

# PNP Silicon Planar Medium Power Transistor

## ZTX749

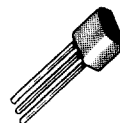
### FEATURES

- 1.5W power dissipation at  $T_{amb} = 25^{\circ}\text{C}^*$
- 2A continuous  $I_C$
- Excellent gain characteristics up to 6A (pulsed)
- Low saturation voltages
- Fast switching
- NPN complementary type available

### DESCRIPTION

A high performance transistor encapsulated in the popular E-line (TO-92) plastic package.

The 1.5W performance and outstanding electrical characteristics permit use in a wide range of industrial and consumer applications including lamp and solenoid drivers.



Plastic E-Line  
(TO-92 Compatible)

In addition the excellent gain characteristics at high collector current levels make the device ideal in pulsed applications.

The specially selected silicone encapsulation provides resistance to severe environments comparable with metal can devices.

Complementary to the ZTX649

### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	ZTX749	Unit
Collector-base voltage	$V_{CBO}$	-35	V
Collector-emitter voltage	$V_{CEO}$	-25	V
Emitter-base voltage	$V_{EBO}$	-5	V
Peak pulse current (see note below)	$I_{CM}$	-6	A
Continuous collector current	$I_C$	-2	A
Practical power dissipation*	$P_{totP}$	1.5	W
Power dissipation: at $T_{amb} = 25^{\circ}\text{C}$ derate above $25^{\circ}\text{C}$	$P_{tot}$	1 5.7	W mW/ $^{\circ}\text{C}$
Operating and storage temperature range	$t_j : t_{stg}$	-55 to +200	$^{\circ}\text{C}$

Note: Consult Safe Operating Area graph for conditions.

\*The power which can be dissipated assuming device mounted in typical manner on P.C.B. with copper equal to 1sq.inch minimum.

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CHARACTERISTICS (at  $T_{amb} = 25^{\circ}\text{C}$  unless otherwise stated).

