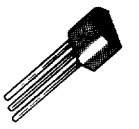
PNP Silicon Planar Medium Power Transistors

ZTX554 ZTX555 ZTX556 ZX557

FEATURES

- 1W power dissipation at $T_{amb} = 25°C$
- Voltages up to 300V
- Excellent gain characteristics up to 300mA
- Low saturation voltages
- 1A continuous I_C



Plastic E-Line
(TO-92 Compatible)

DESCRIPTION

A range of high voltage, high performance transistors encapsulated in the popular E-line (TO-92) plastic package.

Application areas include: audio frequency amplifiers, drivers and output stages, oscillators and general purpose switching.

The E-line package is formed by transfer moulding a silicone plastic specially selected to provide a rugged one-piece encapsulation resistant to severe environments and allow the high junction temperature operation normally associated with metal can devices.

E-line encapsulated devices are approved for use in military, industrial and professional equipments.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	ZTX554	ZTX555	ZTX556	ZTX557	Unit
Collector-base voltage	V_{CBO}	−140	−160	−200	−300	V
Collector-emitter voltage	V_{CEO}	−125	−150	−200	−300	V
Emitter-base voltage	V_{EBO}	−5				V
Peak pulse current (see note below)	I_{CM}	−2		−1		A
Continuous collector current	I_C	−1		−0.5		A
Power dissipation at $T_{amb} = 25°C$ at $T_{case} = 25°C$	P_{tot}	1 2				W W
Operating & storage temp. range		−55 to +200				°C

Note: Consult Safe Operating Area graph for conditions.

ZTX554 ZTX555 ZTX556 ZTX557

CHARACTERISTICS (at $T_{amb} = 25°C$ unless otherwise stated).

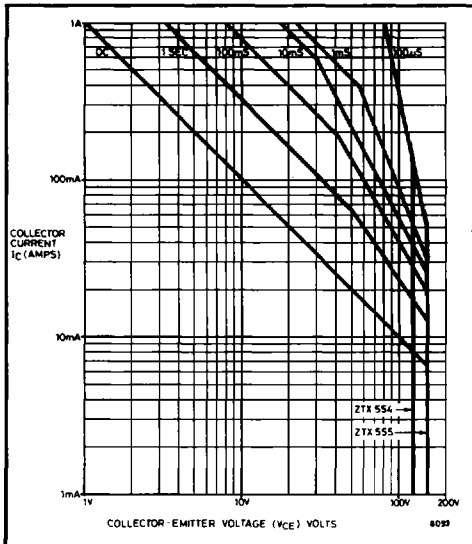
Parameter	Symbol	ZTX554		ZTX555		Unit	Conditions
		Min.	Max.	Min.	Max.		
Collector-base breakdown voltage	$V_{(BR)CBO}$	−140	–	−160	–	V	$I_C = 100\mu A$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	−125	–	−150	–	V	$I_C = -10mA$*
Emitter-base breakdown voltage	$V_{(BR)EBO}$	−5	–	−5	–	V	$I_E = -100\mu A$
Collector cut-off current	I_{CBO}	–	−0.1	–	–	μA	$V_{CB} = -120V$
		–	−10	–	–	μA	$V_{CB} = -120V$ $T_{amb} = 100°C$
		–	–	–	−0.1	μA	$V_{CB} = -140V$
		–	–	–	−10	μA	$V_{CB} = -140V$ $T_{amb} = 100°C$
Emitter cut-off current	I_{EBO}	–	−0.1	–	−0.1	μA	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	−0.3	–	−0.3	V	$I_C = -100mA$* $I_B = -10mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	–	−1	–	−1	V	$I_C = 100mA$* $I_B = -10mA$
Base-emitter turn-on voltage	$V_{BE(on)}$	–	−1	–	−1	V	$I_C = -100mA$* $V_{CE} = -10V$
Static forward current transfer ratio	h_{FE}	50	–	50	–		$I_C = -10mA$* $V_{CE} = -10V$
		50	300	50	300		$I_C = -300mA$* $V_{CE} = -10V$
Transition frequency	f_T	100	–	100	–	MHz	$I_C = -50mA$ $V_{CE} = -10V$ $f = 100MHz$
Output capacitance	C_{obo}	–	10	–	10	pF	$V_{CE} = -10V$ $f = 1MHz$

*Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.

