



Micro Commercial Components



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MMDT2222A

Features

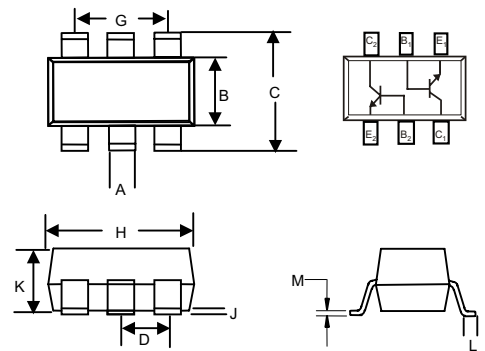
- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epitaxial Die Construction
- Small Surface Mount Package
- Marking:K1P
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

NPN Plastic-Encapsulate Transistors

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 _{θJA}	Thermal Resistance Junction to Ambient	833	°C/W
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature	-55 to +150	°C

SOT-363



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	---	---	---
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

DIM	DIMENSIONS				NOTE
	INCHES		MM		
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	

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Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Typ	Max	Units	
f_T	Transition Frequency ($V_{CE}=20V_{dc}$, $I_C=20mA_{dc}$, $f=100MHz$)	300	---	---	MHz	
C_{ob}	Output Capacitance ($V_{CB}=10V_{dc}$, $f=1.0MHz$, $I_E=0$)	---	---	8	pF	
NF	Noise Figure ($V_{CE}=10V$, $I_C=0.1mA$, $f=1KHz$, $R_S=1k\Omega$, $BW=200Hz$)	---	---	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	$V_{CC}=30V$, $I_C=150mA$, $I_{B1}=I_{B2}=15mA$		---	25	ns
t_s	Storage Time	$V_{CC}=30V$, $I_C=150mA$, $I_{B1}=I_{B2}=15mA$		---	225	ns
t_f	Fall Time	$V_{CC}=30V$, $I_C=150mA$, $I_{B1}=I_{B2}=15mA$		---	60	ns

