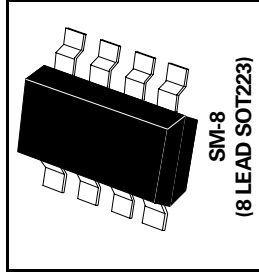
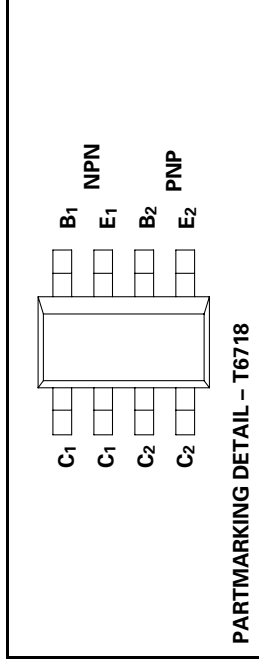


SM-8 COMPLEMENTARY MEDIUM POWER HIGH GAIN TRANSISTORS

ISSUE 1 - NOVEMBER 1995

ZDT6718



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	NPN	PNP	UNIT
Collector-Base Voltage	V_{CBO}	20	-20	V
Collector-Emitter Voltage	V_{CEO}	20	-20	V
Emitter-Base Voltage	V_{EBO}	5	-5	V
Peak Pulse Current	I_{CM}	6	-6	A
Continuous Collector Current	I_C	2	-1.5	A
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150		$^{\circ}C$

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 2.5	W W
Derate above $25^{\circ}C^*$ Any single die "on" Both die "on" equally		16 20	mW/ $^{\circ}C$ mW/ $^{\circ}C$
Thermal Resistance - Junction to Ambient* Any single die "on" Both die "on" equally		62.5 50	$^{\circ}C/W$ $^{\circ}C/W$

* 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.

ZDT6718

NPN TRANSISTOR ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	V _{(BR)CBO}	20	100		V	I _C =100μA
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	20	27		V	I _C =10mA*
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	5	8.3		V	I _E =100μA
Collector Cutoff Current	I _{CBO}			100	nA	V _{CB} =16V
Emitter Cutoff Current	I _{EBO}			100	nA	V _{EB} =4V
Collector Emitter Cutoff Current	I _{CES}			100	nA	V _{CES} =16V
Collector-Emitter Saturation Voltage	V _{CE(sat)}		7 70 130	15 150 200	mV	I _C =0.1A, I _B =10mA* I _C =1A, I _B =10mA* I _C =2.5A, I _B =50mA*
Base-Emitter Saturation Voltage	V _{BE(sat)}		0.89	1.0	V	I _C =2.5A, I _B =50mA*
Base-Emitter Turn-On Voltage	V _{BE(on)}		0.79	1.0	V	I _C =2.5A, V _{CE} =2V*
Static Forward Current Transfer Ratio	h _{FE}	200 300 200 100	400 450 360 180			I _C =10mA, V _{CE} =2V* I _C =200mA, V _{CE} =2V* I _C =2A, V _{CE} =2V* I _C =6A, V _{CE} =2V*
Transition Frequency	f _T	100	140		MHz	I _C =50mA, V _{CE} =10V f=100MHz
Output Capacitance	C _{obo}		23	30	pF	V _{CB} =10V, f=1MHz
Turn-On Time	t _{on}		170			V _{CC} =10V, I _C =1A I _{B1} =I _{B2} =10mA
Turn-Off Time	t _{off}		400			

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%
For typical characteristics graphs see SuperSOT FMMT618 datasheet.

ZDT6718

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}	-20	-65		V	I _C =-100μA
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	-20	-55		V	I _C =-10mA*
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-5	-8.8		V	I _E =-100μA
Collector Cutoff Current	I _{CBO}			-100	nA	V _{CB} =-15V
Emitter Cutoff Current	I _{EBO}			-100	nA	V _{EB} =-4V
Collector Emitter Cutoff Current	I _{CES}			-100	nA	V _{CES} =-15V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}		-16 -130 -145	-40 -200 -220	mV	I _C =-0.1A, I _B =-10mA* I _C =-1A, I _B =-20mA* I _C =-1.5A, I _B =-50mA*
Base-Emitter Saturation Voltage	V _{BE(SAT)}		-0.87	-1.0	V	I _C =-1.5A, I _B =-50mA*
Base-Emitter Turn-On Voltage	V _{BE(ON)}		-0.81	-1.0	V	I _C =-2A, V _{CE} =-2V*
Static Forward Current Transfer Ratio	h _{FE}	300 300 150 50 15	475 450 230 70 30			I _C =-10mA, V _{CE} =-2V* I _C =-100mA, V _{CE} =-2V* I _C =-2A, V _{CE} =-2V* I _C =-4A, V _{CE} =-2V* I _C =-6A, V _{CE} =-2V*
Transition Frequency	f _T	150	180		MHz	I _C =-50mA, V _{CE} =-10V f=100MHz
Output Capacitance	C _{obo}		21	30	pF	V _{CB} =-10V, f=1MHz
Turn-On Time	t _{on}		40			V _{CC} =-10V, I _C =-1A I _{B1} =I _{B2} =20mA
Turn-Off Time	t _{off}		670			

