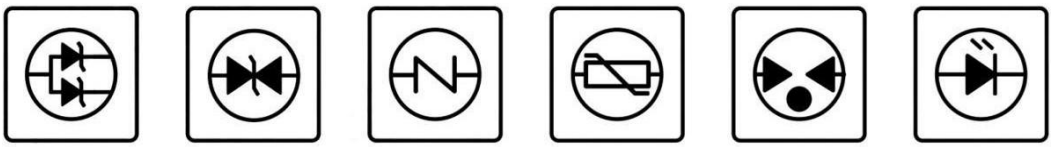
MSKSEMI 美森科
SEMICONDUCTOR



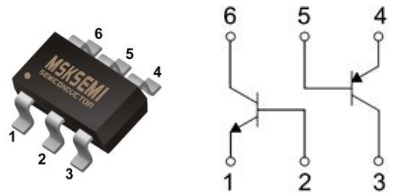
MMDT5451

Product specification

FEATURES

- Epitaxial Planar Die Construction
- Ideal for low Power Amplification and Switching
- One 5551(NPN), one 5401(PNP)

Reference News

PACKAGE OUTLINE	MARKING
	KNM
SOD-123	

MAXIMUM RATINGS (Ta=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	collector- Base Voltage	180	V
V_{CEO}	collector-Emitter Voltage	160	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	collector current -continuous	0.2	A
P_C	collector Power Dissipation	0.2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	625	℃/W
T_J,T_{stg}	operation Junction and storage Temperature Range	-55~+150	℃

ELECTRICAL CHARACTERISTICS NPN 5551 (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	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
Output Capacitance	C_{obo}	V_{CB} = 10V, f = 1.0MHz, I_E = 0			6.0	pF
Current Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_C = 10mA, f = 100MHz	100		300	MHz
Noise Figure	NF	V_{CE}= 5.0V, I_C = 200μA, R_S = 1.0KΩ, f = 1.0KHz			8.0	dB

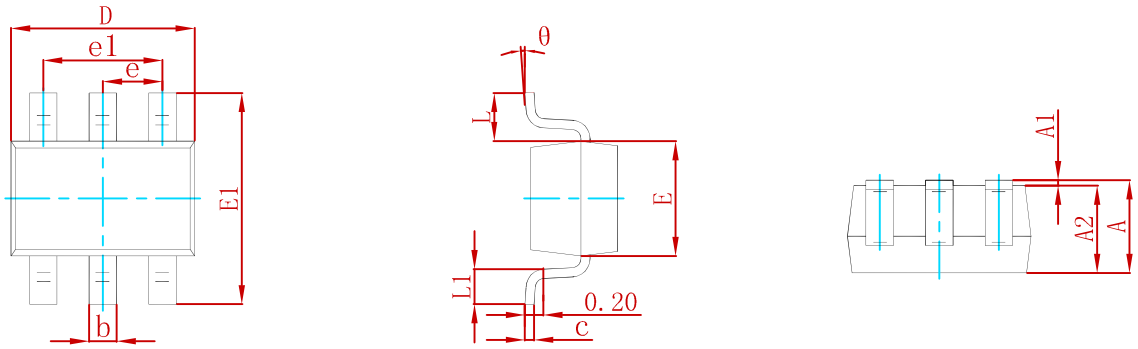
MAXIMuM RATINGS PNP 5401 (Ta=25℃ unless otherwise noted)

Symbol	Parameter	Value	units
V_{CBO}	collector- Base Voltage	-160	V
V_{CEO}	collector-Emitter Voltage	-150	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	collector current -continuous	-0.2	A
P_C	collector power DissiPation	0.2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	625	℃/W
T_J, T_{stg}	operation Junction and storage Temperature Range	-55~+150	℃

ELECTRICAL CHARACTERISTICS PNP 5401 (Ta=25℃ unless otherwise specified)

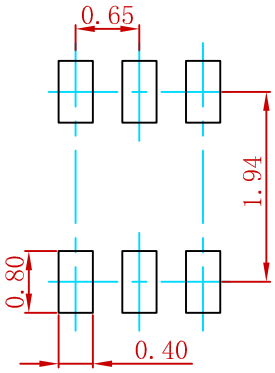
Parameter	Symbol	Test conditions	Min	Typ	Max	unit
Collector-base breakdown Voltage	$V_{(BR)CBO}$	I_C=-100μA, I_E=0	-160			V
Collector-emitter breakdown Voltage	$V_{(BR)CEO}$	I_C=-1mA, I_B=0	-150			V
Emitter-base breakdown Voltage	$V_{(BR)EBO}$	I_E=-10μA, I_C=0	-5			V
Collector cut-off current	I_{CBO}	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
Output Capacitance	C_{obo}	V_{CB} =-10V, f = 1.0MHz, I_E = 0			6.0	PF
Current Gain-Bandwidth Product	f_T	V_{CE} =-10V, I_C =-10mA, f = 100MHz	100		300	MHz
Noise Figure	NF	V_{CE}=-5.0V, I_C =-200μA, R_S = 10Ω, f = 1.0KHz			8.0	dB

PACKAGEMECHANICALDATA



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°

Suggested Pad Layout



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

REEL SPECIFICATION

P/N	PKG	QTY
MMDT5451	SOT-363	3000

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