MSKSEMI
SEMICONDUCTOR
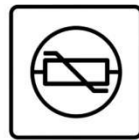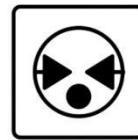
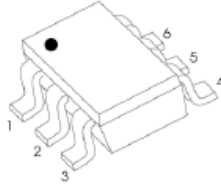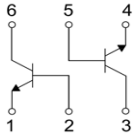| ESD | TVS | TSS | MOV | GDT | PLED |

Product data sheet

MMDT3904

DUAL TRANSISTOR (NPN+NPN)

FEATURES

- Epitaxial planar die construction
- Ideal for low power amplification and switching

SOT-363

MARKING:K6N

MAXIMUM RATINGS (T$_a$=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V$_{CBO}$	Collector-Base Voltage	60	V
V$_{CEO}$	Collector-Emitter Voltage	40	V
V$_{EBO}$	Emitter-Base Voltage	5	V
I$_C$	Collector Current -Continuous	0.2	A
P$_C$	Collector Power Dissipation	0.2	W
T$_J$	Junction Temperature	150	℃
T$_{stg}$	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V$_{(BR)CBO}$	I$_C$=10μA,I$_E$=0	60			V
Collector-emitter breakdown voltage	V$_{(BR)CEO}$	I$_C$=1mA,I$_B$=0	40			V
Emitter-base breakdown voltage	V$_{(BR)EBO}$	I$_E$=10μA,I$_C$=0	5			V
Collector cut-off current	I$_{CBO}$	V$_{CB}$=30V,I$_E$=0			0.05	μA
Emitter cut-off current	I$_{EBO}$	V$_{EB}$=5V,I$_C$=0			0.05	μA
Collector cut-off current	I$_{CEX}$	V$_{CE}$=30V,V$_{BE(off)}$=3V			0.05	μA
DC current gain	h$_{FE(1)}$	V$_{CE}$=1V,I$_C$=0.1mA	40			
	h$_{FE(2)}$	V$_{CE}$=1V,I$_C$=1mA	70			
	h$_{FE(3)}$	V$_{CE}$=1V,I$_C$=10mA	100		300	
	h$_{FE(4)}$	V$_{CE}$=1V,I$_C$=50mA	60			
	h$_{FE(5)}$	V$_{CE}$=1V,I$_C$=100mA	30			
Collector-emitter saturation voltage	V$_{CE(sat)1}$	I$_C$=10mA,I$_B$=1mA			0.2	V
	V$_{CE(sat)2}$	I$_C$=50mA,I$_B$=5mA			0.3	V
Base-emitter saturation voltage	V$_{BE(sat)1}$	I$_C$=10mA,I$_B$=1mA	0.65		0.85	V
	V$_{BE(sat)2}$	I$_C$=50mA,I$_B$=5mA			0.95	V
Transition frequency	f$_T$	V$_{CE}$=20V,I$_C$=10mA,f=100MHz	300			MHz
Collector output capacitance	C$_{ob}$	V$_{CB}$=5V,I$_E$=0,f=1MHz			4	pF
Noise figure	NF	V$_{CE}$=5V,I$_c$=0.1mA,f=1kHz,R$_S$=1KΩ			5	dB
Delay time	t$_d$	V$_{CC}$=3V, V$_{BE(off)}$=-0.5V			35	nS
Rise time	t$_r$	I$_C$=10mA , I$_{B1}$=-I$_{B2}$= 1mA			35	nS
Storage time	t$_s$	V$_{CC}$=3V, I$_C$=10mA			200	nS
Fall time	t$_f$	I$_{B1}$=-I$_{B2}$=1mA			50	nS

SOT-363 Package Outline Dimensions
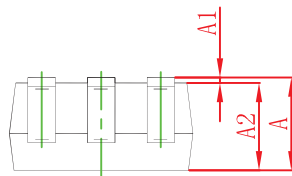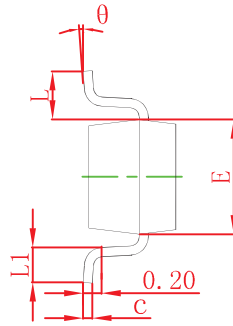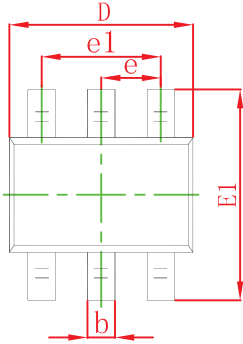
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 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
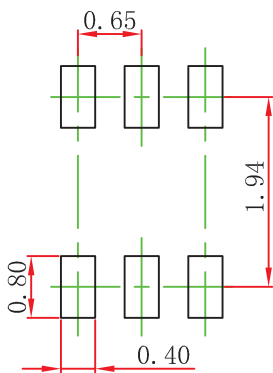
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
MMDT3904	SOT-363	3000

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