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%
For typical characteristics graphs see SuperSOT FMMT718 datasheet.

ZDT6718

NPN TRANSISTOR ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	V _{(BR)CBO}	20	100		V	I _C =100μA
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	20	27		V	I _C =10mA*
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	5	8.3		V	I _E =100μA
Collector Cutoff Current	I _{CBO}			100	nA	V _{CB} =16V
Emitter Cutoff Current	I _{EBO}			100	nA	V _{EB} =4V
Collector Emitter Cutoff Current	I _{CES}			100	nA	V _{CES} =16V
Collector-Emitter Saturation Voltage	V _{CE(sat)}		7 70 130	15 150 200	mV	I _C =0.1A, I _B =10mA* I _C =1A, I _B =10mA* I _C =2.5A, I _B =50mA*
Base-Emitter Saturation Voltage	V _{BE(sat)}		0.89	1.0	V	I _C =2.5A, I _B =50mA*
Base-Emitter Turn-On Voltage	V _{BE(on)}		0.79	1.0	V	I _C =2.5A, V _{CE} =2V*
Static Forward Current Transfer Ratio	h _{FE}	200 300 200 100	400 450 360 180			I _C =10mA, V _{CE} =2V* I _C =200mA, V _{CE} =2V* I _C =2A, V _{CE} =2V* I _C =6A, V _{CE} =2V*
Transition Frequency	f _T	100	140		MHz	I _C =50mA, V _{CE} =10V f=100MHz
Output Capacitance	C _{obo}		23	30	pF	V _{CB} =10V, f=1MHz
Turn-On Time	t _{on}		170			V _{CC} =10V, I _C =1A I _{B1} =I _{B2} =10mA
Turn-Off Time	t _{off}		400			

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%. For typical characteristics graphs see SuperSOT FMMT618 datasheet.

ZDT6718

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}	-20	-65		V	I _C =-100μA
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	-20	-55		V	I _C =-10mA*
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-5	-8.8		V	I _E =-100μA
Collector Cutoff Current	I _{CBO}			-100	nA	V _{CB} =-15V
Emitter Cutoff Current	I _{EBO}			-100	nA	V _{EB} =-4V
Collector Emitter Cutoff Current	I _{CES}			-100	nA	V _{CES} =-15V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}		-16 -130 -145	-40 -200 -220	mV	I _C =-0.1A, I _B =-10mA* I _C =-1A, I _B =-20mA* I _C =-1.5A, I _B =-50mA*
Base-Emitter Saturation Voltage	V _{BE(SAT)}		-0.87	-1.0	V	I _C =-1.5A, I _B =-50mA*
Base-Emitter Turn-On Voltage	V _{BE(ON)}		-0.81	-1.0	V	I _C =-2A, V _{CE} =-2V*
Static Forward Current Transfer Ratio	h _{FE}	300 300 150 50 15	475 450 230 70 30			I _C =-10mA, V _{CE} =-2V* I _C =-100mA, V _{CE} =-2V* I _C =-2A, V _{CE} =-2V* I _C =-4A, V _{CE} =-2V* I _C =-6A, V _{CE} =-2V*
Transition Frequency	f _T	150	180		MHz	I _C =-50mA, V _{CE} =-10V f=100MHz
Output Capacitance	C _{obo}		21	30	pF	V _{CB} =-10V, f=1MHz
Turn-On Time	t _{on}		40			V _{CC} =-10V, I _C =-1A I _{B1} =I _{B2} =20mA
Turn-Off Time	t _{off}		670			

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%. For typical characteristics graphs see SuperSOT FMMT718 datasheet.