

358-204

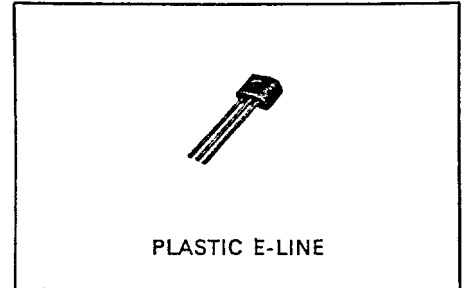
ZTX500 (BCW11)
ZTX501 (BCW13)
ZTX502 (BCW15)
ZTX503 (BCW17)
ZTX504 (BCW19)

GENERAL DESCRIPTION

These plastic encapsulated transistors are designed for small and medium signal amplification from d.c. to radio frequencies. Typical application areas include: Audio Frequency Amplifiers, Drivers and Output Stages, Oscillators and General Purpose Switches.

These transistors are complementary to the ZTX300 series n-p-n transistors and electrically similar to the ZT180 series.

The ZTX500 series transistors have been APPROVED FOR USE IN MILITARY EQUIPMENT and are identified by the following numbers: BS.9365 F031-F035-Category P

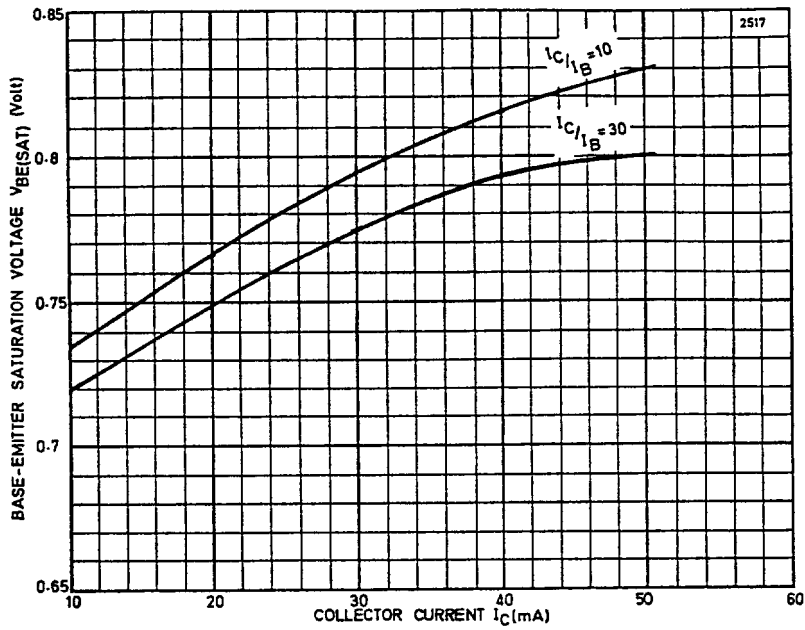


ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	ZTX500 (BCW11)	ZTX501 (BCW13)	ZTX502 (BCW15)	ZTX503 (BCW17)	ZTX504 (BCW19)	Units
Collector-Base Voltage	V_{CBO}	-25	-35	-35	-45	-70	Volts
Collector-Emitter Voltage	V_{CEO}	-25	-35	-35	-45	-70	Volts
Emitter-Base Voltage	V_{EB}	-5	-5	-5	-5	-5	Volts
Collector Current	I_C	-500	-500	-500	-500	-500	mA
Base Current	I_B	-100	-100	-100	-100	-100	mA
Power Dissipation at $T_{amb} = 25^\circ\text{C}$	P_{tot}	300	300	300	300	300	mW
Operating and Storage Temperature Range		-55 to +175					$^\circ\text{C}$

ZTX500 Series

TYPICAL CHARACTERISTIC for the ZTX502



$$V_{BE(sat)}/I_C$$

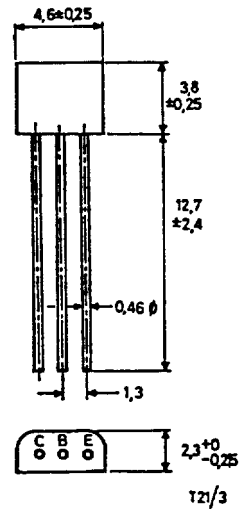
LEAD CONNECTIONS

The device can be supplied to the following lead configurations by using the indicated suffix.

