



Micro Commercial Components

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# MMDT5401

## Features

- Marking:K4M
- Ideal for Low Power Amplification and Switching
- Ultra-small Surface Mount Package
- Epitaxial Planar Die Construction
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL Rating 1

### Maximum Ratings @ 25°C Unless Otherwise Specified

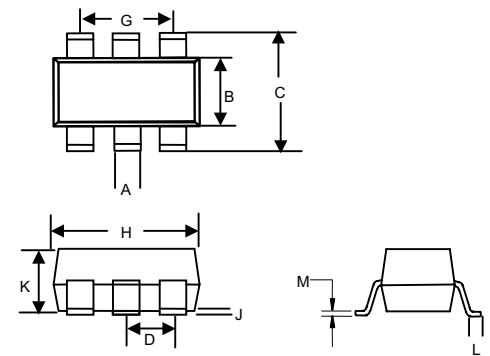
Symbol	Rating	Rating	Unit
V <sub>CEO</sub>	Collector-Emitter Voltage	-150	V
V <sub>CBO</sub>	Collector-Base Voltage	-160	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current-Continuous	-0.2	A
P <sub>C</sub>	Collector Dissipation	0.2	W
T <sub>J</sub>	Operating Junction Temperature	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature	-55 to +150	°C

### Electrical Characteristics @ 25°C Unless Otherwise Specified

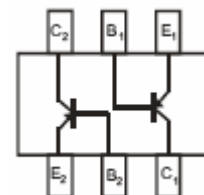
Symbol	Parameter	Min	Max	Units
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage (I <sub>C</sub> =-1mA, I <sub>B</sub> =0)	-150	---	Vdc
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage (I <sub>C</sub> =-100uA, I <sub>E</sub> =0)	-160	---	Vdc
V <sub>(BR)EBO</sub>	Collector-Emitter Breakdown Voltage (I <sub>E</sub> =-10uA, I <sub>C</sub> =0)	-5	---	Vdc
I <sub>CBO</sub>	Collector Cutoff Current (V <sub>CB</sub> =-120V, I <sub>E</sub> =0)	--	0.05	uA
I <sub>EBO</sub>	Emitter Cutoff Current (V <sub>EB</sub> =-3V, I <sub>C</sub> =0)	---	-0.05	uA
h <sub>FE</sub>	DC Current Gain (I <sub>C</sub> =-1mA, V <sub>CE</sub> =-5V) (I <sub>C</sub> =-10mA, V <sub>CE</sub> =-5V) (I <sub>C</sub> =-50mA, V <sub>CE</sub> =-5V)	50	---	---
		60	240	
		50	---	
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage (I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA) (I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA)	---	-0.2 -0.5	Vdc
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage (I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA) (I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA)	---	-1 -1	Vdc
f <sub>T</sub>	Current Gain-Bandwidth Product (V <sub>CE</sub> =-10V, I <sub>C</sub> =-10mA, f=100MHz)	100	300	MHz
C <sub>ob</sub>	Output Capacitance (V <sub>CB</sub> =-5V, f=1.0MHz, I <sub>E</sub> =0)	---	4.5	pF
NF	Noise Figure (V <sub>CE</sub> =-10V, I <sub>C</sub> =-0.1mA, f=1KHz, R <sub>S</sub> =1kΩ)	---	6	dB
t <sub>d</sub>	Delay Time V <sub>CC</sub> =-3V, I <sub>C</sub> =-10mA,	---	35	ns
t <sub>r</sub>	Rise Time V <sub>BE</sub> =-0.5V, I <sub>B1</sub> =-I <sub>B2</sub> =-1mA	---	35	ns
t <sub>S</sub>	Storage Time V <sub>CC</sub> =-3V, I <sub>C</sub> =-10mA,	---	225	ns
t <sub>f</sub>	Fall Time I <sub>B1</sub> =-I <sub>B2</sub> =-1mA	---	75	ns

## Plastic-Encapsulate Transistors

### SOT-363



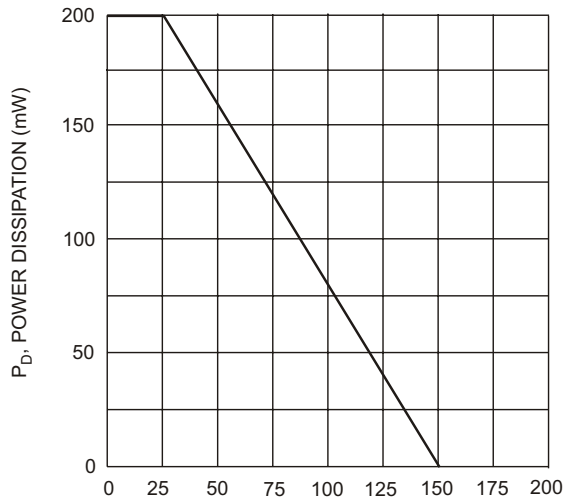
DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.006	.014	0.15	0.35	
B	.045	.053	1.15	1.35	
C	.085	.096	2.15	2.45	
D	.026		0.65Nominal		
G	.047	.055	1.20	1.40	
H	.071	.087	1.80	2.20	
J	---	.004	---	0.10	
K	.035	.043	0.90	1.10	
L	.010	.018	0.26	0.46	
M	.003	.006	0.08	0.15	



