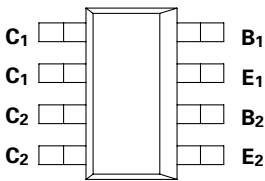


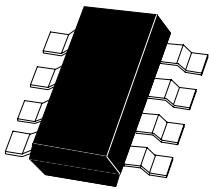
SM-8 DUAL PNP MEDIUM POWER
DARLINGTON TRANSISTORS

ISSUE 1 - NOVEMBER 1995

ZDT705



PARTMARKING DETAIL – T705



SM-8
(8 LEAD SOT223)

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-140	V
Collector-Emitter Voltage	V_{CEO}	-120	V
Emitter-Base Voltage	V_{EBO}	-10	V
Peak Pulse Current	I_{CM}	-4	A
Continuous Collector Current	I_C	-1	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.

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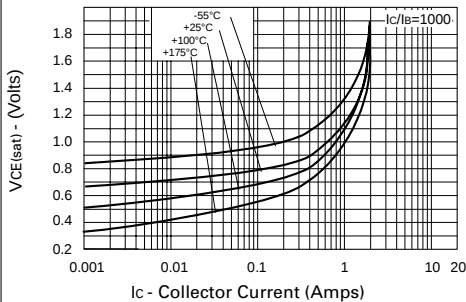
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-140		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CEO(SUS)}$	-120		V	$I_C = -10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-10		V	$I_E = -100\mu\text{A}$
Collector Cutoff Current	I_{CBO}		-0.1 -10	μA μA	$V_{CB} = -120\text{V}$ $V_{CB} = -120\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Collector Cutoff Current	I_{CES}		-10	μA	$V_{CE} = -80\text{V}$
Emitter Cutoff Current	I_{EBO}		-0.1	μA	$V_{EB} = -8\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-1.3 -2.5	V V	$I_C = -1\text{A}$, $I_B = -1\text{mA}^*$ $I_C = -2\text{A}$, $I_B = -2\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-1.8	V	$I_C = -1\text{A}$, $I_B = -10\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-1.7	V	$I_C = -1\text{A}$, $V_{CE} = -5\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	3K 3K 3K 2K	30K		$I_C = -10\text{mA}$, $V_{CE} = -5\text{V}^*$ $I_C = -100\text{mA}$, $V_{CE} = -5\text{V}^*$ $I_C = -1\text{A}$, $V_{CE} = -5\text{V}^*$ $I_C = -2\text{A}$, $V_{CE} = -5\text{V}^*$
Transition Frequency	f_T	160 Typical		MHz	$I_C = -100\text{mA}$, $V_{CE} = -10\text{V}$ $f = 20\text{MHz}$
Input Capacitance	C_{ibo}	90 Typical		pF	$V_{EB} = -0.5\text{V}$, $f = 1\text{MHz}$
Output Capacitance	C_{obo}	15 Typical		pF	$V_{CE} = -10\text{V}$, $f = 1\text{MHz}$
Switching Times	t_{on}	0.6 Typical		μs	$I_C = -0.5\text{A}$, $V_{CE} = -10\text{V}$ $I_{B1} = I_{B2} = -0.5\text{mA}$
	t_{off}	0.8 Typical		μs	

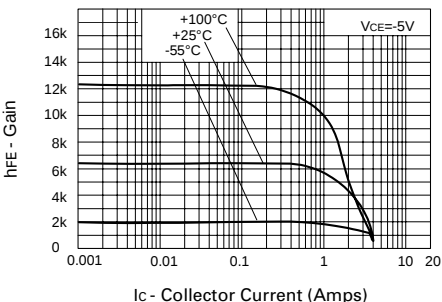
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

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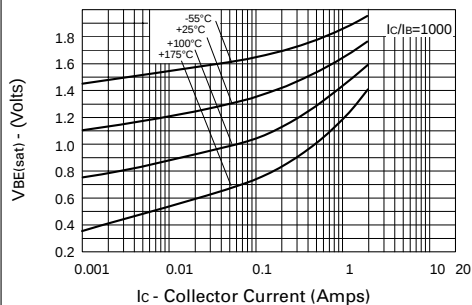
TYPICAL CHARACTERISTICS



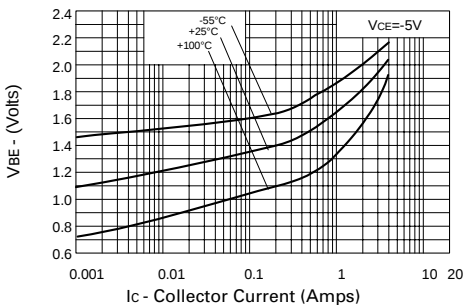
$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C