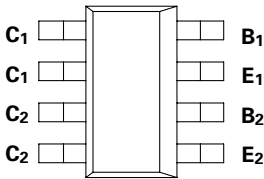


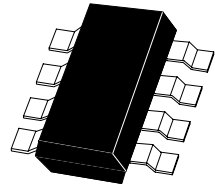
# SM-8 DUAL PNP MEDIUM POWER TRANSISTORS

ISSUE 1 - NOVEMBER 1995

## ZDT749



PARTMARKING DETAIL - T749



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

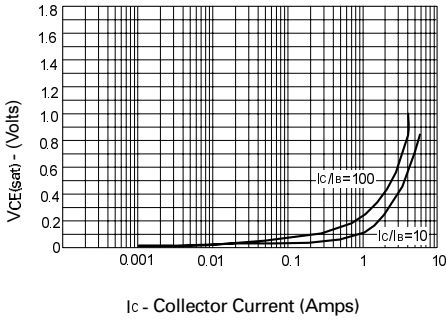
# ZDT749

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

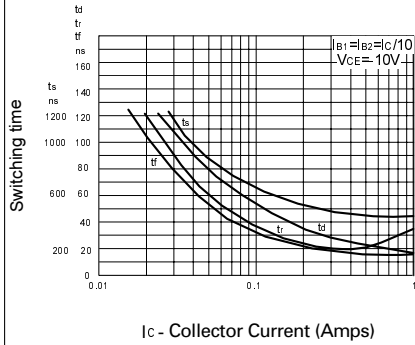
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-35			V	$I_C = -100\mu\text{A}$ , $I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-25			V	$I_C = -10\text{mA}$ , $I_B = 0^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E = -100\mu\text{A}$ , $I_C = 0$
Collector Cutoff Current	$I_{CBO}$			-0.1 -10	$\mu\text{A}$ $\mu\text{A}$	$V_{CB} = -30\text{V}$ $V_{CB} = -30\text{V}$ , $T_{amb} = 100^{\circ}\text{C}$
Emitter Cutoff Current	$I_{EBO}$			-0.1	$\mu\text{A}$	$V_{EB} = -4\text{V}$ , $I_E = 0$
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	$f_T$	100	160		MHz	$I_C = -100\text{mA}$ , $V_{CE} = -5\text{V}$ $f = 100\text{MHz}$
Output Capacitance	$C_{obo}$		55	100	pF	$V_{CB} = -10\text{V}$ $f = 1\text{MHz}$
Switching Times	$t_{on}$		40		ns	$I_C = -500\text{mA}$ , $V_{CC} = -10\text{V}$ $I_{B1} = I_{B2} = -50\text{mA}$
	$t_{off}$		450		ns	

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

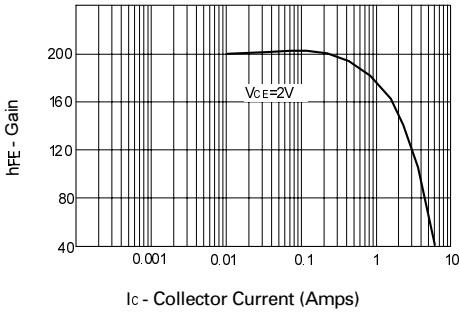
## TYPICAL CHARACTERISTICS



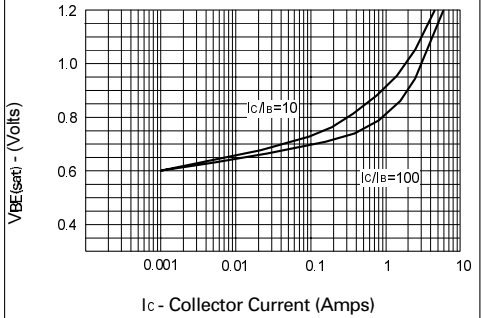
**$V_{CE(sat)}$  v  $I_C$**



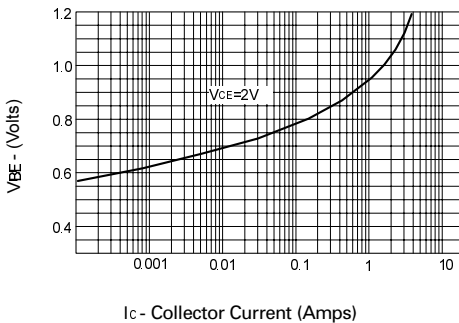
**Switching Speeds**



**$h_{FE}$  v  $I_C$**



**$V_{BE(sat)}$  v  $I_C$**



**$V_{BE(on)}$  v  $I_C$**