies to discrete devices either with or without junctions, and to multiple devices [1])

The type designation consists of:

TWO LETTERS FOLLOWED BY A SERIAL NUMBER

The first letter distinguishes between junction and non-junction devices and gives an indication of the material

A Devices with one or more junctions, using material with a band gap of 0.6 to 1.0 eV, such as germanium

B Devices with one or more junctions, using material with a band gap of 1.0 to 1.3 eV, such as silicon

C Devices with one or more junctions, using material with a band gap of 1.3 eV and more, such as gallium arsenide

D Devices with one or more junctions, using material with a band gap of less than 0.6 eV, such as indium antimonide

R Devices without junction, using materials such as those employed in Hall generators and photoconductive cells

---

[1]) A multiple device is defined as a combination of similar or dissimilar active devices, contained in a common encapsulation that cannot be dismantled, and of which all electrodes of the individual devices are accessible from the outside.

Multiples of similar devices as well as multiples consisting of a main device and an auxiliary device are designated according to the code for discrete devices described above.
Multiples of dissimilar devices of other nature are designated by the second letter G.

The second letter indicates primarily the main application respectively main application and construction if a further differentiation is essential

A	Detection diode, high speed diode, mixer diode
B	Variable capacitance diode
C	Transistor for a.f. applications ($R_{th\ j\text{-}mb} > 15\ ^{o}C/W$)
D	Power transistor for a.f. applications ($R_{th\ j\text{-}mb} \leq 15\ ^{o}C/W$)
E	Tunnel diode
F	Transistor for r.f. applications ($R_{th\ j\text{-}mb} > 15\ ^{o}C/W$)
G	Multiple of dissimilar devices (see note at page 1)
H	Field probe
K	Hall generator in an open magnetic circuit, e.g. magnetogram or signal probe
L	Power transistor for r.f. applications ($R_{th\ j\text{-}mb} \leq 15\ ^{o}C/W$)
M	Hall generator in a closed electrically energised magnetic circuit, e.g. Hall modulator or multiplier
P	Radiation sensitive device
Q	Radiation generating device
R	Electrically triggered controlling and switching device having a breakdown characteristic ($R_{th\ j\text{-}mb} > 15\ ^{o}C/W$)
S	Transistor for switching applications ($R_{th\ j\text{-}mb} > 15\ ^{o}C/W$)
T	Electrically, or by means of light, triggered controlling and switching power device having a breakdown characteristic ($R_{th\ j\text{-}mb} \leq 15\ ^{o}C/W$) [1]
U	Power transistor for switching applications ($R_{th\ j\text{-}mb} \leq 15\ ^{o}C/W$)
X	Multiplier diode, e.g. varactor, step recovery diode
Y	Rectifying diode, booster diode, efficiency diode [1]
Z	Voltage reference or voltage regulator diode [1]

[1] For the type designation of a range see page 4

The serial number consists of:

Three figures for semiconductor devices designed for use primarily in consumer goods

One letter and two figures for semiconductor devices designed for use primarily in professional equipment

EXAMPLES

AF139	Germanium r.f. transistor intended primarily for "entertainment" applications
BYX27	Silicon rectifying diode intended primarily for "industrial" applications

TYPE DESIGNATION FOR A RANGE OF SEMICONDUCTOR DEVICES

The type designation of a range of variants of:

a) voltage reference or voltage regulator diodes (second letter Z)

b) rectifying diodes (second letter Y)

c) thyristors (second letter T)

distinctly belonging to one basic type may be qualified by a suffix part which is clearly separated from the basic part by a dash (-)
The basic part being the same for the whole range, is in accordance with the designation code for discrete devices.

The suffix part consists of:

a) for voltage reference or voltage regulator diodes

One letter followed by the typical zener voltage and where appropriate the letter R [1])
The first letter indicates the nominal tolerance of the zener voltage in %

A	1%
B	2%
C	5%
D	10%
E	15%

The typical zener voltage is related to the nominal current rating for the whole range. The letter V is used to denote the decimal point when this occurs.

b) for rectifying diodes

A number and where appropriate the letter R [1])
The number indicates the maximum repetitive peak reverse voltage

c) for thyristors

a number and where appropriate the letter R [1])
The number indicates either the maximum repetitive peak reverse voltage or the maximum peak off-state voltage, whichever is lower

---

[1]) The letter R indicates reverse polarity (stud anode). The normal polarity (stud cathode) and symmetrical executions are not specially indicated.

EXAMPLES

BZY88series	Range of silicon voltage regulator diodes for industrial applications
BZY88-C9V1	The particular type out of the range with a typical zener voltage of 9.1 V ± 5%
BYX13-1200	The particular normal polarity type out of the BYX13series with a maximum repetitive peak reverse voltage of 1200 V
BTX13-200R	The particular reverse polarity type out of the BTX13 thyristor range of which the lower maximum repetitive peak voltage is 200 V

OLD SYSTEM

The first letter is always "O", indicating a semiconductor device. The second (and third) letter(s) indicate the general class of device.

A	-	diode or rectifier	C	-	transistor
AP	-	photodiode	CP	-	phototransistor
AZ	-	zener diode	RP	-	photoconductive cell

The group of figures is a serial number indicating a particular design or development.

EXAMPLES

OA81	Semiconductor diode
OAZ200	Zener diode
OC72	Transistor

TYPE DESIGNATION FOR SEMICONDUCTOR RECTIFIER STACKS

The type designation consists of:

Three letters followed by a serial number

The first 2 letters indicate the type of stack:

OS Denotes a semiconductor rectifier diode stack

OT Denotes a semiconductor stack in which also thyristors are used

The third letter indicates the type of circuit:

A Single phase half wave

B Two phase half wave

C Three phase half wave (three phase star)

D Four phase half wave (four phase star)

E Six phase half wave (six phase star)

F Three phase double Y with interphase transformer

H Single phase full wave (single phase bridge)

J Single phase magnetic amplifier bridge

K Three phase full wave (three phase bridge)

L Four phase full wave (four phase bridge)

M Voltage doubler (half a single phase full wave)

S Miscellaneous (such as combinations of single diodes and passive components)

The serial number is sometimes followed by a suffix letter for the indication of variants.

TYPE DESIGNATION FOR NETWORKS

This code applies to networks in non-accessible envelopes, such as integrated circuit devices.
The type designations according to this code distinguish between solitary networks and networks belonging to a family. A family is defined as a group of networks which are related in their specifications, and primarily designed to be mutually connected.

The type designation consists of:

THREE LETTERS FOLLOWED BY THREE FIGURES

The two first letters indicate a family respectively a solitary type

Family types: FA, FB, FC, etc.
GA, GB, GC, etc.

Solitary types: TA, TB, TC, etc.

The third letter indicates the circuit function in categories

A Linear amplification
B Frequency conversion/demodulation
C Oscillating/generating (continuous)
D Multiples of dissimilar linear networks
G Multiple of non-interconnected discrete devices when belonging to a family of networks
H Logic
J Storage (continuous)
K Timing (incl. temporary storage)
L Digital level conversion
Y Miscellaneous

The two first figures represent the serial number

The third figure indicates the temperature range

1 0 to +75 °C
2 −55 to +125 °C
0 other temperature ranges