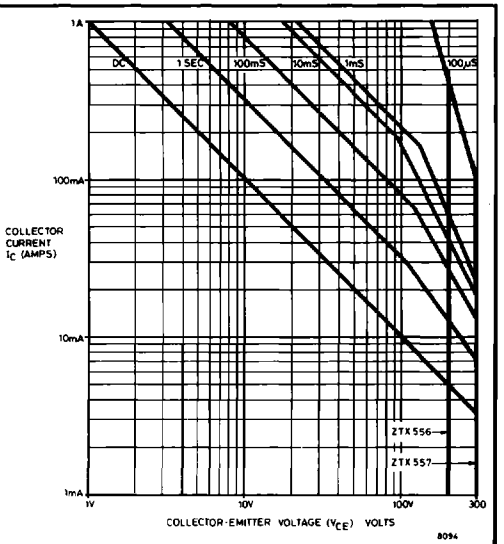
CHARACTERISTICS (at $T_{amb} = 25°C$ unless otherwise stated).

Parameter	Symbol	ZTX556		ZTX557		Unit	Conditions
		Min.	Max.	Min.	Max.		
Collector-base breakdown voltage	$V_{(BR)CBO}$	−200	−	−300	−	V	$I_C = 100\mu A$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	−200	−	−300	−	V	$I_C = -10mA$*
Emitter-base breakdown voltage	$V_{(BR)EBO}$	−5	−	−5	−	V	$I_E = -100\mu A$
Collector cut-off current	I_{CBO}	−	−0.1	−	−	μA	$V_{CB} = -160V$
		−	−10	−	−	μA	$V_{CB} = -160V$ $T_{amb} = 100°C$
		−	−	−	−0.1	μA	$V_{CB} = -200V$
		−	−	−	−10	μA	$V_{CB} = -200V$ $T_{amb} = 100°C$
Emitter cut-off current	I_{EBO}	−	−0.1	−	−0.1	μA	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	−	−0.3	−	−0.3	V	$I_C = -50mA$* $I_B = -5mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	−	−1	−	−1	V	$I_C = -50mA$* $I_B = -5mA$
Base-emitter turn-on voltage	$V_{BE(on)}$	−	−1	−	−1	V	$I_C = -50mA$* $V_{CE} = -10V$
Static forward current transfer ratio	h_{FE}	50	−	50	−		$I_C = -10mA$* $V_{CE} = -10V$
		50	300	50	300		$I_C = -50mA$* $V_{CE} = -10V$
Transition frequency	f_T	75	−	75	−	MHz	$I_C = -50mA$ $V_{CE} = -10V$ $f = 100MHz$
Output capacitance	C_{obo}	−	10	−	10	pF	$V_{CE} = -10V$ $f = 1MHz$

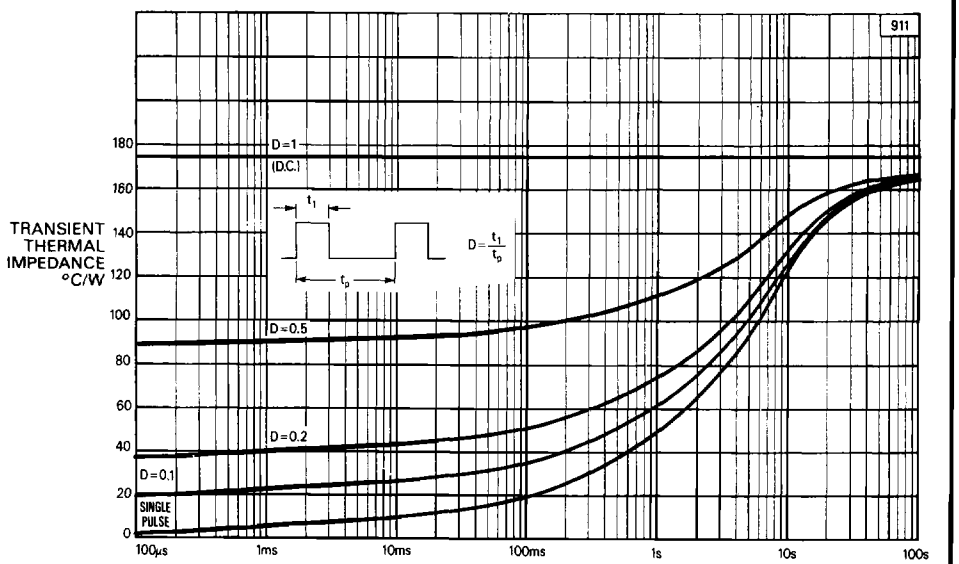
*Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.