Lead Configuration	Suffix
TO- 5 (SO-95)	K
TO-18 (SO-96)	L
Flat mounting (SO-97)	M

OUTLINE

BS.3934 SO-94



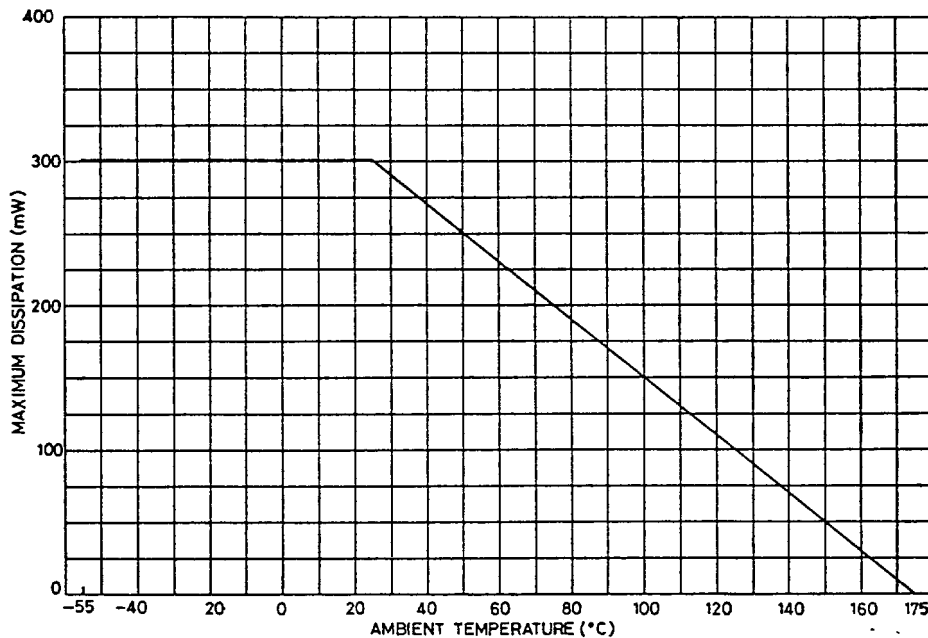
Dimensions in millimetres

ZTX500 Series

CHARACTERISTICS (at 25°C ambient temperature unless otherwise specified).

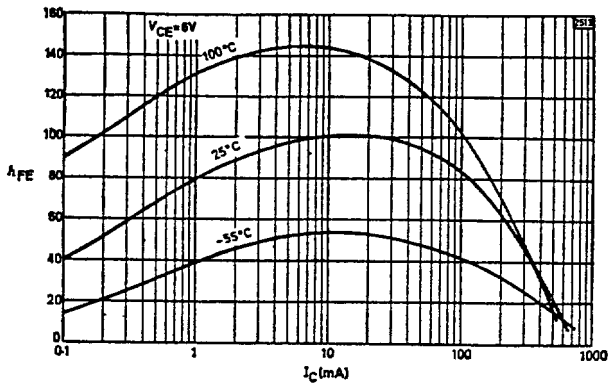
Parameter	Symbol	ZTX500 (BCW 11)	ZTX501 (BCW 13)	ZTX502 (BCW 15)	ZTX503 (BCW 17)	ZTX504 (BCW 19)	Units	Test Conditions
Max. Collector-base cut-off current	I_{CBO}	-0.2 — — —	— -0.2 — —	— -0.2 — —	— — -0.2 —	— — — -0.2	μA μA μA μA	$V_{CB} = -25V$ $V_{CB} = -35V$ $V_{CB} = -45V$ $V_{CB} = -70V$
Maximum emitter-base cut-off current	I_{EBO}	-0.2	-0.2	-0.2	-0.2	-0.2	μA	$V_{EB} = -4V$
Minimum collector-emitter sustaining voltage	$V_{CEO(sus)}$	-25	-35	-35	-45	-70	V	$I_C = -5 mA$
Maximum collector-emitter saturation voltage	$V_{CE(sat)}$	-0.35	-0.25	-0.25	-0.35	-0.60	V	$I_C = -50 mA, I_B = -5 mA$
Base-emitter saturation voltage Minimum Maximum	$V_{BE(sat)}$	-0.65 -1.0	-0.65 -1.0	-0.65 -1.0	-0.65 -1.0	-0.65 -1.0	V V	$I_C = -10 mA, I_B = -1 mA$
Static forward current transfer ratio Minimum Maximum Minimum Minimum	h_{FE}	50 300 — —	50 300 — —	100 300 20 50	50 300 — —	50 300 — —		
Minimum transition frequency	f_T	150	150	150	150	150	MHz	$I_C = -10 mA, V_{CE} = -6V$ $f = 100 MHz$
Maximum output capacitance	C_{obo}	6	6	6	6	6	pF	$V_{CB} = -6V, f = 1 MHz$
Typical noise figure	N	7	7	7	7	7	dB	$I_C = -100 \mu A, R_S = 1500 \Omega$ $f = 1 kHz$

