

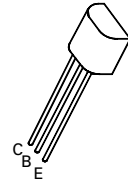
# PNP SILICON PLANAR MEDIUM POWER HIGH VOLTAGE TRANSISTOR

## ZTX758

ISSUE 1 – APRIL 94

### FEATURES

- \* 400 Volt  $V_{CE0}$
- \* 0.5 Amp continuous current
- \*  $P_{tot}=1$  Watt



**E-Line  
TO92 Compatible**

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	-400	V
Collector-Emitter Voltage	$V_{CEO}$	-400	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Peak Pulse Current	$I_{CM}$	-1	A
Continuous Collector Current	$I_C$	-500	mA
Power Dissipation at $T_{amb}=25^{\circ}C$ derate above $25^{\circ}C$	$P_{tot}$	1 5.7	W mW/ $^{\circ}C$
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	$^{\circ}C$

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-400			V	$I_C=-100\mu A$
Collector-Emitter Breakdown Voltage	$V_{CEO(SUS)}$	-400			V	$I_C=-10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E=-100\mu A$
Collector Cut-Off Current	$I_{CBO}$			-100	nA	$V_{CB}=-320V$
Collector Cut-Off Current	$I_{CES}$			-100	nA	$V_{CE}=-320V$
Emitter Cut-Off Current	$I_{EBO}$			-100	nA	$V_{EB}=-4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.30 -0.25 -0.50	V	$I_C=-20mA, I_B=-1mA$ $I_C=-50mA, I_B=-5mA^*$ $I_C=-100mA, I_B=-10mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-0.9	V	$I_C=-100mA, I_B=-10mA^*$
Base-Emitter Turn On Voltage	$V_{BE(on)}$			-0.9	V	$I_C=-100mA, V_{CE}=-5V^*$
Static Forward Current Transfer Ratio	$h_{FE}$	50 50 40				$I_C=-1mA, V_{CE}=-5V$ $I_C=-100mA, V_{CE}=-5V^*$ $I_C=-200mA, V_{CE}=-10V^*$

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## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ )

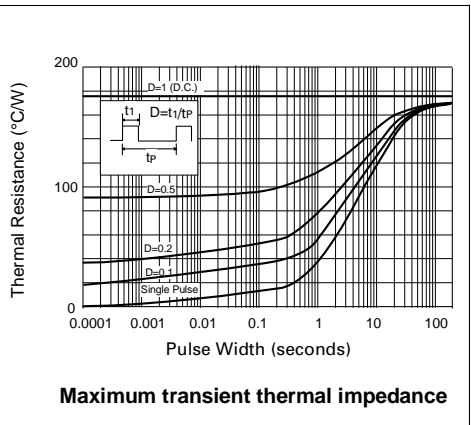
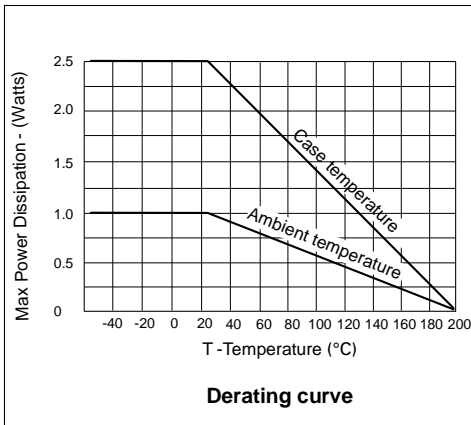
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Transition Frequency	$f_T$	50			MHz	$I_C = -20\text{mA}$ , $V_{CE} = -20\text{V}$ $f = 20\text{MHz}$
Output Capacitance	$C_{obo}$			20	pF	$V_{CB} = -20\text{V}$ , $f = 1\text{MHz}$
Switching times	$t_{on}$ $t_{off}$		140 2000		ns ns	$I_C = -100\text{mA}$ , $V_C = -100\text{V}$ $I_{B1} = 10\text{mA}$ , $I_{B2} = -20\text{mA}$

