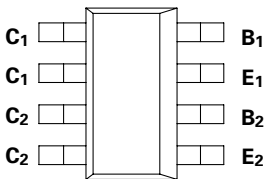


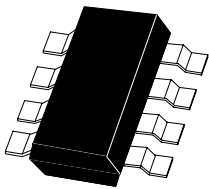
SM-8 DUAL NPN MEDIUM POWER TRANSISTORS

ISSUE 1 - NOVEMBER 1995

ZDT649



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 $T_{amb} = 25^{\circ}C^*$ Any single die "on" Both die "on" equally	P_{tot}	2.25 2.75	W W
Derate above $25^{\circ}C^*$ 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.

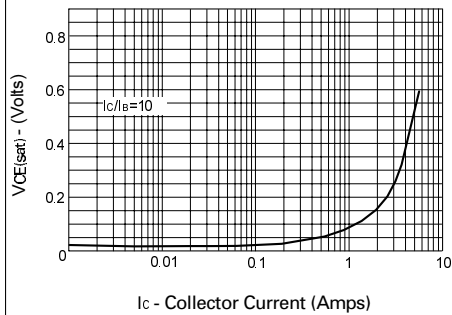
ZDT649

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

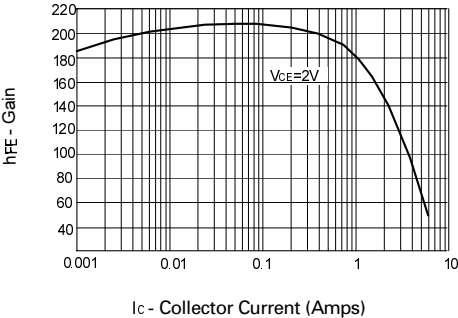
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	35			V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25			V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}			0.1 10	μA μA	$V_{CB} = 30\text{V}$ $V_{CB} = 30\text{V}, T_{amb} = 100^{\circ}\text{C}$
Emitter Cutoff Current	I_{EBO}			0.1	μA	$V_{EB} = 4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.12 0.23	0.3 0.5	V V	$I_C = 1\text{A}, I_B = 100\text{mA}^*$ $I_C = 2\text{A}, I_B = 200\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25	V	$I_C = 1\text{A}, I_B = 100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1	V	$I_C = 1\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	70 100 75 15	200 200 150 50	300		$I_C = 50\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 1\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 2\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 6\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	f_T	150	240		MHz	$I_C = 100\text{mA}, V_{CE} = 5\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}		25	50	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Switching Times	t_{on}		55		ns	$I_C = 500\text{mA}, V_{CC} = 10\text{V}$ $I_{B1} = I_{B2} = 50\text{mA}$
	t_{off}		300		ns	

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

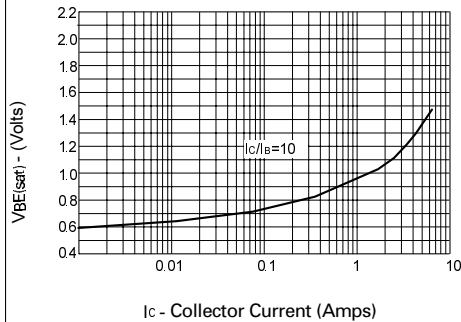
TYPICAL CHARACTERISTICS



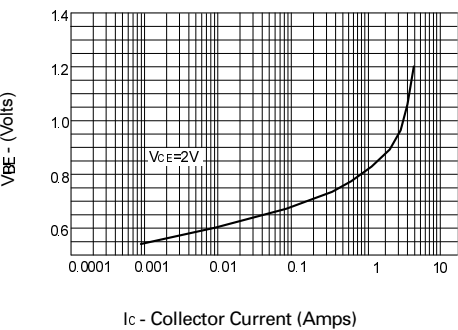
VCE(sat) v IC



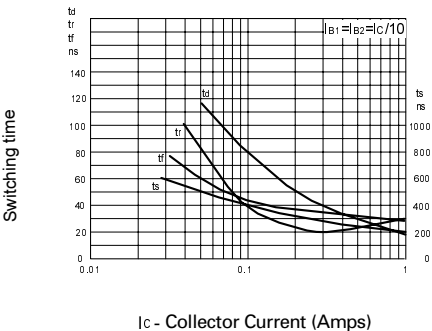
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Switching Speeds