



MMDT3904

NPN EPITAXIAL SILICON TRANSISTOR

DUAL NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

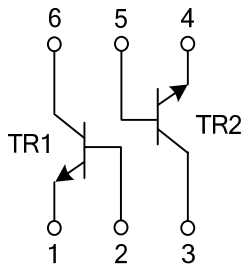
DESCRIPTION

The UTC **MMDT3904** is a dual NPN small signal surface mount transistor.

FEATURES

- * Suitable for Low Power Amplification and Switching
- * Epitaxial Planar Die Construction
- * Extremely-Small Surface Mount Package

EQUIVALENT CIRCUIT

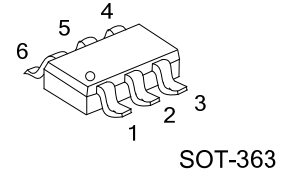
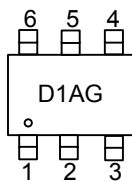


ORDERING INFORMATION

Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5	6	
MMDT3904G-AL6-R	SOT-363	E1	B1	C2	E2	B2	C1	Tape Reel

MMDT3904G-AL6-R	(1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) AL6: SOT-363 (3) G: Halogen Free and Lead Free
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MARKING



SOT-363

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V _{CBO}	60	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter-Base Voltage	V _{EBO}	6.0	V
Collector Current - Continuous	I _C	200	mA
Power Dissipation	P _D	200	mW
Thermal Resistance, Junction to Ambient	θ _{JA}	625	°C/W
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS (Note 1)						
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = 10μA, I _E = 0	60			V
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 1.0mA, I _B = 0	40			V
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	I _E = 10μA, I _C = 0	6			V
Collector Cut-off Current	I _{CEX}	V _{CE} = 30V, V _{EB(OFF)} = 3.0V			50	nA
Base Cut-off Current	I _{BL}	V _{CE} = 30V, V _{EB(OFF)} = 3.0V			50	nA
ON CHARACTERISTICS (Note 1)						
DC Current Gain	h _{FE}	I _C = 100μA, V _{CE} = 1.0V	40			
		I _C = 1.0mA, V _{CE} = 1.0V	70			
		I _C = 10mA, V _{CE} = 1.0V	100		300	
		I _C = 50mA, V _{CE} = 1.0V	60			
		I _C = 100mA, V _{CE} = 1.0V	30			
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = 10mA, I _B = 1.0mA			0.20	V
		I _C = 50mA, I _B = 5.0mA			0.30	V
Base- Emitter Saturation Voltage	V _{BE(sat)}	I _C = 10mA, I _B = 1.0mA	0.65		0.85	V
		I _C = 50mA, I _B = 5.0mA			0.95	V
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C _{OB}	V _{CB} = 5.0V, f = 1.0MHz, I _E = 0			4.0	pF
Current Gain-Bandwidth Product	f _T	V _{CE} = 20V, I _C = 10mA, f = 100MHz	300			MHz
Turn On Time	t _{ON}	V _{CC} =3V,V _{BE} =0.5V, I _C =10mA,I _{B1} =1mA			70	ns
Turn Off Time	t _{OFF}	I _{B1} =1μA,I _{B2} =1mA			250	ns

Note: Pulse test: PW ≤ 300μs, Duty Cycle ≤ 2.0%.

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