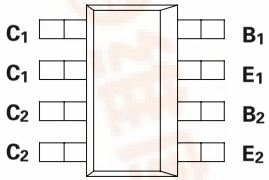
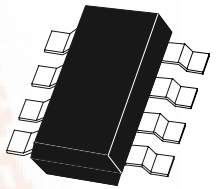
SM-8 DUAL NPN MEDIUM POWER TRANSISTORS

ZDT649

ISSUE 1 - NOVEMBER 1995



PARTMARKING DETAIL – T649



SM-8
(8 LEAD SOT223)

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	35	V
Collector-Emitter Voltage	V_{CEO}	25	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}	 2.25 2.75	 W W
Derate above 25°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.

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	35			V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25			V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=100μA
Collector Cutoff Current	I_{CBO}			0.1 10	μA μA	V_{CB}=30V V_{CB}=30V,T_{amb}=100°C
Emitter Cutoff Current	I_{EBO}			0.1	μA	V_{EB}=4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.12 0.23	0.3 0.5	V V	I_C=1A, I_B=100mA* I_C=2A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1	V	I_C=1A, V_{CE}=2V*
Static Forward Current Transfer Ratio	h_{FE}	70 100 75 15	200 200 150 50	300		I_C=50mA, 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	150	240		MHz	I_C=100mA, V_{CE}=5V f=100MHz
Output Capacitance	C_{obo}		25	50	pF	V_{CB}=10V f=1MHz
Switching Times	t_{on}		55		ns	I_C=500mA, V_{CC}=10V I_{B1}=I_{B2}=50mA
	t_{off}		300		ns	

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

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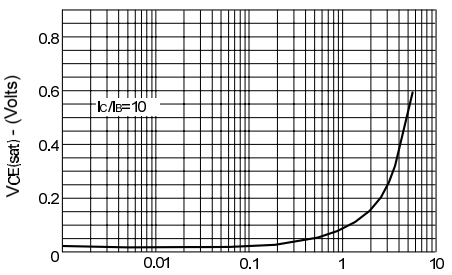
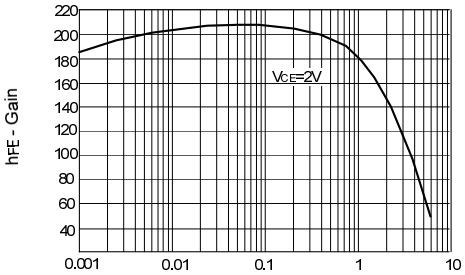
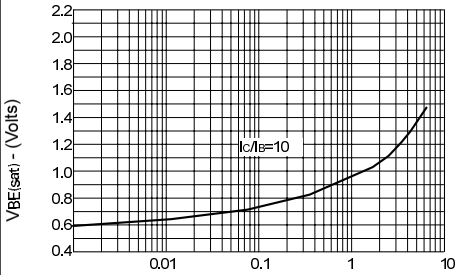
TYPICAL CHARACTERISTICS



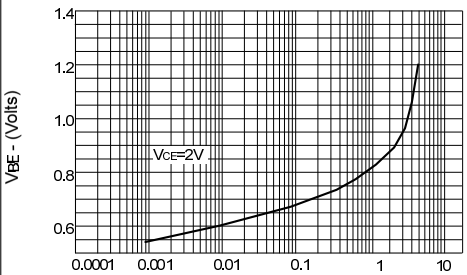
VCE(sat) v IC



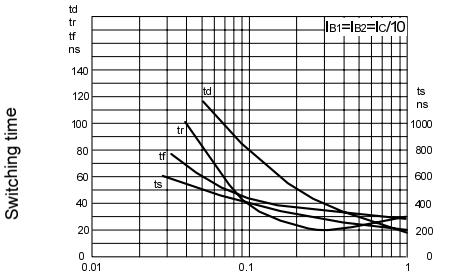
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Switching Speeds

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

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Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1	V	I_C=1A, V_{CE}=2V*
Static Forward Current Transfer Ratio	h_{FE}	70 100 75 15	200 200 150 50	300		I_C=50mA, 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	150	240		MHz	I_C=100mA, V_{CE}=5V f=100MHz
Output Capacitance	C_{obo}		25	50	pF	V_{CB}=10V f=1MHz
Switching Times	t_{on}		55		ns	I_C=500mA, V_{CC}=10V I_{B1}=I_{B2}=50mA
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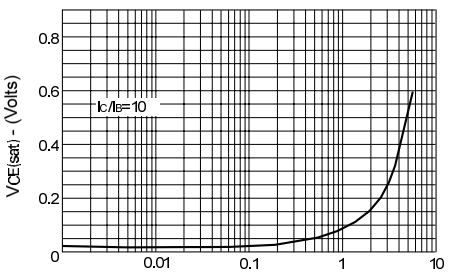
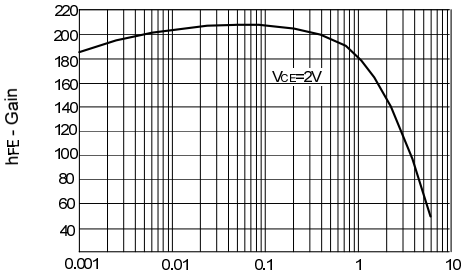
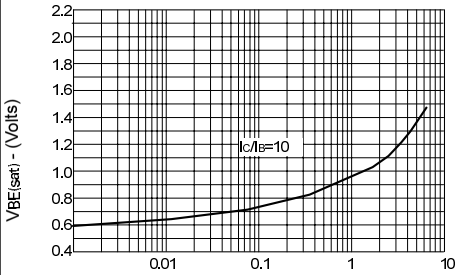


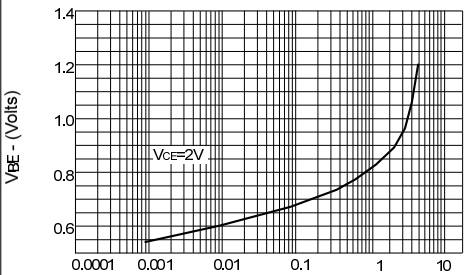
VCE(sat) v IC



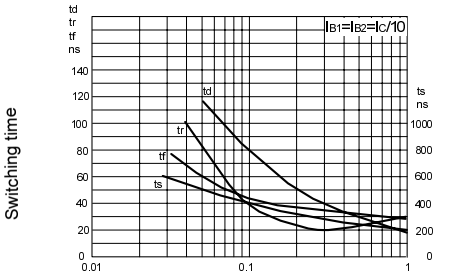
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Switching Speeds