Micro Commercial Components

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MMDT2222A

NPN Plastic-Encapsulate Transistors

Features

- Epitaxial Die Construction
- Small Surface Mount Package
- Marking:K1P
- Case Material:Molded Plastic. UL Flammability Classificatio Rating 94-0 and MSL Rating 1

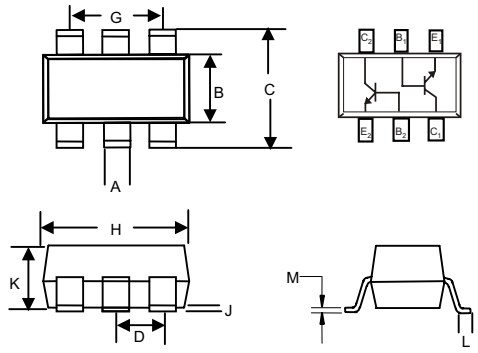
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	75	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	0.6	A
P_C	Collector Dissipation	0.15	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	833	℃/W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Typ	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (I_C=10mAdc, I_B=0)	40	---	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C=10uAdc, I_E=0)	75	---	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage (I_E=10uAdc, I_C=0)	6	---	---	Vdc
I_{CBO}	Collector Cutoff Current (V_{CB}=60Vdc, I_E=0Vdc)	---	---	10	nAdc
I_{CEX}	Collector Cutoff Current (V_{CE}=60Vdc,$V_{EB(OFF)}$=3Vdc)	---	---	10	nAdc
I_{EBO}	Emitter Cutoff Current (V_{EB}=3Vdc, I_C=0Vdc)	---	---	10	nAdc
I_{BL}	Base Cutoff Current (V_{CE}=60Vdc,$V_{EB(OFF)}$=3Vdc)	---	---	20	nAdc
h_{FE}	DC Current Gain (I_C=0.1mAdc, V_{CE}=10Vdc) (I_C=1mAdc, V_{CE}=10Vdc) (I_C=10mAdc, V_{CE}=10Vdc) (I_C=150mAdc, V_{CE}=10Vdc) (I_C=500mAdc, V_{CE}=10Vdc) (I_C=150mAdc, V_{CE}=1Vdc)	 35 50 75 100 40 35	 --- --- --- --- --- ---	 --- --- --- 300 --- ---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C=150mAdc, I_B=15mAdc) (I_C=500mAdc, I_B=50mAdc)	 --- ---	 --- ---	 0.3 1.0	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (I_C=150mAdc, I_B=15mAdc) (I_C=500mAdc, I_B=50mAdc)	 0.6 ---	 --- ---	 1.2 2.0	Vdc

SOT-363



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
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	

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter		Min	Typ	Max	Units
f_T	Transition Frequency (V_{CE}=20Vdc, I_C=20mAdc, f=100MHz)		300	---	---	MHz
C_{ob}	Output Capacitance (V_{CB}=10Vdc, f=1.0MHz, I_E=0)		---	---	8	pF
NF	Noise Figure (V_{CE}=10V,I_C=0.1mA, f=1KHz, R_S=1kΩ, BW=200Hz)		---	---	4	dB
t_d	Delay Time	V_{CC}=30V, I_C=150mA, $V_{BE(off)}$=-0.5V, I_{B1}=15mA	---	---	10	ns
t_r	Rise Time		---	---	25	ns
t_S	Storage Time	V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA	---	---	225	ns
t_f	Fall Time		---	---	60	ns

