



Micro Commercial Components

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

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

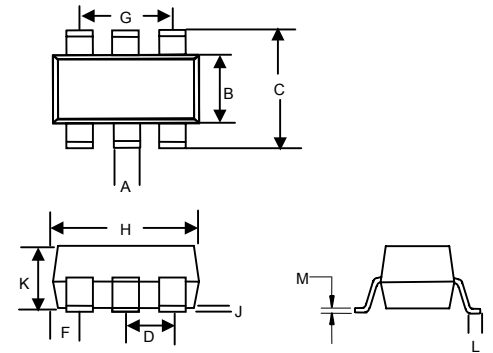
Symbol	Rating	Rating	Unit
$V_{CE0}$	Collector-Emitter Voltage	-150	V
$V_{CBO}$	Collector-Base Voltage	-160	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current-Continuous	-0.2	A
$P_C$	Collector Dissipation	0.2	W
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

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

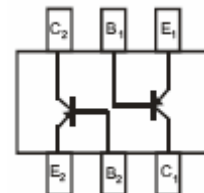
Symbol	Parameter	Min	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=-1mA$ , $I_B=0$ )	-150	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=-100\mu A$ , $I_E=0$ )	-160	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage ( $I_E=-10\mu A$ , $I_C=0$ )	-5	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=-120V$ , $I_E=0$ )	--	0.05	$\mu A$
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=-3V$ , $I_C=0$ )	---	-0.05	$\mu A$
$h_{FE}$	DC Current Gain ( $I_C=-1mA$ , $V_{CE}=-5V$ ) ( $I_C=-10mA$ , $V_{CE}=-5V$ ) ( $I_C=-50mA$ , $V_{CE}=-5V$ )	50 60 50	--- 240 ---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=-10mA$ , $I_B=-1mA$ ) ( $I_C=-50mA$ , $I_B=-5mA$ )	---	-0.2 -0.5	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=-10mA$ , $I_B=-1mA$ ) ( $I_C=-50mA$ , $I_B=-5mA$ )	---	-1 -1	Vdc
$f_T$	Current Gain-Bandwidth Product ( $V_{CE}=-10V$ , $I_C=-10mA$ , $f=100MHz$ )	100	300	MHz
$C_{ob}$	Output Capacitance ( $V_{CB}=-5V$ , $f=1.0MHz$ , $I_E=0$ )	---	4.5	pF
NF	Noise Figure ( $V_{CE}=-10V$ , $I_C=0.1mA$ , $f=1KHz$ , $R_S=1k\Omega$ )	---	6	dB
$t_d$	Delay Time $V_{CC}=-3V$ , $I_C=-10mA$ ,	---	35	ns
$t_r$	Rise Time $V_{BE}=-0.5V$ , $I_{B1}=-I_{B2}=-1mA$	---	35	ns
$t_S$	Storage Time $V_{CC}=-3V$ , $I_C=-10mA$ ,	---	225	ns
$t_f$	Fall Time $I_{B1}=-I_{B2}=-1mA$	---	75	ns

## Plastic-Encapsulate Transistors

### SOT-363



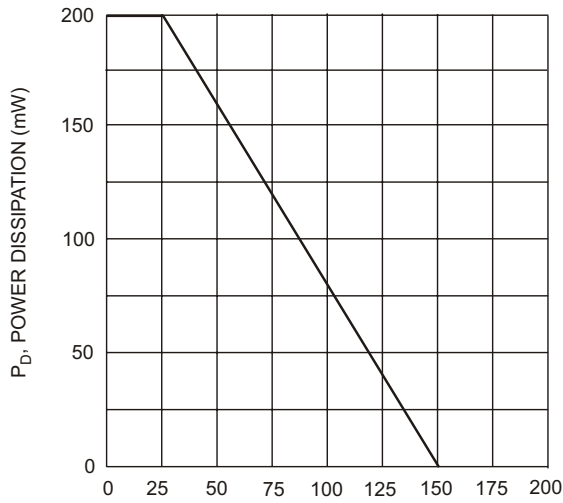
DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.004	.012	0.10	0.30	
B	.045	.053	1.15	1.35	
C	.079	.087	2.00	2.20	
D	.026		0.65Nominal		
F	.012	.016	0.30	0.40	
H	.071	.087	1.80	2.20	
J	---	.004	---	0.10	
K	.035	.039	0.90	1.00	
L	.010	.016	0.25	0.40	
M	.004	.016	0.10	0.25	



