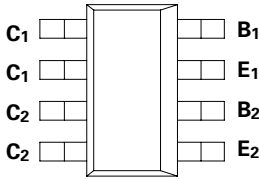


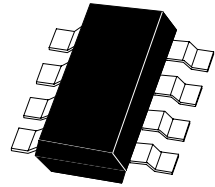
# SM-8 DUAL PNP MEDIUM POWER HIGH GAIN TRANSISTORS

ISSUE 1 - AUGUST 1997

## ZDT1147



PARTMARKING DETAIL – ZDT1147



SM-8  
(8 LEAD SOT223)

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	-15	V
Collector-Emitter Voltage	$V_{CEO}$	-12	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 $T_{amb} = 25^\circ\text{C}^*$ Any single die "on" Both die "on" equally	$P_{tot}$	2.0	W
		2.75	W
Derate above $25^\circ\text{C}^*$ Any single die "on" Both die "on" equally		18	mW/°C
		22	mW/°C
Thermal Resistance - Junction to Ambient* Any single die "on" Both die "on" equally		55.6	°C/W
		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.

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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	$V_{(BR)CBO}$	-15	-35		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CES}$	-12	-25		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CEO}$	-12	-25		V	$I_C = -10\text{mA}$
Collector-Emitter Breakdown Voltage	$V_{CEV}$	-12	-25		V	$I_C = -100\mu\text{A}$ , $V_{EB} = +1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-8.5		V	$I_E = -100\mu\text{A}$
Collector Cutoff Current	$I_{CBO}$		-0.3	-100	nA	$V_{CB} = -12\text{V}$
Emitter Cutoff Current	$I_{EBO}$		-0.3	-100	nA	$V_{EB} = -4\text{V}$
Collector Emitter Cutoff Current	$I_{CES}$		-0.3	-100	nA	$V_{CES} = -10\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-25 -70 -90 -115 -250	-50 -110 -130 -170 -380	mV	$I_C = -0.1\text{A}$ , $I_B = -1\text{mA}^*$ $I_C = -0.5\text{A}$ , $I_B = -2.5\text{mA}^*$ $I_C = -1\text{A}$ , $I_B = -6\text{mA}^*$ $I_C = -2\text{A}$ , $I_B = -20\text{mA}^*$ $I_C = -5\text{A}$ , $I_B = -50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-950	-1050	mV	$I_C = -5\text{A}$ , $I_B = -50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-905	-1000	mV	$I_C = -5\text{A}$ , $V_{CE} = -2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	270 250 200 150 90	450 400 340 250 160 60	850		$I_C = -10\text{mA}$ , $V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}$ , $V_{CE} = -2\text{V}^*$ $I_C = -2\text{A}$ , $V_{CE} = -2\text{V}^*$ $I_C = -5\text{A}$ , $V_{CE} = -2\text{V}^*$ $I_C = -10\text{A}$ , $V_{CE} = -2\text{V}^*$ $I_C = -20\text{A}$ , $V_{CE} = -2\text{V}^*$
Transition Frequency	$f_T$		115		MHz	$I_C = -50\text{mA}$ , $V_{CE} = -10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	$C_{CB}$		80		pF	$V_{CB} = -10\text{V}$ , $f = 1\text{MHz}$
Switching Times	$t_{on}$		150		ns	$I_C = -4\text{A}$ , $I_B = -40\text{mA}$ , $V_{CC} = -10\text{V}$
	$t_{off}$		220		ns	$I_C = -4\text{A}$ , $I_B = \pm 40\text{mA}$ , $V_{CC} = -10\text{V}$

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

## TYPICAL CHARACTERISTICS