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

## THERMAL CHARACTERISTICS

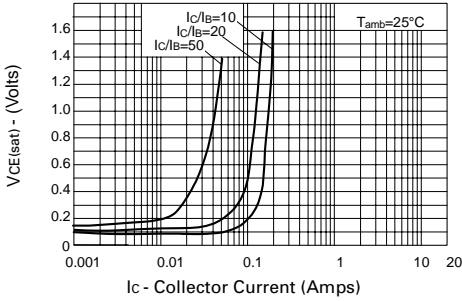
PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient <sub>1</sub>	$R_{th(j-amb)1}$	175	$^{\circ}\text{C/W}$
Junction to Ambient <sub>2</sub>	$R_{th(j-amb)2} \dagger$	116	$^{\circ}\text{C/W}$
Junction to Case	$R_{th(j-case)}$	70	$^{\circ}\text{C/W}$

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

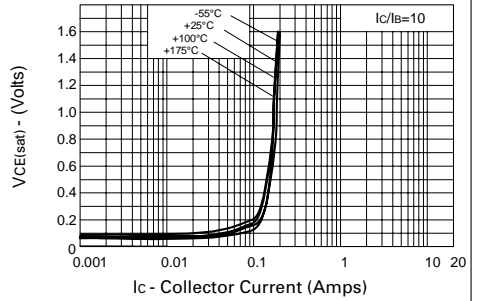


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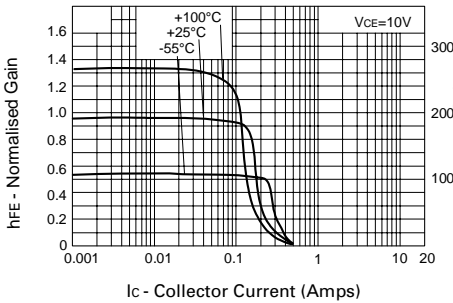
## TYPICAL CHARACTERISTICS



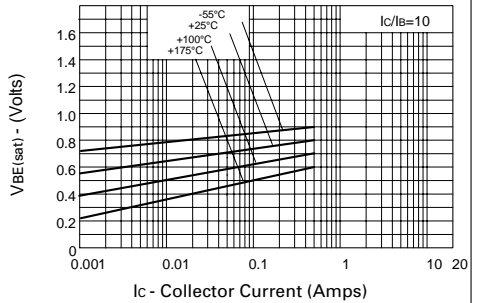
**$V_{CE(sat)}$  v  $I_C$**



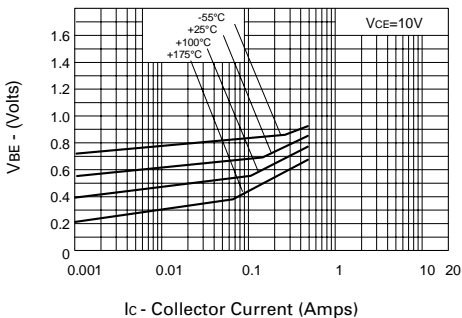
**$V_{CE(sat)}$  v  $I_C$**



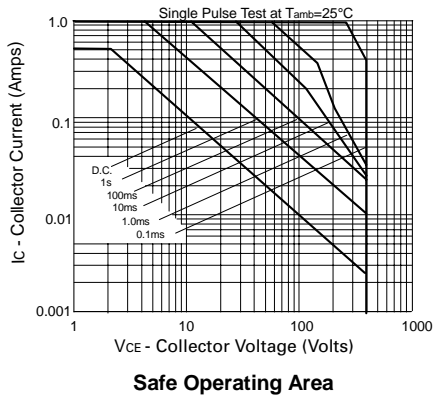
**$h_{FE}$  v  $I_C$**



**$V_{BE(sat)}$  v  $I_C$**



**$V_{BE(on)}$  v  $I_C$**



**Safe Operating Area**