Derating Curve

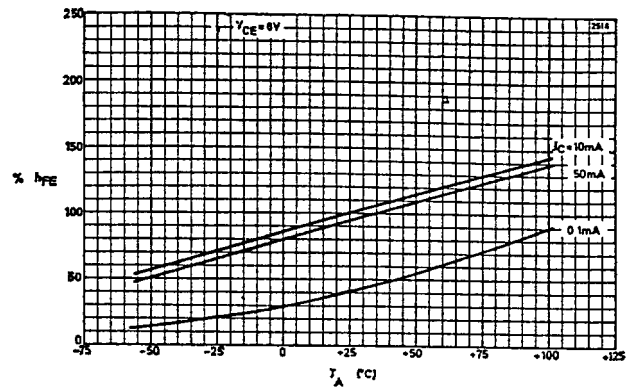


ZTX500 Series

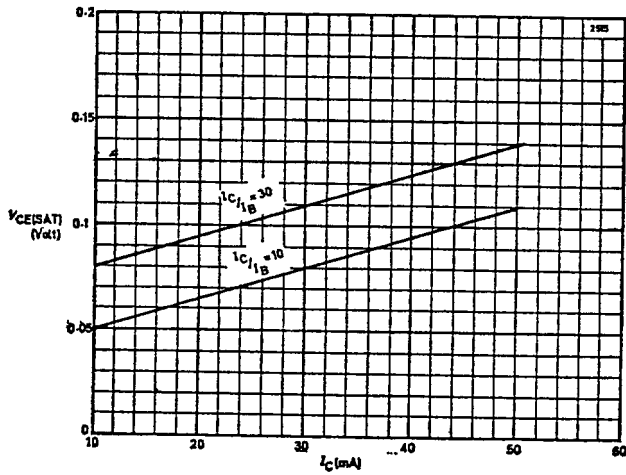
TYPICAL CHARACTERISTICS for the ZTX502



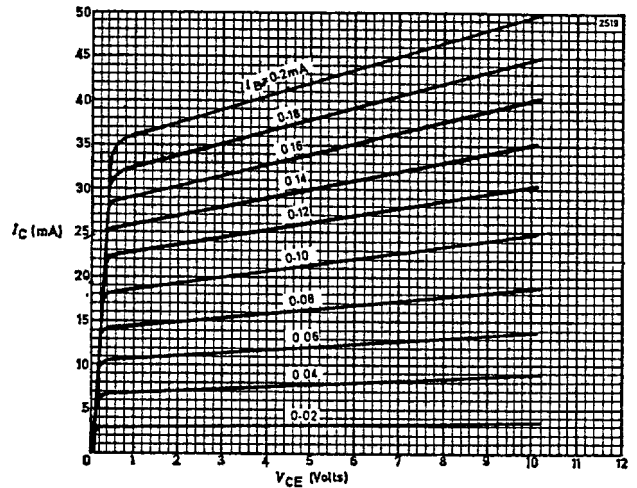
h_{FE}/I_C



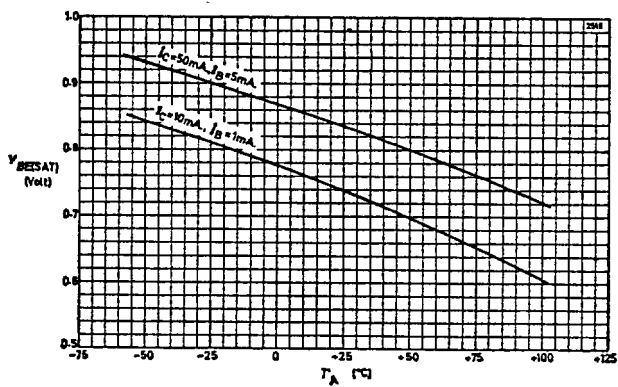
$h_{FE}/T_{ambient}$



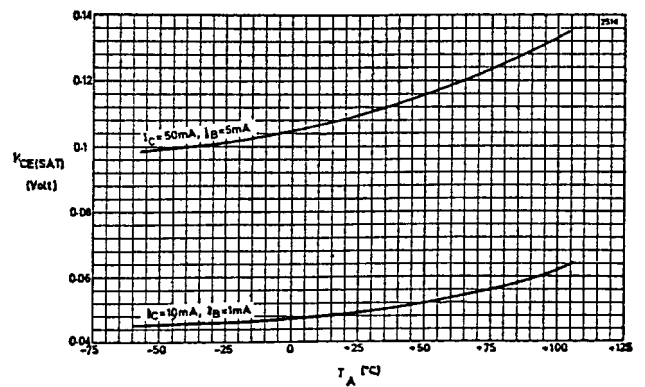
$V_{CE(sat)}/I_C$



I_C/V_{CE}



$V_{BE(sat)}/T_{ambient}$



$V_{CE(sat)}/T_{ambient}$

TABLE 2 : PNP GENERAL PURPOSE

The devices shown in this table are general purpose transistors designed for small signal amplification from d.c. to radio frequencies. Typical application areas include: AUDIO FREQUENCY AMPLIFIERS, DRIVERS and OUTPUT STAGES, OSCILLATORS, AND GENERAL PURPOSE SWITCHES.

Element	Type	V _{CB0} V	V _{CEO} V	Max I _c mA	Max V _{CE(sat)} at			h _{FE} at			Min f _T at		P _{tot} at T _{amb} = 25°C mW	Complement
					V	I _c mA	I _B mA	Min	Max	I _c mA	MHz	I _c mA		
3P	BC556P	80	65	200	0.25	10	0.5	75	450	2	150*	10	500	BC546P
