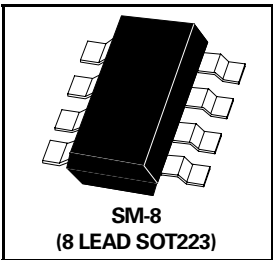
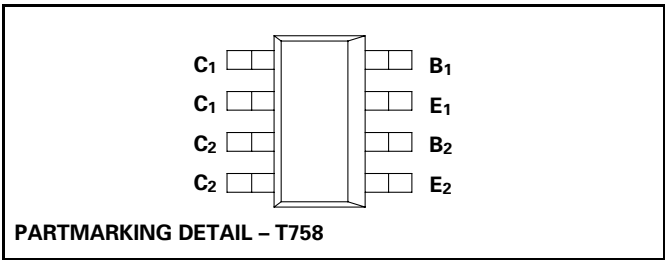


# SM-8 DUAL PNP MEDIUM POWER TRANSISTORS

ISSUE 1 - NOVEMBER 1995

**ZDT758**



## 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	$I_C$	-0.5	A
Operating and Storage Temperature Range	$T_j:T_{stg}$	-55 to +150	°C

## THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNIT
Total Power Dissipation at $T_{amb} = 25^\circ\text{C}^*$ Any single die "on" Both die "on" equally	$P_{tot}$	2.25 2.75	W W
Derate above $25^\circ\text{C}^*$ Any single die "on" Both die "on" equally		18 22	mW/°C mW/°C
Thermal Resistance - Junction to Ambient* Any single die "on" Both die "on" equally		55.6 45.5	°C/W °C/W

\* The power which can be dissipated assuming the device is mounted in a typical manner on a PCB with copper equal to 2 inches square.

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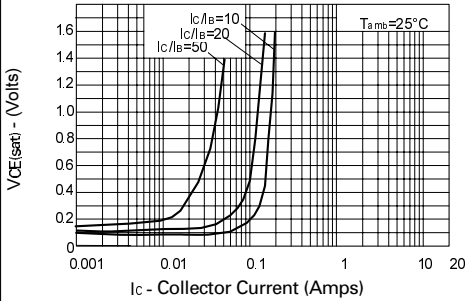
## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-400			V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CEO(SUS)}$	-400			V	$I_C = -10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E = -100\mu\text{A}$
Collector Cutoff Current	$I_{CBO}$			-100	nA	$V_{CB} = -320\text{V}$
Collector Cutoff Current	$I_{CES}$			-100	nA	$V_{CE} = -320\text{V}$
Emitter Cutoff Current	$I_{EBO}$			-100	nA	$V_{EB} = -4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.30 -0.25 -0.50	V V V	$I_C = -20\text{mA}, I_B = -1\text{mA}$ $I_C = -50\text{mA}, I_B = -5\text{mA}^*$ $I_C = -100\text{mA}, I_B = -10\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-0.9	V	$I_C = -100\text{mA}, I_B = -10\text{mA}^*$
Base-Emitter Turn On Voltage	$V_{BE(on)}$			-0.9	V	$I_C = -100\text{mA}, V_{CE} = -5\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	50 50 40				$I_C = -1\text{mA}, V_{CE} = -5\text{V}$ $I_C = -100\text{mA}, V_{CE} = -5\text{V}^*$ $I_C = -200\text{mA}, V_{CE} = -10\text{V}^*$
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	$I_C = -100\text{mA}, V_{CE} = -100\text{V}$ $I_{B1} = 10\text{mA}, I_{B2} = -20\text{mA}$

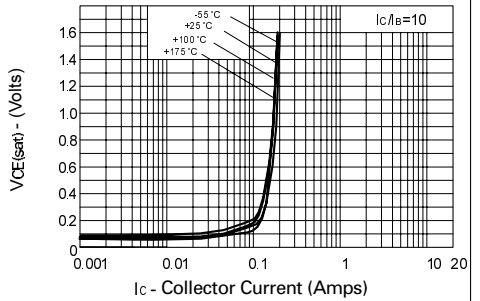
\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

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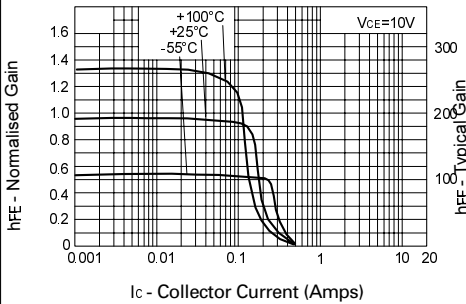
## TYPICAL CHARACTERISTICS



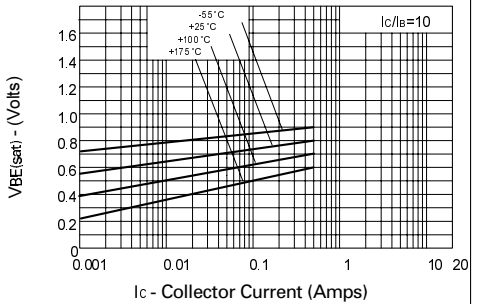
**$V_{CE(sat)}$  v  $I_C$**



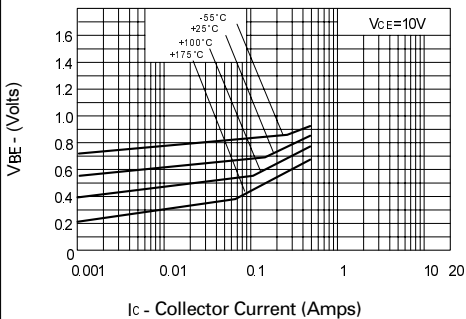
**$V_{CE(sat)}$  v  $I_C$**



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



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



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