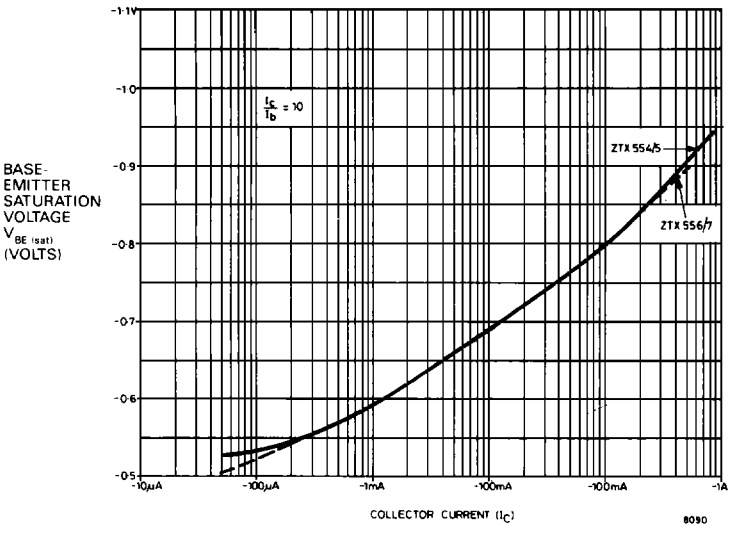
Safe operating area at $T_{amb} = 25°C$
ZTX554/5 (Single pulse)



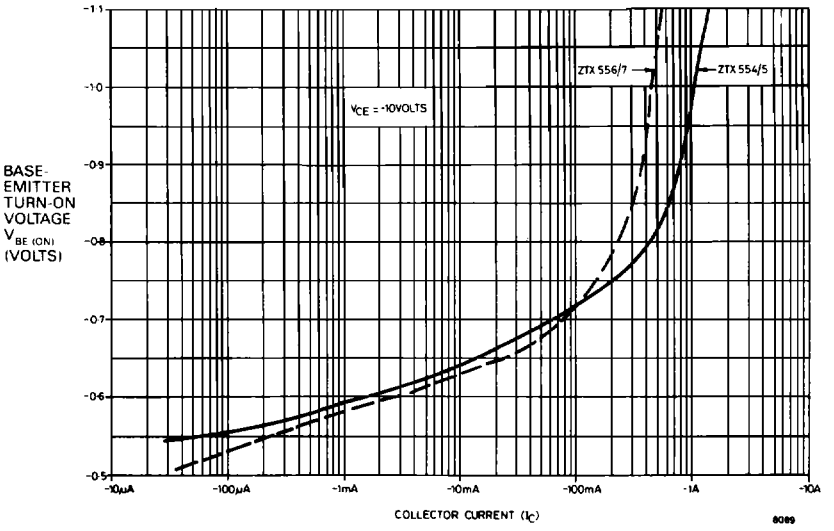
Safe operating area at $T_{amb} = 25°C$
ZTX556/7 (Single pulse)



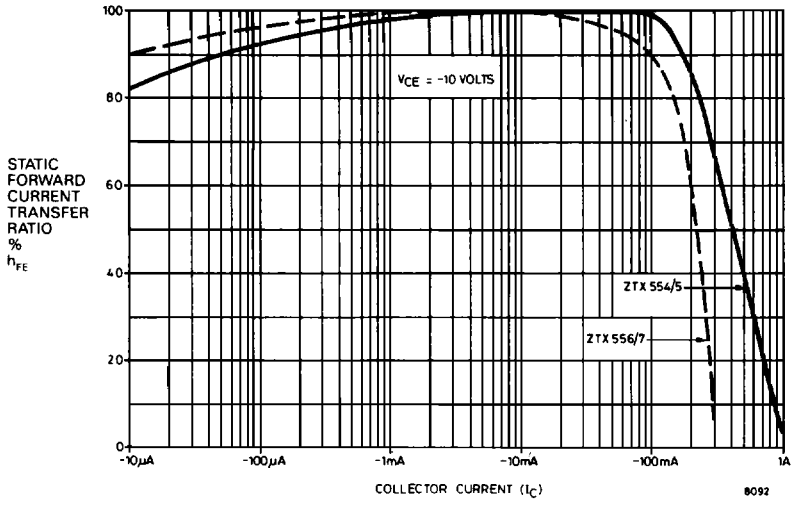
Maximum transient thermal impedance curves