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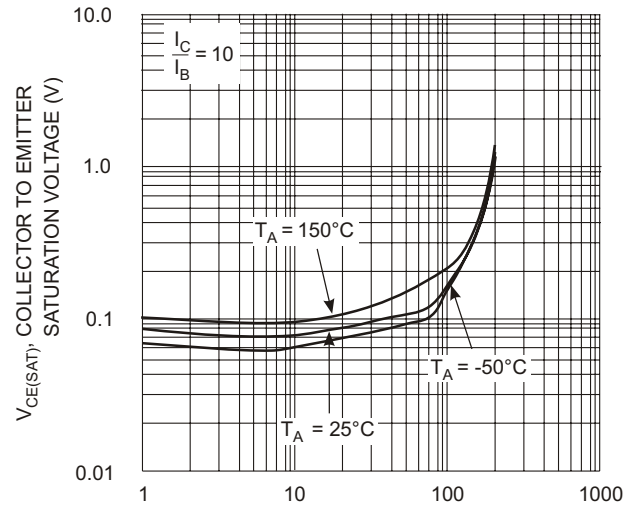


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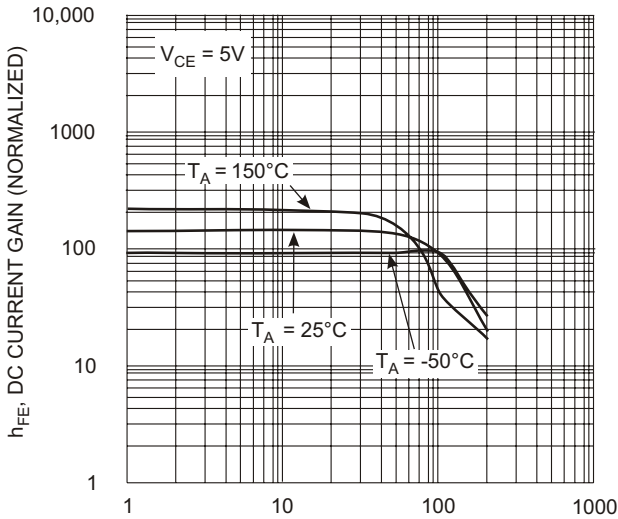
$T_A$ , AMBIENT TEMPERATURE ( $^{\circ}\text{C}$ )

Fig. 1, Max Power Dissipation vs Ambient Temperature



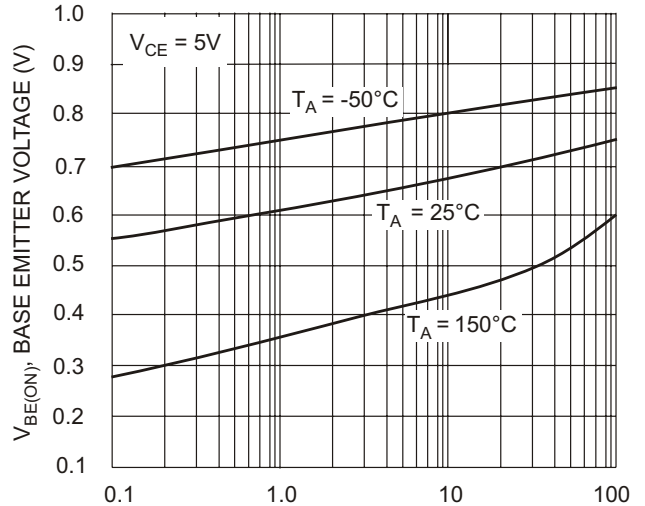
$I_C$ , COLLECTOR CURRENT (mA)

Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



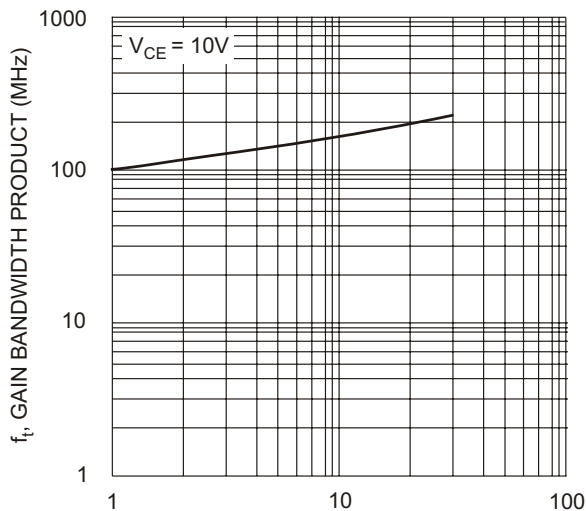
$I_C$ , COLLECTOR CURRENT (mA)

Fig. 3, DC Current Gain vs. Collector Current



$I_C$ , COLLECTOR CURRENT (mA)

Fig. 4, Base Emitter Voltage vs. Collector Current



$I_C$ , COLLECTOR CURRENT (mA)

Fig. 5, Gain Bandwidth Product vs Collector Current



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