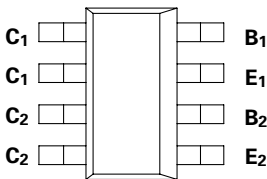


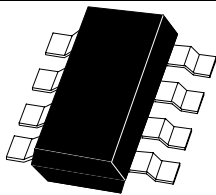
SM-8 DUAL NPN MEDIUM POWER HIGH GAIN TRANSISTORS

ISSUE 1 – JANUARY 1996

ZDT1049



PARTMARKING DETAIL – T1049



SM-8
(8 LEAD SOT223)

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	20	A
Continuous Collector Current	I_C	5	A
Base Current	I_B	500	mA
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	°C

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNIT
Total Power Dissipation at $T_{amb} = 25^{\circ}C^*$	P_{tot}		
Any single die "on"		2.25	W
Both die "on" equally		2.75	W
Derate above $25^{\circ}C^*$			
Any single die "on"		18	mW/°C
Both die "on" equally		22	mW/°C
Thermal Resistance - Junction to Ambient*			
Any single die "on"		55.6	°C/W
Both die "on" equally		45.5	°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 $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80	120		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	80	120		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CEO}	25	35		V	$I_C=10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	80	120		V	$I_C=100\mu\text{A}$, $V_{EB}=1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.75		V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		0.3	10	nA	$V_{CB}=50\text{V}$
Emitter Cut-Off Current	I_{EBO}		0.3	10	nA	$V_{EB}=4\text{V}$
Collector Emitter Cut-Off Current	I_{CES}		0.3	10	nA	$V_{CES}=50\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		30 60 125 155	45 80 180 220	mV mV mV mV	$I_C=0.5\text{A}$, $I_B=10\text{mA}^*$ $I_C=1\text{A}$, $I_B=10\text{mA}^*$ $I_C=2\text{A}$, $I_B=10\text{mA}^*$ $I_C=4\text{A}$, $I_B=50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		890	950	mV	$I_C=4\text{A}$, $I_B=50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		820	900	mV	$I_C=4\text{A}$, $V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	250 300 300 200 35	430 450 450 350 70	1200		$I_C=10\text{mA}$, $V_{CE}=2\text{V}^*$ $I_C=0.5\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=1\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=4\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=20\text{A}$, $V_{CE}=2\text{V}^*$
Transition Frequency	f_T		180		MHz	$I_C=50\text{mA}$, $V_{CE}=10\text{V}$ $f=50\text{MHz}$
Output Capacitance	C_{obo}		45	60	pF	$V_{CB}=10\text{V}$, $f=1\text{MHz}$
Turn - On Time	t_{on}		125		ns	$I_C=4\text{A}$, $I_B=40\text{mA}$, $V_{CC}=10\text{V}$
Turn -Off Time	t_{off}		380		ns	$I_C=4\text{A}$, $I_B=\pm 40\text{mA}$, $V_{CC}=10\text{V}$

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

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TYPICAL CHARACTERISTICS