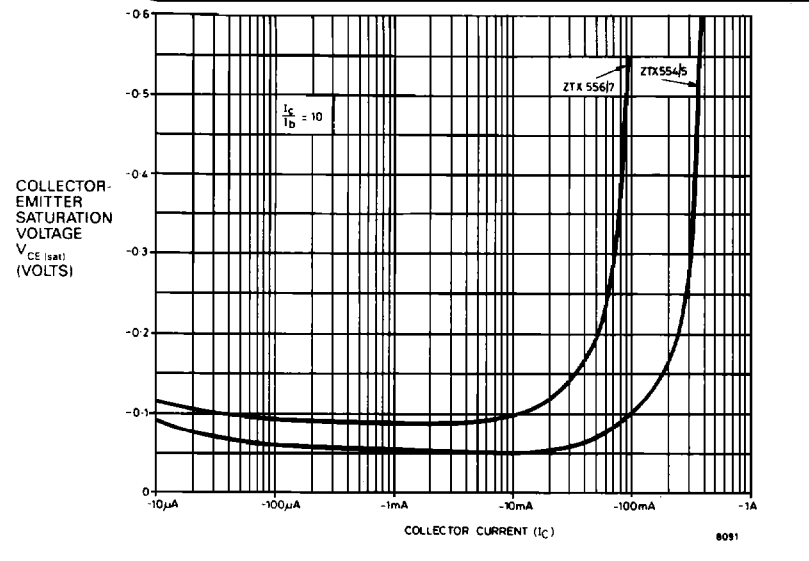
Typical base-emitter saturation voltages plotted against collector current



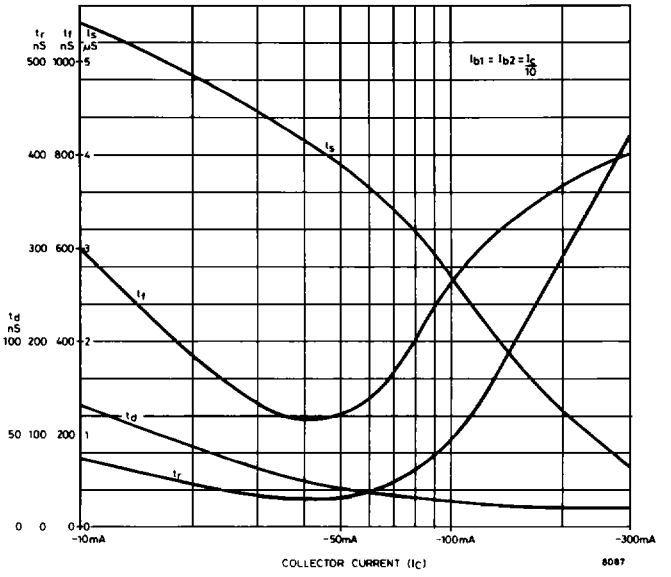
Typical base-emitter turn-on voltages plotted against collector current



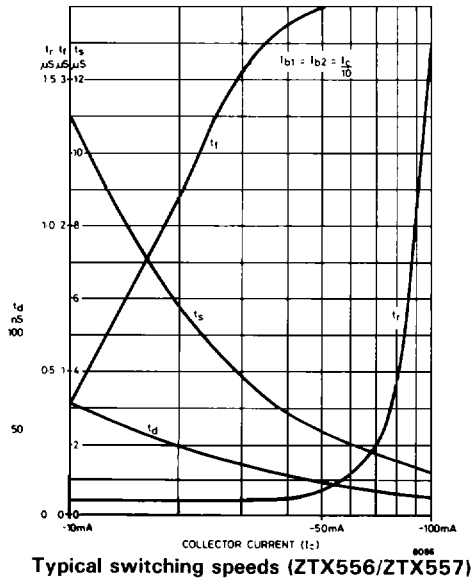
Typical static forward current transfer ratio plotted against collector current



Typical collector-emitter saturation voltages plotted against collector current



Typical switching speeds (ZTX554/ZTX555)



Typical switching speeds (ZTX556/ZTX557)