

MMDT5451 Multi-Chip General Purpose TRANSISTOR (PNP and NPN)

FEATURES

Power dissipation

P_{CM} : 200 mW ($T_{amb}=25^{\circ}C$)

Collector current

I_{CM} : ± 200 mA

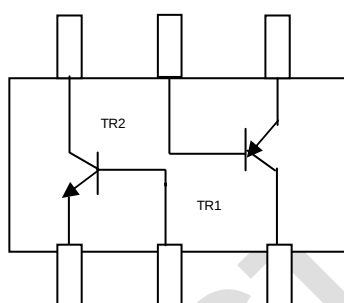
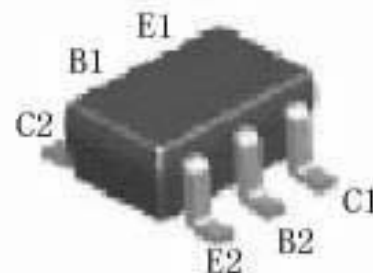
Collector-base voltage

$V_{(BR)CBO}$: 180/-160 V

Operating and storage junction temperature range

T_J, T_{stg} : $-55^{\circ}C$ to $+150^{\circ}C$

SOT-363



MAKING: KNM

TR2(NPN 5551) ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	180			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	160			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=120V, I_E=0$			50	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=4V, I_C=0$			50	nA
DC current gain	h_{FE}	$V_{CE}=5V, I_C=1mA$	80			
		$V_{CE}=5V, I_C=10mA$	80		250	
		$V_{CE}=5V, I_C=50mA$	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$ $I_C=50mA, I_B=5mA$			0.15 0.2	V
Emitter-base saturation voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=1mA$ $I_C=50mA, I_B=5mA$			1	V
Transition frequency	f_T	$V_{CE}=10V, I_C=10mA, f=100MHz$	100			MHz
Collector output capacitance	C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$			6	pF
Noise Figure	NF	$V_{CE}=5V, I_C=0.2mA, f=1KHz$			8	dB

TR1(PNP 5401) ELECTRICAL CHARACTERISTICS (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0$	-160			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1mA, I_B = 0$	-150			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -120V, I_E = 0$			-50	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -3V, I_C = 0$			-50	nA
DC current gain	h_{FE}	$V_{CE} = -5V, I_C = -1mA$ $V_{CE} = -5V, I_C = -10mA$ $V_{CE} = -5V, I_C = -50mA$	50 60 50		240	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10mA, I_B = -1mA$ $I_C = -50mA, I_B = -5mA$			-0.2 -0.5	V
Emitter-base saturation voltage	$V_{BE(sat)}$	$I_C = -10mA, I_B = -1mA$ $I_C = -50mA, I_B = -5mA$			-1	V
Transition frequency	f_T	$V_{CE} = -10V, I_C = -10mA, f = 100MHz$	100			MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1MHz$			6	pF
Noise Figure	NF	$V_{CE} = -5V, I_C = -0.2mA, f = 1KHz$			8	dB