04	ZTX504	70	70	500	0.6	50	5	50	300	10	150	10	300	ZTX304
2P	ZTX212	60	50	200	0.25	10	0.5	60	400	2	200	10	500	ZTX107
12	BC212P	60	50	200	0.6	100	5	60	400	2	200	10	300	BC182P
7P	BC557P	50	45	200	0.25	10	0.5	75	450	2	150*	10	500	BC547P
7P	BC177P	50	45	200	0.2	10	0.5	120	460	2	130	10	300	BC107P
7P	BC307P	50	45	200	0.2	10	0.5	120	460	2	130*	10	300	BC237P
2	ZTX503	45	45	500	0.35	50	5	50	300	10	150	10	300	ZTX303
03	ZTX531	45	45	500	0.7	10	0.5	40	120	0.01	30	0.5	250	ZTX331
3	ZTX213	45	30	200	0.25	10	0.5	80	550	2	200	10	500	ZTX108
P	BC213P	45	30	200	0.6	100	5	80	600	2	200	10	300	BC183P
3	ZTX502	35	35	500	0.25	50	5	100	300	10	150	10	300	ZTX302
2	ZTX501	35	35	500	0.25	50	5	50	300	10	150	10	300	ZTX301
1	ZTX530	30	30	500	0.7	10	0.5	100	400	0.1	30	0.5	250	ZTX330
P	BC558P	30	30	200	0.25	10	0.5	75	800	2	150*	10	500	BC548P
P	BC178P	30	25	200	0.2	10	0.5	120	800	2	130	10	300	BC108P
P	BC308P	30	25	200	0.2	10	0.5	120	800	2	130*	10	300	BC238P
0	ZTX500	25	25	500	0.35	50	5	50	300	10	150	10	300	ZTX300

Typical