

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



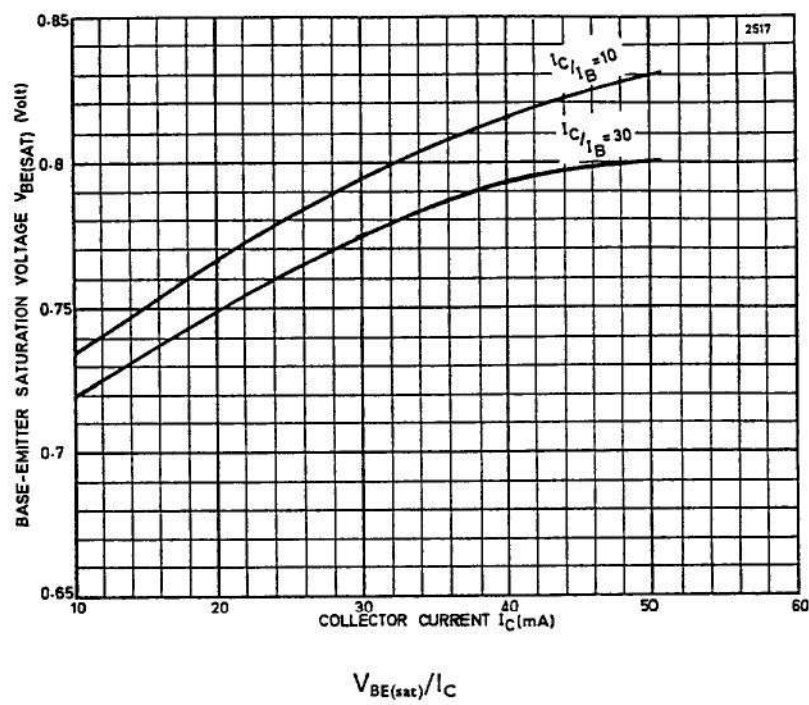
PLASTIC E-LINE

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 $T_{amb} = 25^{\circ}C$	P_{tot}	300	300	300	300	300	mW
Operating and Storage Temperature Range		-55 to +175					$^{\circ}C$

ZTX500 Series

TYPICAL CHARACTERISTIC for the ZTX502



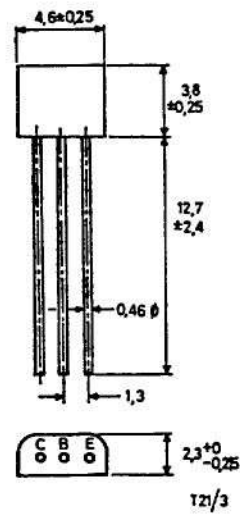
LEAD CONNECTIONS

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



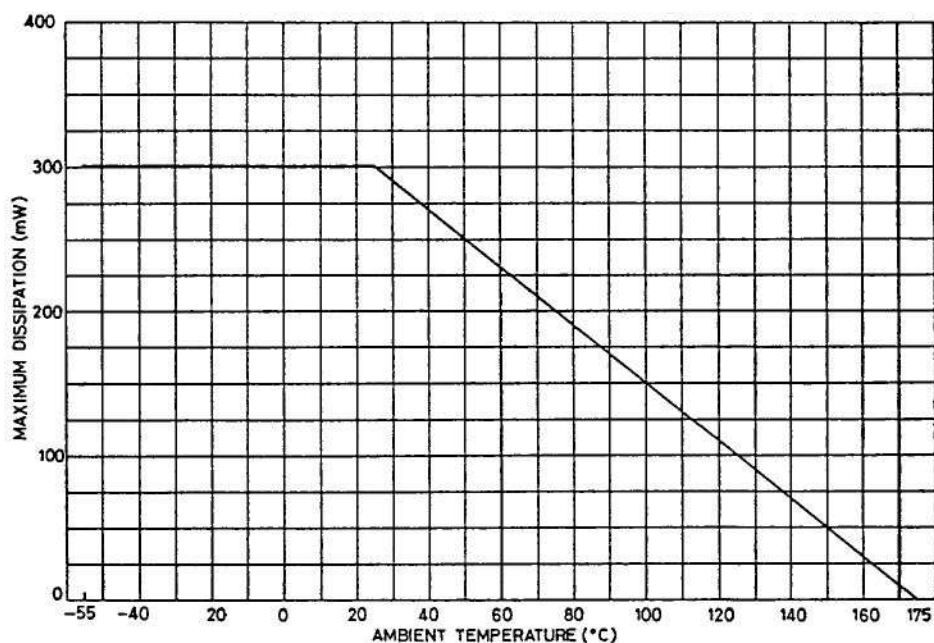
Dimensions in millimetres

ZTX500 Series

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

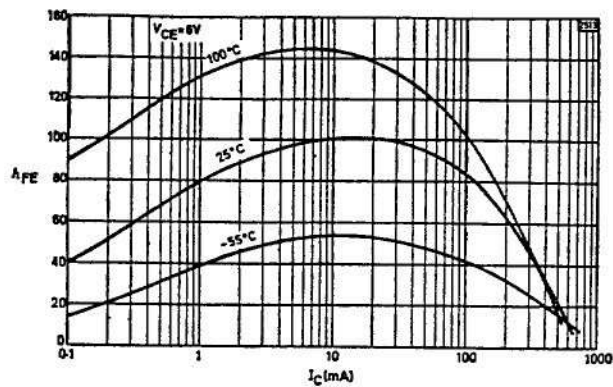
Parameter	Symbol	ZTX500 (BCW 11)	ZTX501 (BCW 13)	ZTX502 (BCW 15)	ZTX503 (BCW 17)	ZTX504 (BCW 19)	Units	Test Conditions
Max. Collector-base cut-off current	I_{CBO}	-0.2 — — —	— -0.2 — —	— -0.2 — —	— — -0.2 —	— — — -0.2	μA μA μA μA	$V_{CB} = -25V$ $V_{CB} = -35V$ $V_{CB} = -45V$ $V_{CB} = -70V$
Maximum 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 Maximum	h_{FE}	50 300 — —	50 300 — —	100 300 20 50	50 300 — —	50 300 — —		$I_C = -10 mA, V_{CE} = -6V$ $I_C = -100 \mu A, V_{CE} = -6V$ $I_C = -50 mA, V_{CE} = -6V$
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