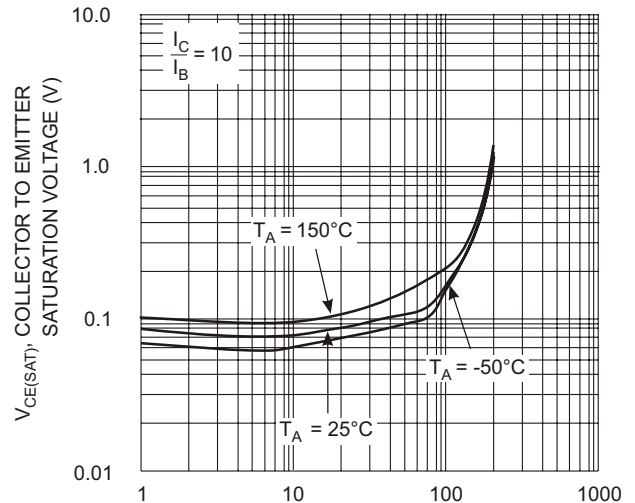
# MMDT5401



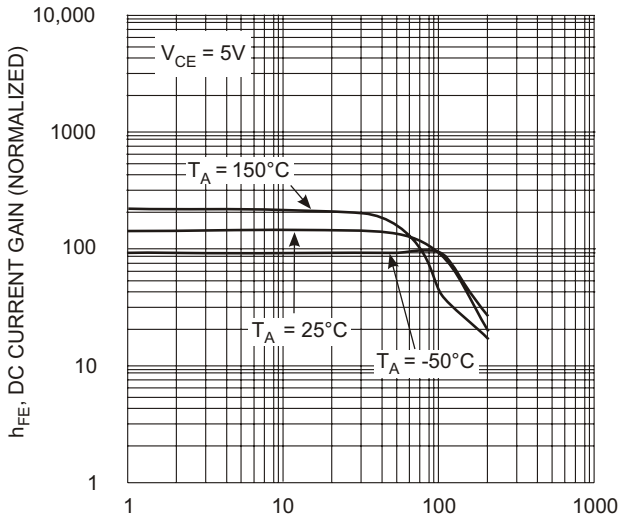
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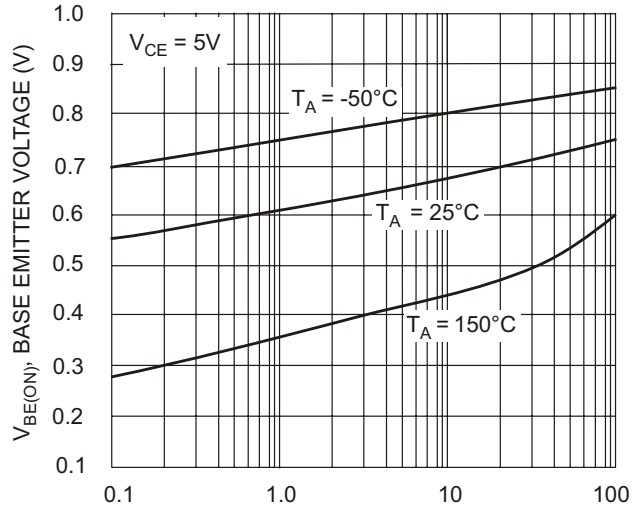
T<sub>A</sub>, AMBIENT TEMPERATURE (°C)  
Fig. 1, Max Power Dissipation vs Ambient Temperature



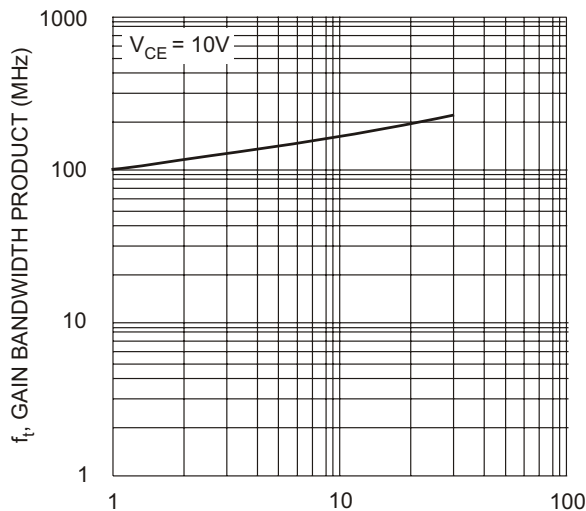
I<sub>C</sub>, COLLECTOR CURRENT (mA)  
Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



I<sub>C</sub>, COLLECTOR CURRENT (mA)  
Fig. 3, DC Current Gain vs. Collector Current



I<sub>C</sub>, COLLECTOR CURRENT (mA)  
Fig. 4, Base Emitter Voltage vs. Collector Current



I<sub>C</sub>, COLLECTOR CURRENT (mA)  
Fig. 5, Gain Bandwidth Product vs Collector Current



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## Ordering Information

Device	Packing
(Part Number)-TP	Tape&Reel;3Kpcs/Reel

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