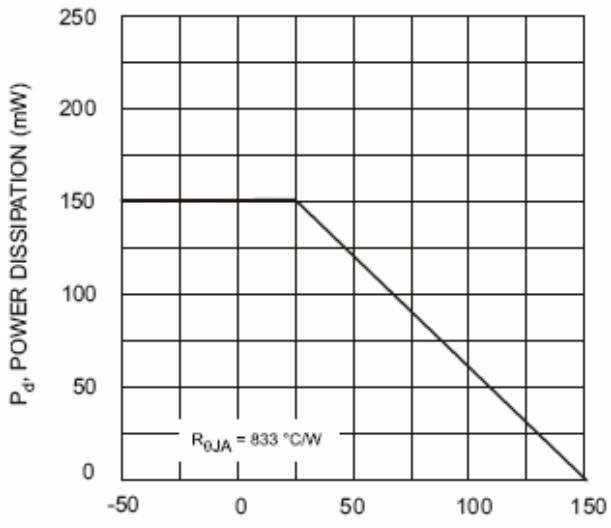


Fig. 1, Derating Curve - Total

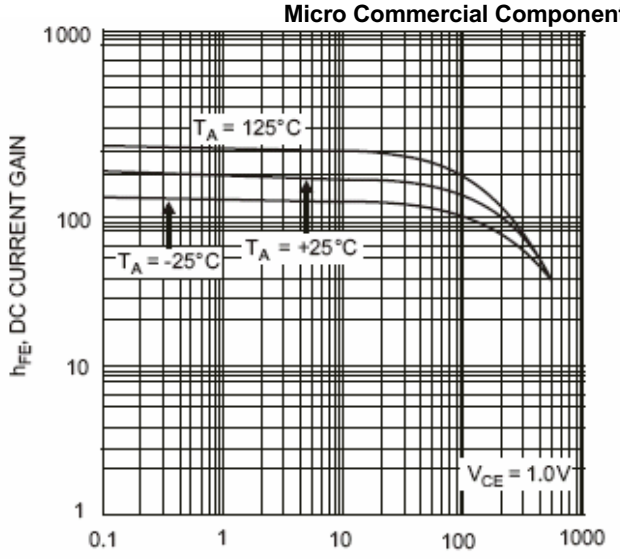


Fig. 2 Typical DC Current Gain vs Collector Current

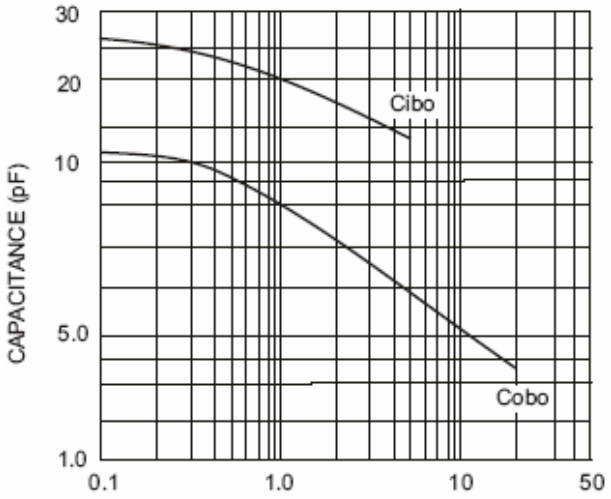


Fig. 3 Typical Capacitance

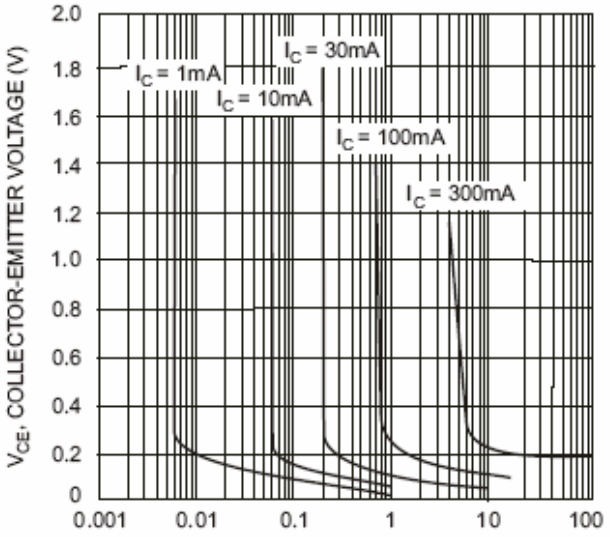


Fig. 4 Typical Collector Saturation Region

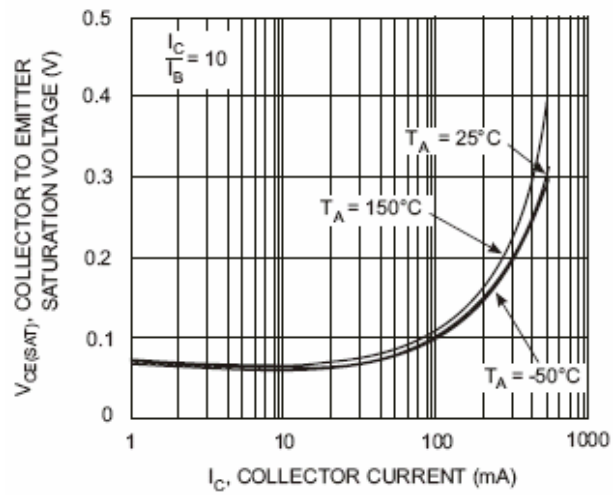


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

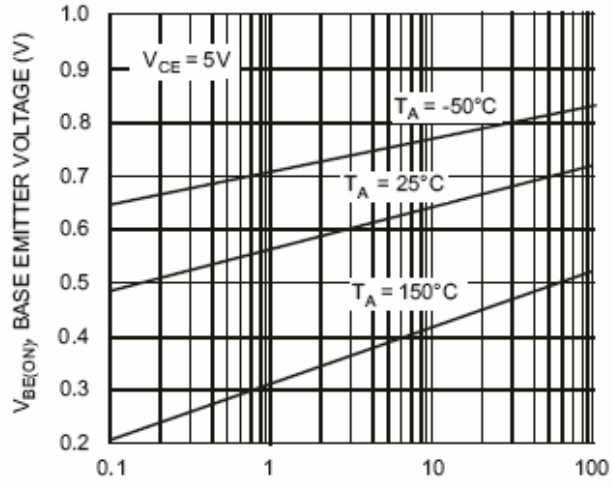


Fig. 6 Base Emitter Voltage vs. Collector Current

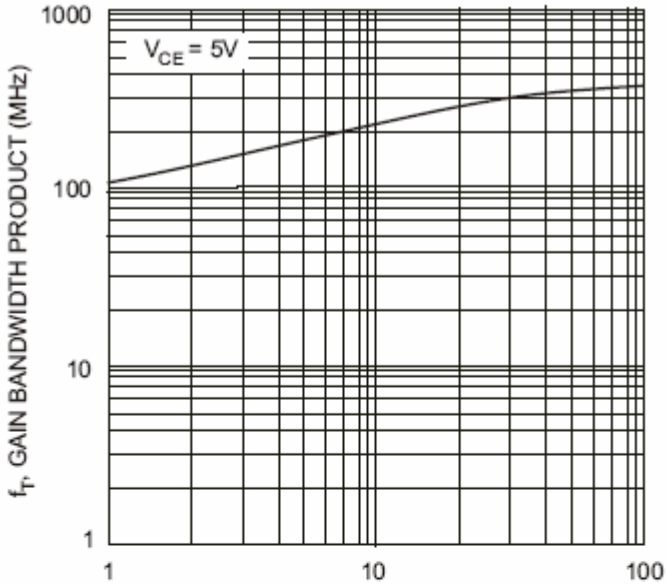


Fig. 7 Gain Bandwidth Product vs. Collector Current

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Ordering Information

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

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