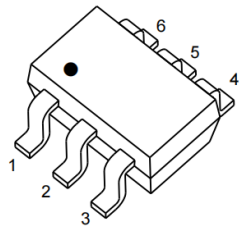
MMDT5451

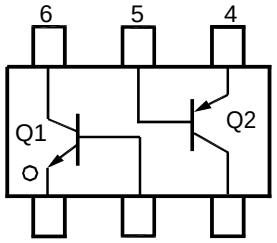
Plastic-Encapsulate Transistors

MMDT5451 Dual Transistor(NPN+PNP)

SOT-363



1. Emitter 2. Base
3. Collector 4. Emitter
5. Base 6. Collector



Application

· Epitaxial Planar Die Construction

· Ideal for low Power Amplification and Switching

Marking: KNM

MAXIMUM RATINGS (NPN,T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current -Continuous	I_C	0.2	A
Power Dissipation	P_d	0.2	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

ELECTRICAL CHARACTERISTICS(NPN,T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA ,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=10μA,I_C=0	6		V
Collector cut-off current	I_{CBO}	V_{CB}=120V, I_E=0		0.05	μA
Emitter cut-off current	I_{EBO}	V_{EB}=4V, I_C=0		0.05	μA
DC current gain	h_{FE1}	V_{CE}=5V, I_C=1mA	80		
	h_{FE2}	V_{CE}=5V, I_C=10mA	100	300	
	h_{FE3}	V_{CE}=5V, I_C=50mA	30		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=10mA, I_B=1mA		0.15	V
		I_C=50mA, I_B=5mA		0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=10mA, I_B=1mA		1	V
		I_C=50mA, I_B=5mA		1	V
Transition frequency	f_T	V_{CE}= 10V, I_C=10mA,f=100MHz	100	300	MHz
Collector Output Capacitance	C_{pd}	V_{CB}= 10V, I_E=0mA,f=1MHz		6	pF
Noise Figure	NF	V_{CE}= 5.0V, I_C = 200μA, R_S = 1.0kΩ f = 1.0kHz		8	dB

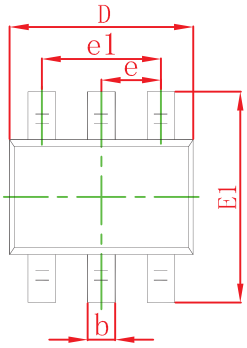
MAXIMUM RATINGS (PNP,T_a=25℃ unless otherwise noted)

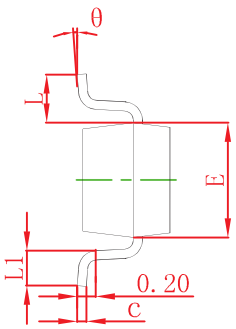
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-160	V
Collector-Emitter Voltage	V_{CEO}	-150	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current -Continuous	I_C	-0.2	A
Power Dissipation	P_d	0.2	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

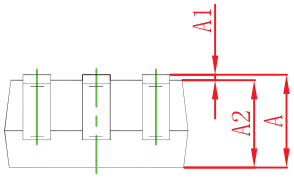
ELECTRICAL CHARACTERISTICS(PNP,T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-100μA ,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=-10μA,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_{FE1}	V_{CE}=-5V, I_C=-1mA	50		
	h_{FE2}	V_{CE}=-5V, I_C=-10mA	100	300	
	h_{FE3}	V_{CE}=-5V, I_C=-50mA	50		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-10mA, I_B= -1mA		-0.2	V
		I_C=-50mA, I_B= -5mA		-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=-10mA, I_B= -1mA		-1	V
		I_C=-50mA, I_B= -5mA		-1	V
Transition frequency	f_T	V_{CE}= -10V, I_C=-10mA, f =100MHz	100	300	MHz
Output Capacitance	C_{obo}	V_{CB} =-10V, f = 1.0MHz, I_E = 0		6	pF
Noise Figure	NF	V_{CE}= -5.0V, I_C = -200μA, R_S = 10Ω f = 1.0kHz		8	dB

SOT-363 Package Information

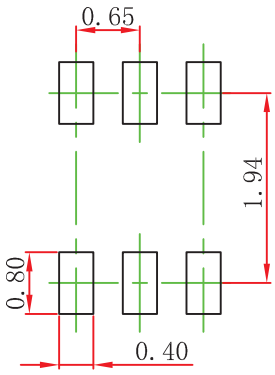






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-363 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.