



Micro Commercial Components



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MMDT3904V

NPN Plastic-Encapsulate Transistors

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epitaxial Die Construction
- Ideal for Low Power Amplification and Switching
- Ultra-small Surface Mount Package
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:KAP

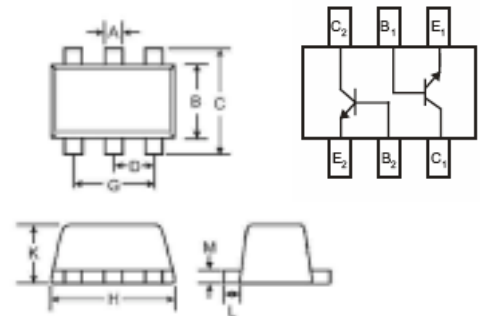
Maximum Ratings @ 250C Unless Otherwise Specified

Symbol	Rating	Rating	Unit
V _{CEO}	Collector-Emitter Voltage	40	V
V _{CBO}	Collector-Base Voltage	60	V
V _{EBO}	Emitter-Base Voltage	6	V
I _C	Collector Current-Continuous	0.2	A
P _C	Collector Dissipation	0.2	W
R _{θJA}	Thermal Resistance Junction to Ambient	625	°C/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	Typ	Max	Units
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage (I _C =1mA _{dc} , I _B =0)	40	---	---	Vdc
V _{(BR)CBO}	Collector-Base Breakdown Voltage (I _C =10uA _{dc} , I _E =0)	60	---	---	Vdc
V _{(BR)EBO}	Collector-Emitter Breakdown Voltage (I _E =10uA _{dc} , I _C =0)	5	---	---	Vdc
I _{CEX}	Collector Cutoff Current (V _{CE} =60Vdc, V _{EB(OFF)} =3Vdc)	---	---	50	nA _{dc}
I _{BL}	Base Cutoff Current (V _{CE} =60Vdc, V _{EB(OFF)} =3Vdc)	---	---	50	nA _{dc}
h _{FE}	DC Current Gain (I _C =0.1mA _{dc} , V _{CE} =1Vdc) (I _C =1mA _{dc} , V _{CE} =1Vdc) (I _C =10mA _{dc} , V _{CE} =1Vdc) (I _C =50mA _{dc} , V _{CE} =1Vdc) (I _C =100mA _{dc} , V _{CE} =1Vdc)	40 70 100 60 30	---	---	---
V _{CE(sat)}	Collector-Emitter Saturation Voltage (I _C =10mA _{dc} , I _B =1mA _{dc}) (I _C =50mA _{dc} , I _B =5mA _{dc})	---	---	0.2 0.3	Vdc
V _{BE(sat)}	Base-Emitter Saturation Voltage (I _C =10mA _{dc} , I _B =1mA _{dc}) (I _C =50mA _{dc} , I _B =5mA _{dc})	0.65 ---	---	0.85 0.95	Vdc

SOT-563



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.006	.011	0.15	0.30	
B	.043	.049	1.10	1.25	
C	.061	.067	1.55	1.70	
D	.020		0.50		
G	.035	.043	0.90	1.10	
H	.059	.067	1.50	1.70	
K	.022	.023	0.56	0.60	
L	.004	.011	0.10	0.30	
M	.004	.007	0.10	0.18	

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Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Typ	Max	Units
f_T	Transition Frequency ($V_{CE}=20V_{dc}$, $I_C=10mA_{dc}$, $f=100MHz$)	300	---	---	MHz
C_{ob}	Output Capacitance ($V_{CB}=5V_{dc}$, $f=1.0MHz$, $I_E=0$)	---	---	4	pF
NF	Noise Figure ($V_{CE}=5V$, $I_C=0.1mA$, $f=1KHz$, $R_S=1k\Omega$)	---	---	5	dB
t_d	Delay Time	---	---	35	ns
t_r	Rise Time				
t_s	Storage Time	---	---	200	ns
t_f	Fall Time				
		---	---	50	ns

