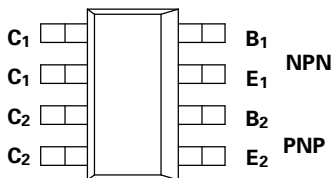


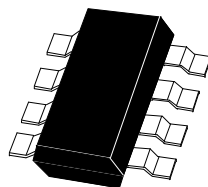
SM-8 COMPLEMENTARY MEDIUM POWER TRANSISTORS

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 $T_{amb} = 25^\circ\text{C}^*$	P_{tot}	2.25	W
Any single die "on" Both die "on" equally		2.75	W
Derate above 25°C^*		18	mW/°C
Any single die "on" Both die "on" equally		22	mW/°C
Thermal Resistance - Junction to Ambient*		55.6	°C/W
Any single die "on" 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.

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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 0.25 0.5	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	$I_C=20\text{mA}, V_{CE}=20\text{V}$ $f=20\text{MHz}$
Collector-Base Breakdown Voltage	C_{obo}			10	pF	$V_{CB}=20\text{V}, f=1\text{MHz}$
Switching times	t_{on} t_{off}		130 3300		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 $\leq 2\%$

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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	$I_C = -100\text{mA}, V_{CE} = -100\text{V}$ $I_{B1} = 10\text{mA}, I_{B2} = -20\text{mA}$

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