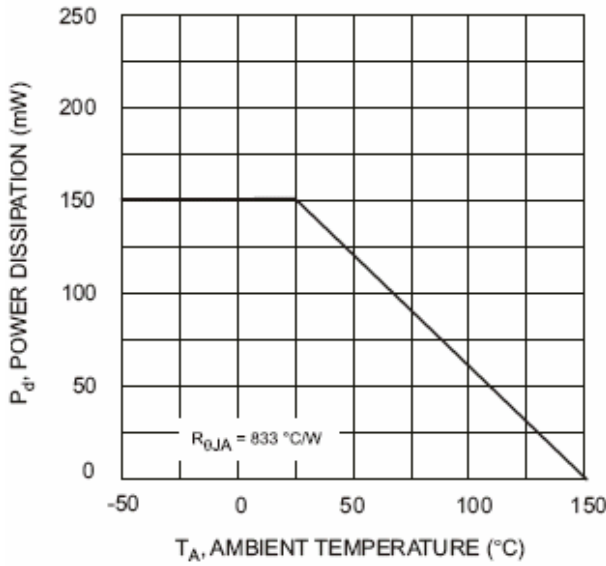


Fig. 1, Derating Curve - Total

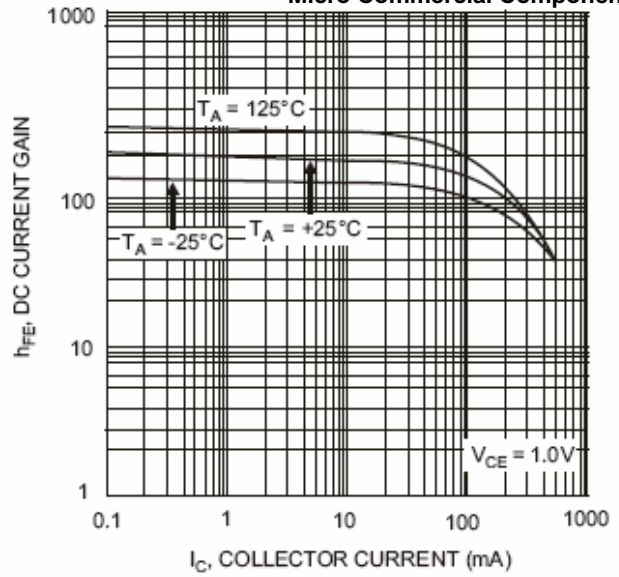


Fig. 2 Typical DC Current Gain vs Collector Current

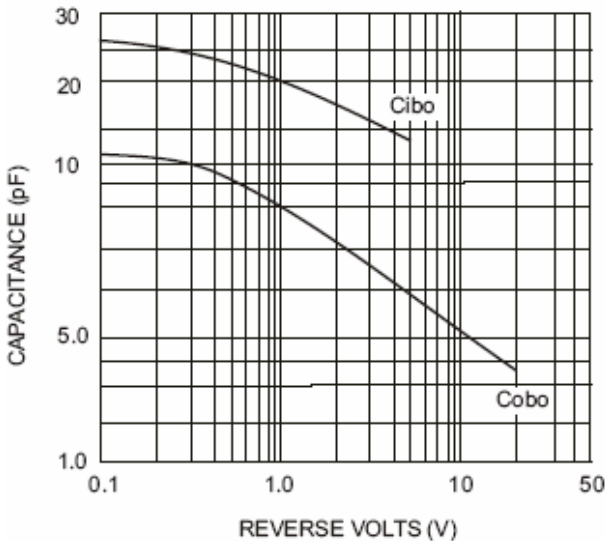


Fig. 3 Typical Capacitance

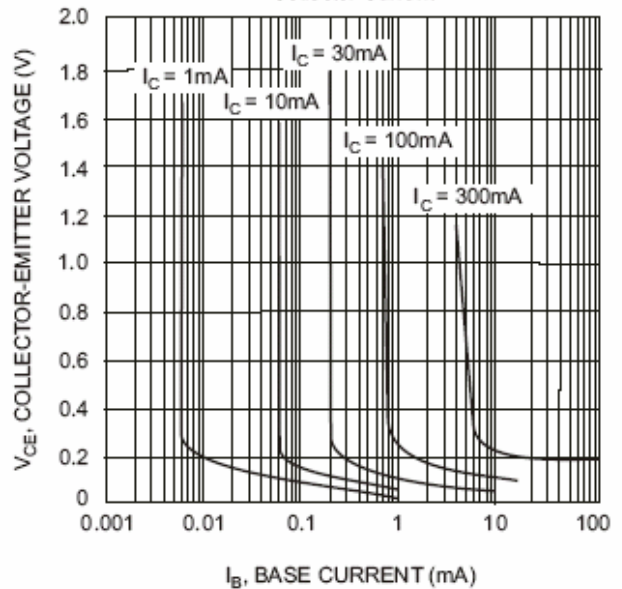


Fig. 4 Typical Collector Saturation Region

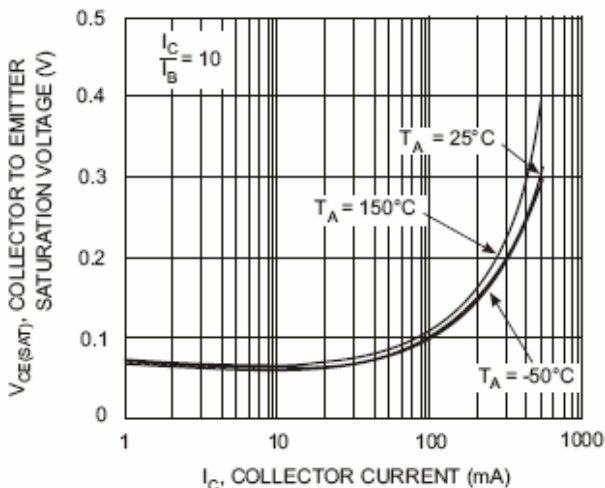


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

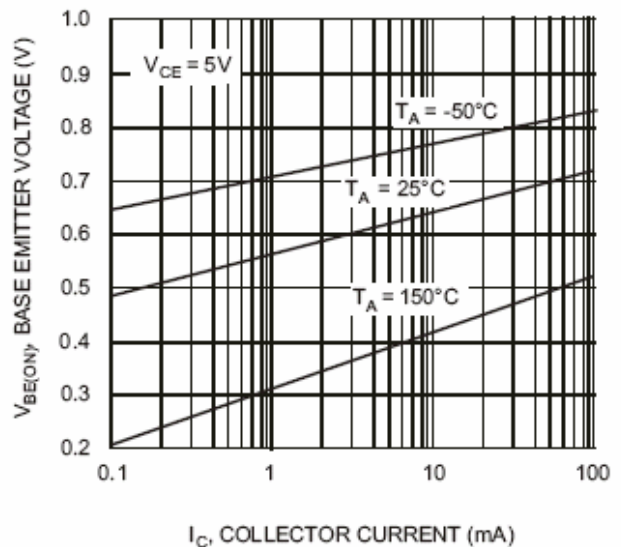


Fig. 6 Base Emitter Voltage vs. Collector Current

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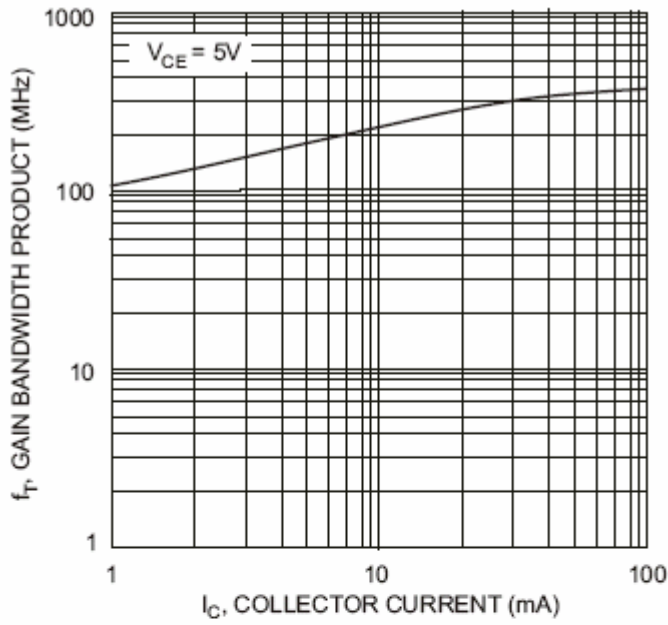


Fig. 7 Gain Bandwidth Product vs. Collector Current



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Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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