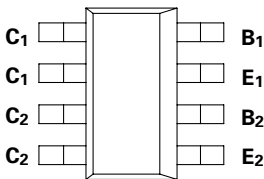


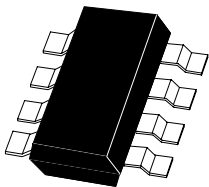
**SM-8 DUAL NPN MEDIUM POWER
HIGH GAIN TRANSISTORS**

ISSUE 1 - NOVEMBER 1995

ZDT617



PARTMARKING DETAIL — T617



**SM-8
(8 LEAD SOT223)**

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	15	V
Collector-Emitter Voltage	V_{CEO}	15	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	12	A
Continuous Collector Current	I_C	3	A
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	°C

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNIT
Total Power Dissipation at $T_{amb} = 25^{\circ}C^*$ Any single die "on" Both die "on" equally	P_{tot}	2 2.5	W W
Derate above $25^{\circ}C^*$ Any single die "on" Both die "on" equally		16 20	mW/°C mW/°C
Thermal Resistance - Junction to Ambient* Any single die "on" Both die "on" equally		62.5 50	°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	$V_{(BR)CBO}$	15	70		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	15	18		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.2		V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 10\text{V}$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 4\text{V}$
Collector-Emitter Cutoff Current	I_{CES}			100	nA	$V_{CES} = 10\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		8 70 150	14 100 200	mV mV mV	$I_C = 0.1\text{A}, I_B = 10\text{mA}^*$ $I_C = 1\text{A}, I_B = 10\text{mA}^*$ $I_C = 3\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.0	V	$I_C = 3\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.84	1.0	V	$I_C = 3\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	200 300 200 150	415 450 320 240 80			$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 200\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 3\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 5\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 12\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	f_T	80	120		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}		30	40	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Turn-On Time	t_{on}		120		ns	$V_{CC} = 10\text{V}, I_C = 3\text{A}$
Turn-Off Time	t_{off}		160		ns	$I_{B1} = I_{B2} = 50\text{mA}$

*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

TYPICAL CHARACTERISTICS

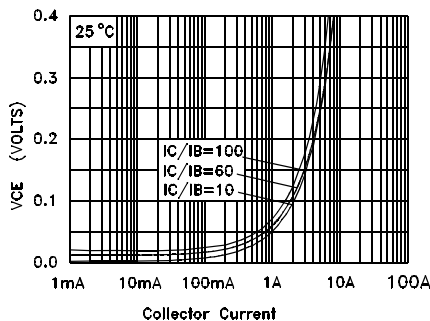


FIG. 1 $V_{CE(SAT)}$ vs I_C

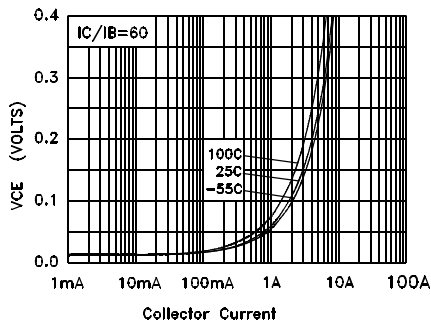


FIG. 2 $V_{CE(SAT)}$ vs I_C

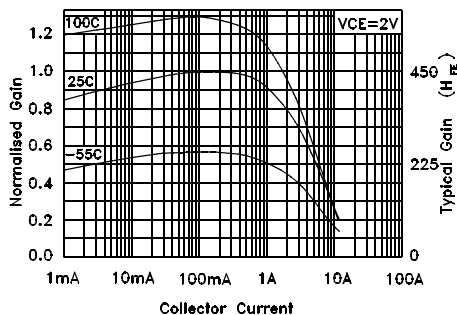


FIG. 3 H_{FE} vs I_C

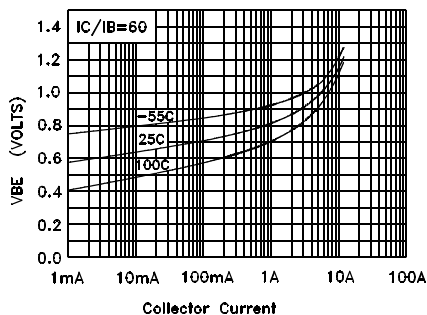


FIG. 4 $V_{BE(SAT)}$ vs I_C

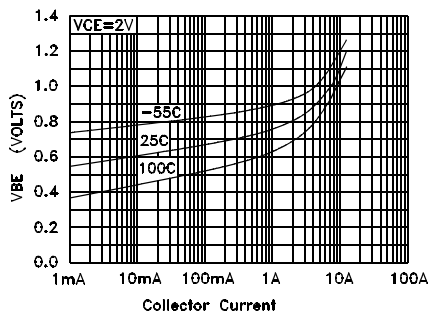


FIG. 5 $V_{BE(ON)}$ vs I_C