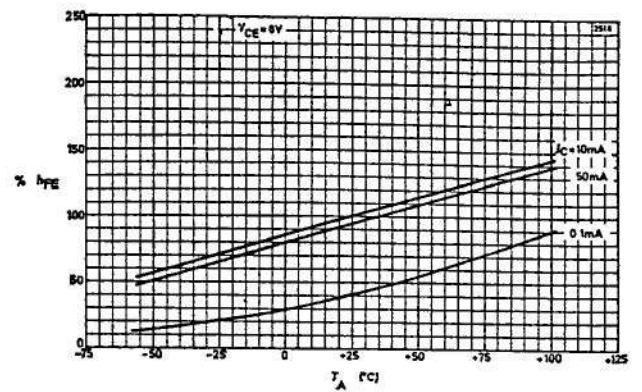


ZTX500 Series

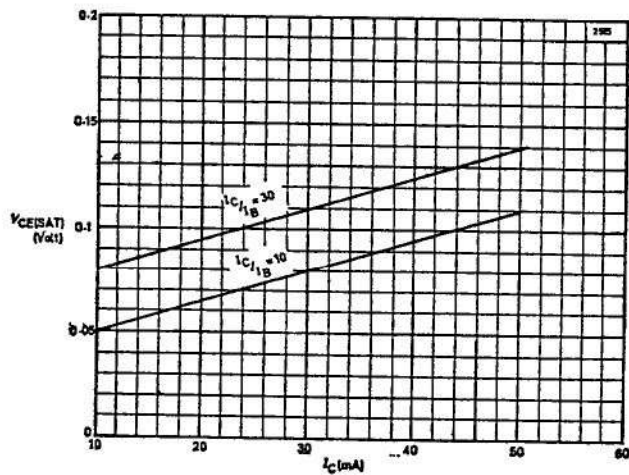
TYPICAL CHARACTERISTICS for the ZTX502



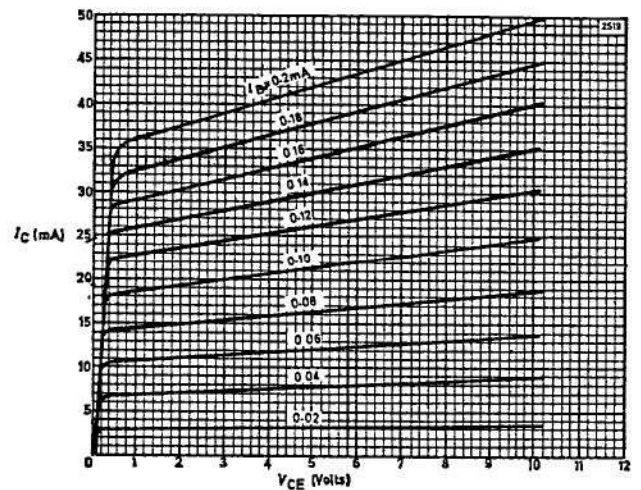
$$h_{FE}/I_C$$



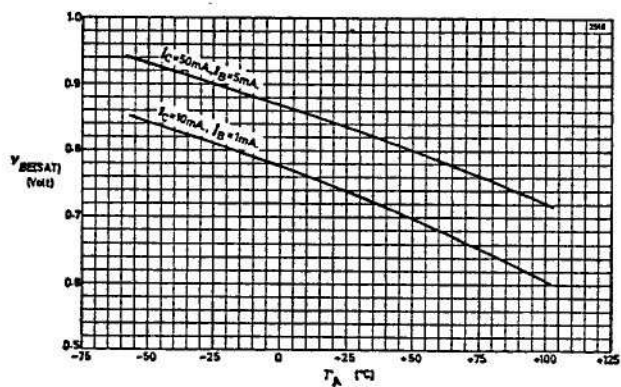
$$h_{FE}/T_{\text{ambient}}$$



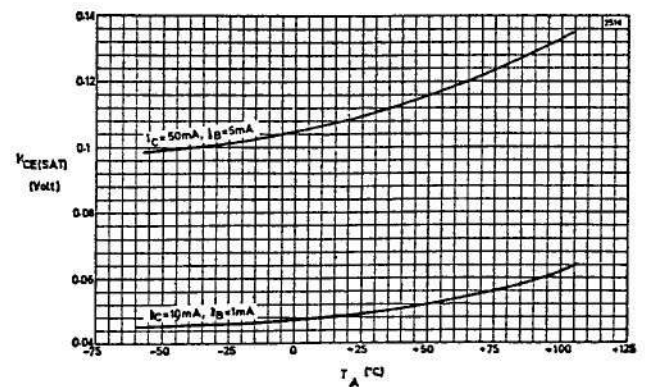
$$V_{CE(sat)}/I_C$$



$$I_C/V_{CE}$$



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



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