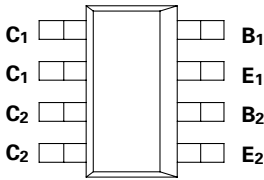


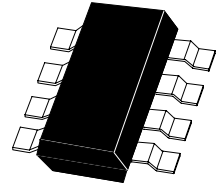
SM-8 DUAL NPN MEDIUM POWER HIGH GAIN TRANSISTORS

ISSUE 1 - NOVEMBER 1995

ZDT619



PARTMARKING DETAIL - T619



SM-8
(8 LEAD SOT223)

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	6	A
Continuous Collector Current	I_C	2	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 2.5	W W
Derate above 25°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	$V_{(BR)CBO}$	50	190		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50	65		V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		V	$I_E=100\mu\text{A}$
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB}=40\text{V}$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB}=4\text{V}$
Collector Emitter Cutoff Current	I_{CES}			100	nA	$V_{CES}=40\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		12 125 150	20 200 220	mV mV mV	$I_C=0.1\text{A}, I_B=10\text{mA}^*$ $I_C=1\text{A}, I_B=10\text{mA}^*$ $I_C=2\text{A}, I_B=50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.87	1.0	V	$I_C=2\text{A}, I_B=50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.80	1.0	V	$I_C=2\text{A}, V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	200 300 200 100	400 450 400 225 40			$I_C=10\text{mA}, V_{CE}=2\text{V}^*$ $I_C=200\text{mA}, V_{CE}=2\text{V}^*$ $I_C=1\text{A}, V_{CE}=2\text{V}^*$ $I_C=2\text{A}, V_{CE}=2\text{V}^*$ $I_C=6\text{A}, V_{CE}=2\text{V}^*$
Transition Frequency	f_T	100	165		MHz	$I_C=50\text{mA}, V_{CE}=10\text{V}$ $f=100\text{MHz}$
Output Capacitance	C_{obo}		12	20	pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Turn-On Time	t_{on}		170		ns	$V_{CC}=10\text{V}, I_C=1\text{A}$ $I_{B1}=-I_{B2}=10\text{mA}$
Turn-Off Time	t_{off}		750		ns	

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

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TYPICAL CHARACTERISTICS

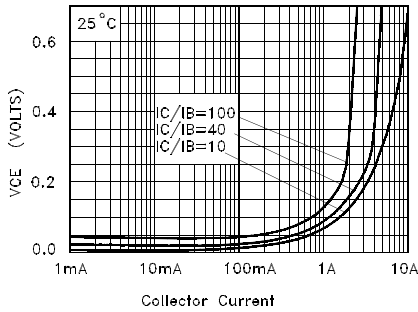


FIG. 1 $V_{CE(SAT)}$ vs I_C

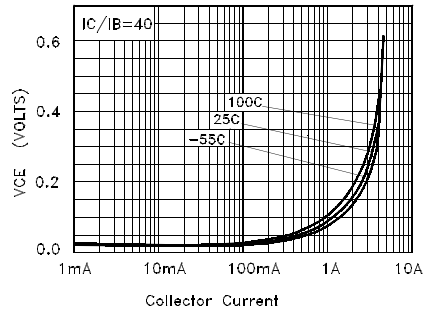


FIG. 2 $V_{CE(SAT)}$ vs I_C

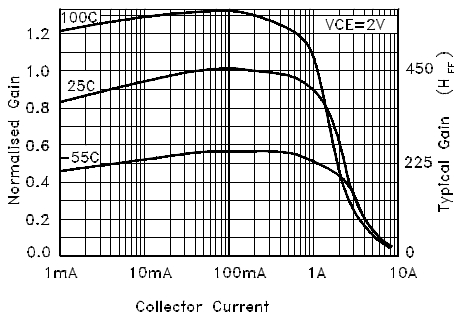


FIG. 3 H_{FE} vs I_C

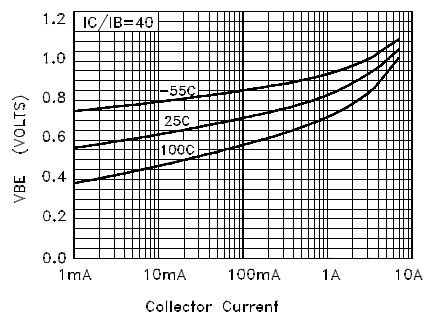


FIG. 4 $V_{BE(SAT)}$ vs I_C

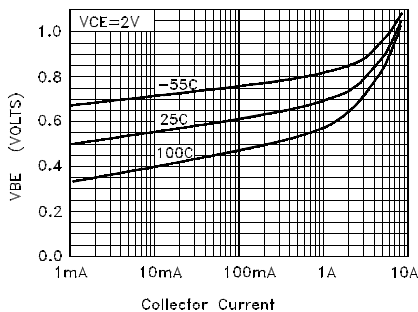


FIG. 5 $V_{BE(ON)}$ vs I_C