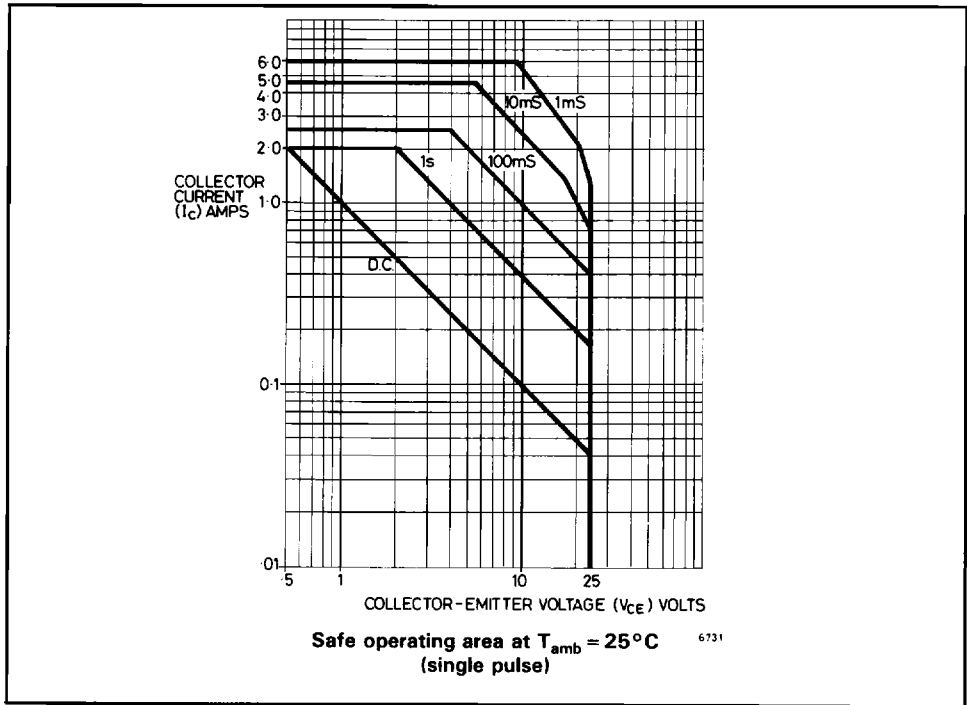
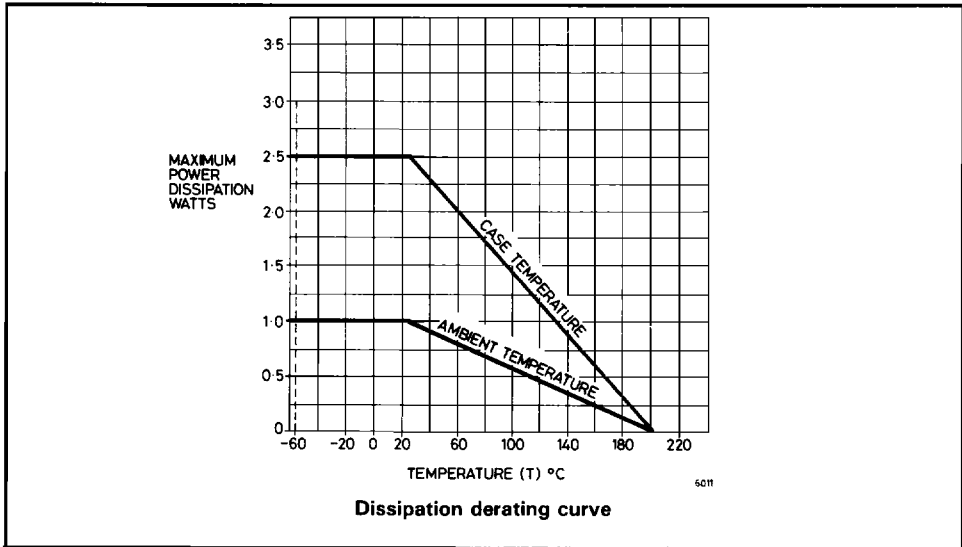
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	- 35			V	$I_C = -100\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	- 25			V	$I_C = -10\text{mA}$
Emitter-base breakdown voltage	$V_{(BR)EBO}$	- 5			V	$I_E = -100\mu\text{A}$
Collector cut-off current	$I_{CBO}$			- 0.1	$\mu\text{A}$	$V_{CB} = -30\text{V}$
				- 10	$\mu\text{A}$	$V_{CB} = -30\text{V}, T_{amb} = 100^{\circ}\text{C}$
Emitter cut-off current	$I_{EBO}$			- 0.1	$\mu\text{A}$	$V_{EB} = -4\text{V}$
Collector-emitter saturation voltage	$V_{CE(SAT)}$		- 0.12	- 0.3	V	$I_C = -1\text{A}, I_B = -100\text{mA}^*$
			- 0.23	- 0.5	V	$I_C = -2\text{A}, I_B = -200\text{mA}^*$
Base-emitter saturation voltage	$V_{BE(SAT)}$		- 0.9	- 1.25	V	$I_C = -1\text{A}, I_B = -100\text{mA}^*$
Base-emitter turn on voltage	$V_{BE(ON)}$		- 0.8	- 1	V	$I_C = -1\text{A}, V_{CE} = -2\text{V}^*$
Static forward current transfer ratio	$h_{FE}$	70	200	-		$I_C = -50\text{mA}, V_{CE} = -2\text{V}^*$
		100	200	300		$I_C = -1\text{A}, V_{CE} = -2\text{V}^*$
		75	150	-		$I_C = -2\text{A}, V_{CE} = -2\text{V}^*$
		15	50	-		$I_C = -6\text{A}, V_{CE} = -2\text{V}^*$
Transition frequency	$f_T$	100	160		MHz	$I_C = -100\text{mA}, V_{CE} = -5\text{V}$ $f = 100\text{MHz}$
Output capacitance	$C_{obo}$		55	100	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Switching times	$T_{on}$	-	40		nS	$I_C = -500\text{mA}, V_{CC} = -10\text{V}$ $I_{B1} = I_{B2} = -50\text{mA}$
	$T_{off}$		500		nS	

\*Measured under pulsed conditions. Pulse width =  $300\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

