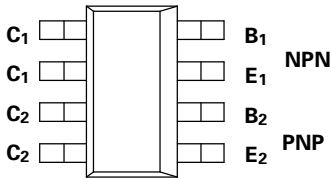


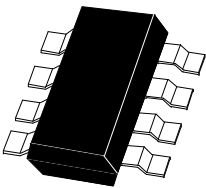
SM-8 COMPLEMENTARY MEDIUM POWER
TRANSISTORS

ISSUE 1 - JUNE 1999

ZDT6758



PARTMARKING DETAIL – T6758



SM-8
(8 LEAD SOT223)

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	NPN	PNP	UNIT
Collector-Base Voltage	V_{CBO}	400	-400	V
Collector-Emitter Voltage	V_{CEO}	400	-400	V
Emitter-Base Voltage	V_{EBO}	5	-5	V
Peak Pulse Current	I_{CM}	1	-1	A
Continuous Collector Current	I_C	0.5	-0.5	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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NPN TRANSISTOR

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	400			V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	400			V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			100	nA	$V_{CE} = 320\text{V}$
Emitter Cut-Off Current	I_{EBO}			100	nA	$V_{EB} = 4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.3	V	$I_C = 20\text{mA}, I_B = 1\text{mA}$
				0.25	V	$I_C = 50\text{mA}, I_B = 5\text{mA}^*$
				0.5	V	$I_C = 100\text{mA}, I_B = 10\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C = 100\text{mA}, I_B = 10\text{mA}^*$
Base-Emitter Turn On Voltage	$V_{BE(on)}$			0.9	V	$I_C = 100\text{mA}, V_{CE} = 5\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	50				$I_C = 1\text{mA}, V_{CE} = 5\text{V}^*$
		50				$I_C = 100\text{mA}, V_{CE} = 5\text{V}^*$
		40				$I_C = 200\text{mA}, V_{CE} = 10\text{V}^*$
Transition Frequency	f_T	50			MHz	$I_C = 20\text{mA}, V_{CE} = 20\text{V}$ $f = 20\text{MHz}$
Collector-Base Breakdown Voltage	C_{obo}			10	pF	$V_{CB} = 20\text{V}, f = 1\text{MHz}$
Switching times	t_{on}		130		ns	$I_C = 100\text{mA}, V_C = 100\text{V}$
	t_{off}		3300		ns	$I_{B1} = 10\text{mA}, I_{B2} = -20\text{mA}$

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

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-400			V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CEO(SUS)}$	-400			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}			-100	nA	$V_{CB} = -320\text{V}$
Collector Cutoff Current	I_{CES}			-100	nA	$V_{CE} = -320\text{V}$
Emitter Cutoff Current	I_{EBO}			-100	nA	$V_{EB} = -4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.30 -0.25 -0.50	V V V	$I_C = -20\text{mA}$, $I_B = -1\text{mA}$ $I_C = -50\text{mA}$, $I_B = -5\text{mA}^*$ $I_C = -100\text{mA}$, $I_B = -10\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-0.9	V	$I_C = -100\text{mA}$, $I_B = -10\text{mA}^*$
Base-Emitter Turn On Voltage	$V_{BE(on)}$			-0.9	V	$I_C = -100\text{mA}$, $V_{CE} = -5\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	50 50 40				$I_C = -1\text{mA}$, $V_{CE} = -5\text{V}$ $I_C = -100\text{mA}$, $V_{CE} = -5\text{V}^*$ $I_C = -200\text{mA}$, $V_{CE} = -10\text{V}^*$
Transition Frequency	f_T	50			MHz	$I_C = -20\text{mA}$, $V_{CE} = -20\text{V}$ $f = 20\text{MHz}$
Output Capacitance	C_{obo}			20	pF	$V_{CB} = -20\text{V}$, $f = 1\text{MHz}$
Switching times	t_{on} t_{off}		140 2000		ns ns	$I_C = -100\text{mA}$, $V_C = -100\text{V}$ $I_{B1} = 10\text{mA}$, $I_{B2} = -20\text{mA}$

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