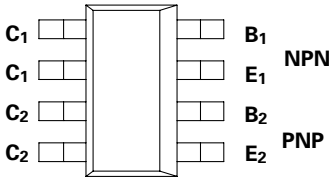
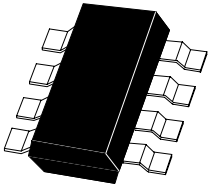
SM-8 COMPLEMENTARY MEDIUM POWER TRANSISTORS

ISSUE 1 – JANUARY 1996

ZDT6753



PARTMARKING DETAIL – T6753



SM-8
(8 LEAD SOT223)

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	NPN	PNP	UNIT
Collector-Base Voltage	V_{CBO}	120	-120	V
Collector-Emitter Voltage	V_{CEO}	100	-100	V
Emitter-Base Voltage	V_{EBO}	5	-5	V
Peak Pulse Current	I_{CM}	6	-6	A
Continuous Collector Current	I_C	2	-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°C* Any single die "on" Both die "on" equally	P_{tot}	 2.25 2.75	 W W
Derate above 25°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°C).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	120			V	I_C=100μA, I_E =0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	100			V	I_C=10mA, I_B =0*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=100μA, I_C =0
Collector Cutoff Current	I_{CBO}			0.1 10	μA μA	V_{CB}=100V V_{CB}=100V,T_{amb}=100°C
Emitter Cutoff Current	I_{EBO}			0.1	μA	V_{EB}=4V, I_C =0
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.13 0.23	0.3 0.5	V	I_C=1A, I_B=100mA* I_C=2A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1	V	I_C=1A, V_{CE}=2V*
Static Forward Current Transfer Ratio	h_{FE}	70 100 55 25	200 200 110 55	300		I_C=50mA, V_{CE}=2V I_C=500mA, V_{CE}=2V* I_C=1A, V_{CE}=2V* I_C=2A, V_{CE}=2V*
Transition Frequency	f_T	140	175		MHz	I_C=100mA, V_{CE}=5V f=100MHz
Output Capacitance	C_{obo}			30	pF	V_{CB}=10V, f=1MHz
Switching Times	t_{on}		80		ns	I_C=500mA, V_{CE}=10V I_{B1}=I_{B2}=50mA
	t_{off}		1200		ns	

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%
For typical characteristics graphs see FZT653 datasheet.

PNP TRANSISTOR
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-120			V	I_C=-100μA
Collector-Emitter Breakdown Voltage	$V_{CEO(SUS)}$	-100			V	I_C=-10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	I_E=-100μA
Collector Cutoff Current	I_{CBO}			-0.1 -10	μA μA	V_{CB}=-100V V_{CB}=-100V, T_{amb}=100°C
Emitter Cutoff Current	I_{EBO}			-0.1	μA	V_{EB}=-4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-0.17 -0.30	-0.3 -0.5	V V	I_C=-1A, I_B=-100mA* I_C=-2A, I_B=-200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-0.90	-1.25	V	I_C=-1A, I_B=-100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-0.8	-1.0	V	I_C=-1A, V_{CE}=-2V*
Static Forward Current Transfer Ratio	h_{FE}	70 100 55 25	200 200 170 55	300		I_C=-50mA, V_{CE}=-2V I_C=-500mA, V_{CE}=-2V* I_C=-1A, V_{CE}=2V* I_C=-2A, V_{CE}=-2V*
Transition Frequency	f_T	100	140		MHz	I_C=-100mA, V_{CE}=5V f=100MHz
Output Capacitance	C_{obo}			30	pF	V_{CE}=-10V, f=1MHz
Switching Times	t_{on}		40		ns	I_C=-500mA, V_{CC}=-10V I_{B1}=I_{B2}=50mA
	t_{off}		600		ns	

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%
For typical characteristics graphs see FZT753 datasheet.