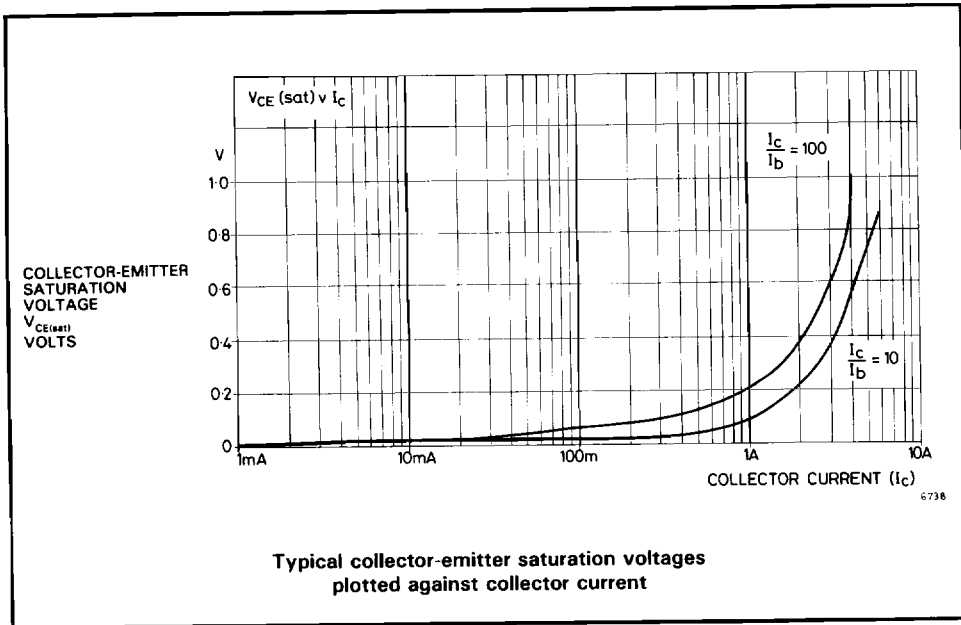
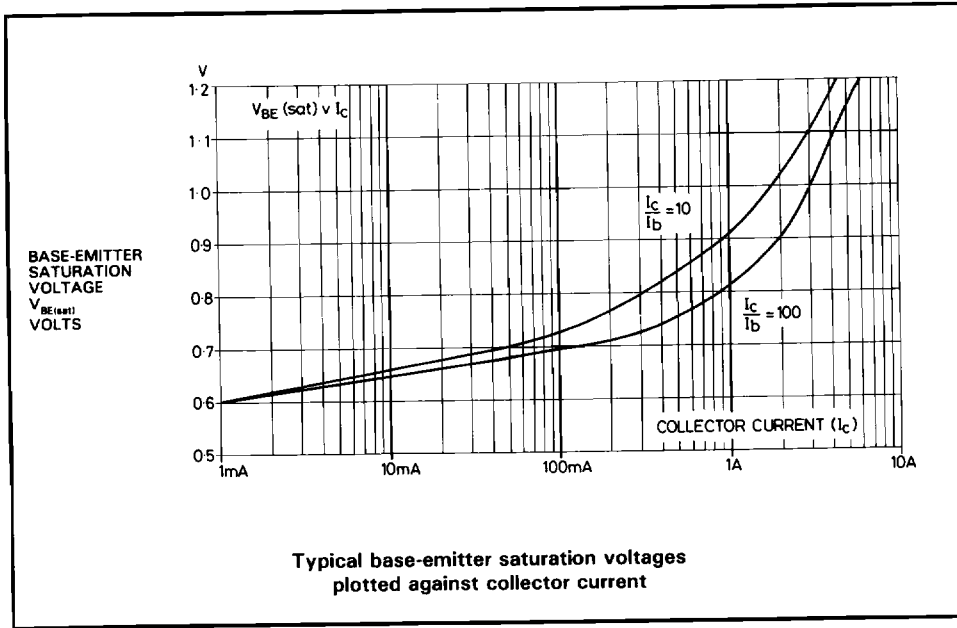
## THERMAL CHARACTERISTICS