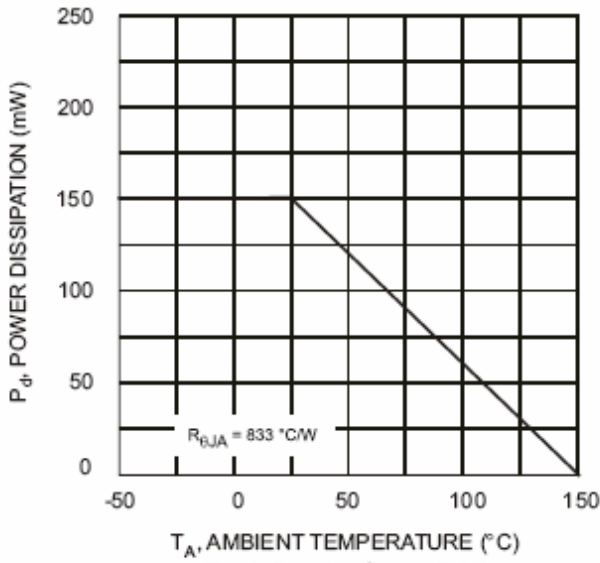


Fig. 1, Derating Curve - Total

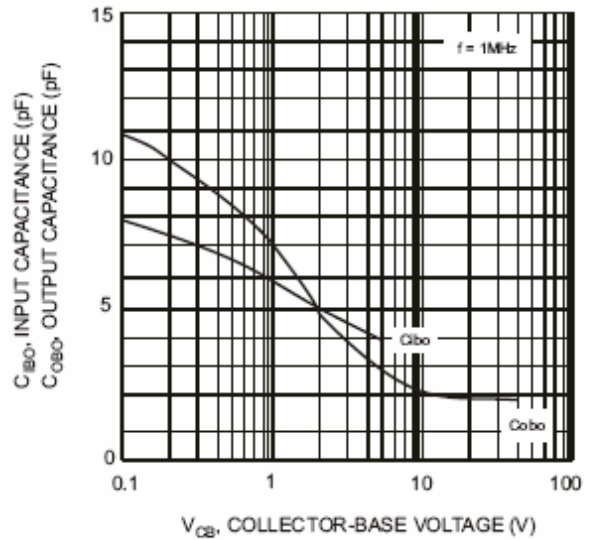


Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage

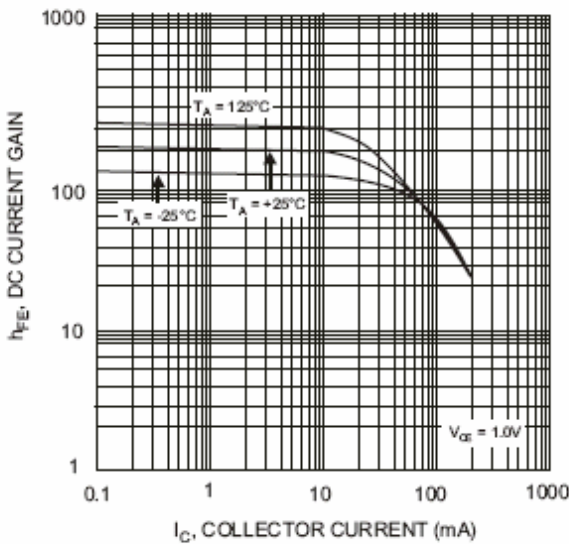


Fig. 3, Typical DC Current Gain vs. Collector Current

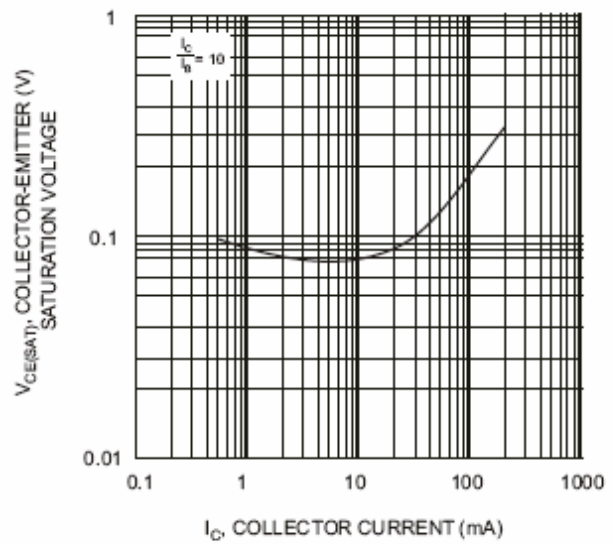


Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current

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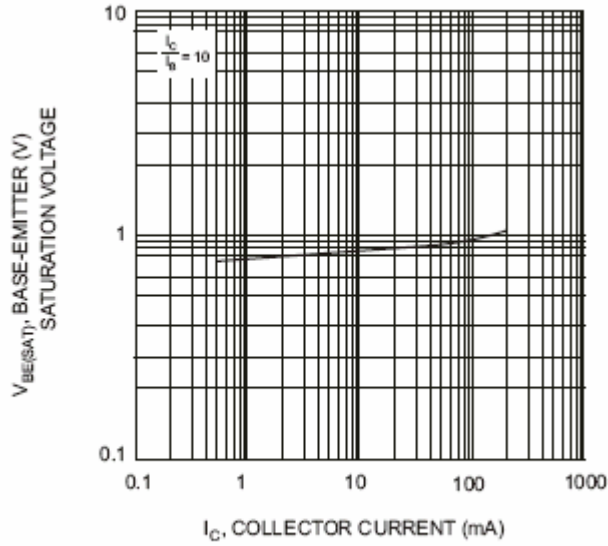


Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current



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Ordering Information :

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

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