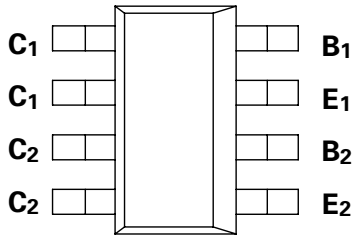
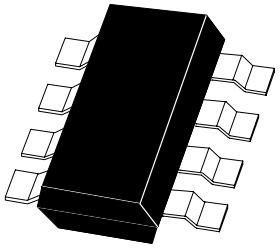
SM-8 DUAL NPN MEDIUM POWER HIGH GAIN TRANSISTORS

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°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.

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

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

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

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TYPICAL CHARACTERISTICS

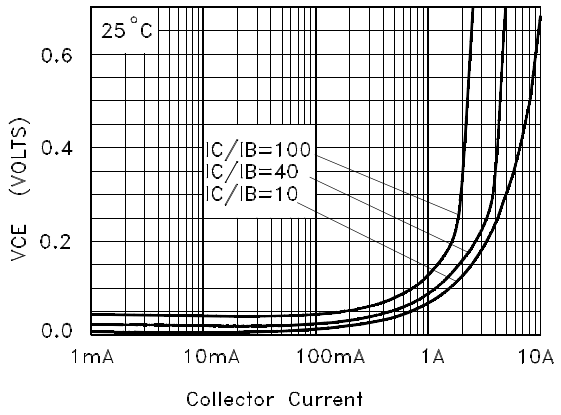

FIG. 1 $V_{CE(SAT)}$ vs I_C

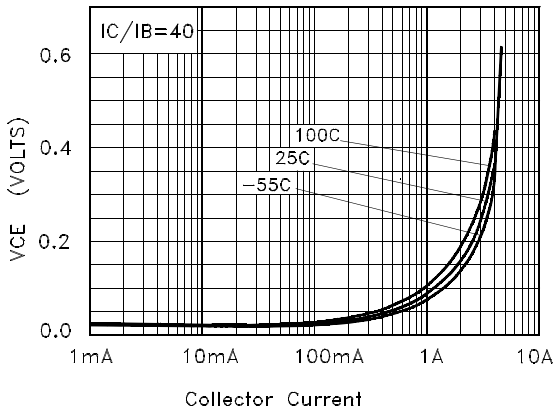

FIG. 2 $V_{CE(SAT)}$ vs I_C

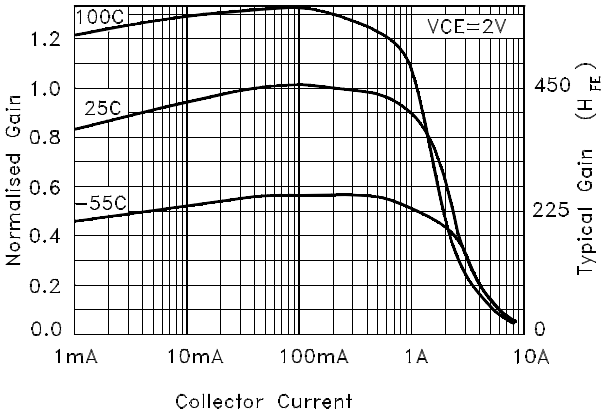

FIG. 3 H_{FE} vs I_C

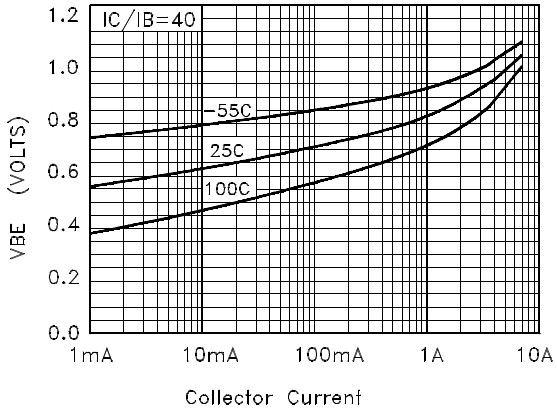

FIG. 4 $V_{BE(SAT)}$ vs I_C

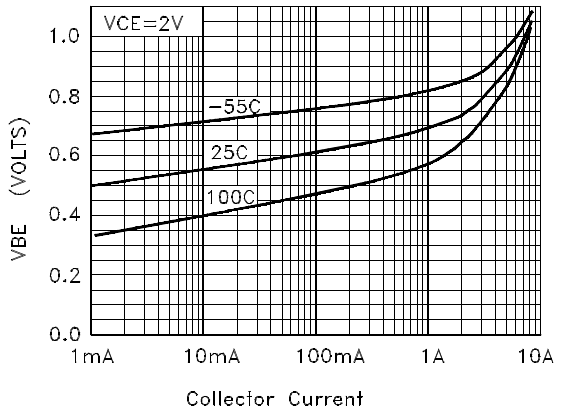

FIG. 5 $V_{BE(ON)}$ vs I_C