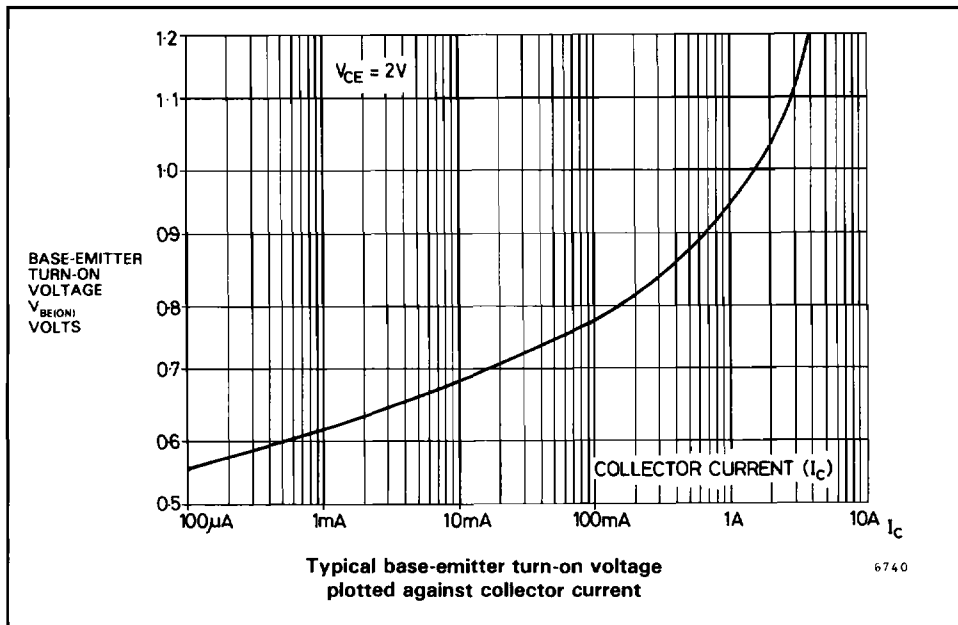
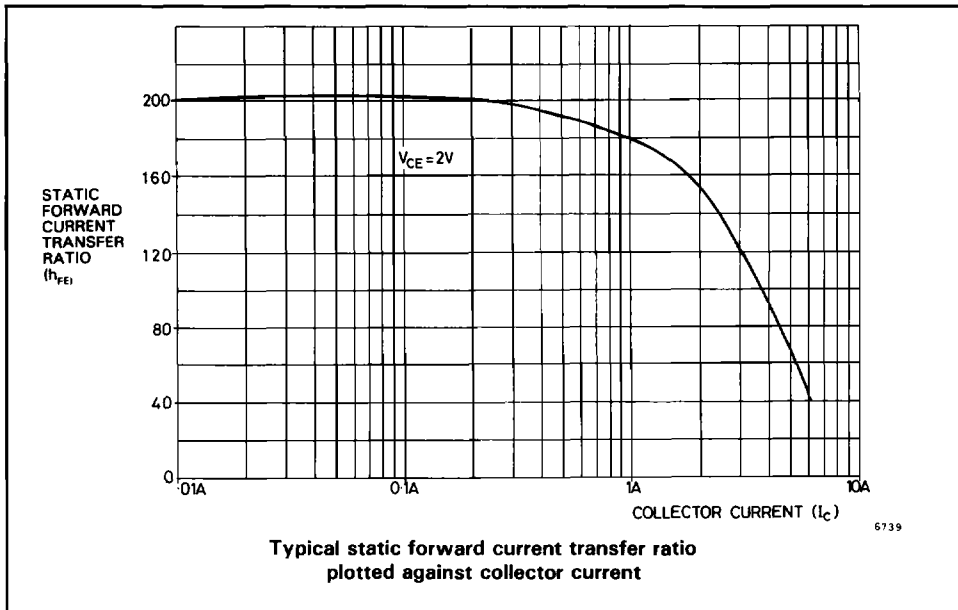
Parameter	Symbol	Maximum	Unit
Thermal resistance: Junction to ambient <sub>1</sub>	$R_{th(j-amb)1}$	175	$^{\circ}\text{C/W}$
Junction to ambient <sub>2</sub>	$R_{th(j-amb)2}^{\dagger}$	116	$^{\circ}\text{C/W}$
Junction to case	$R_{th(j-case)}$	70	$^{\circ}\text{C/W}$

$\dagger$ Device mounted on P.C.B. with copper equal to 1sq.inch minimum.



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