



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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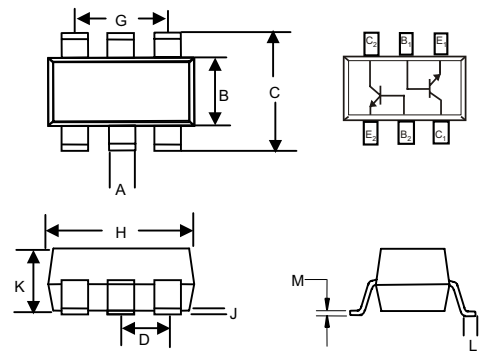


Micro Commercial Components
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 CA 91311
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MMDT2222A

NPN 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	

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

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

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

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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	---	---	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

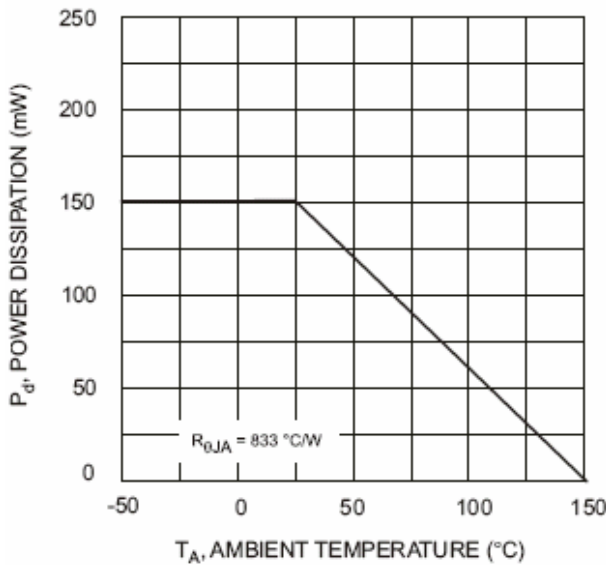


Fig. 1, Derating Curve - Total

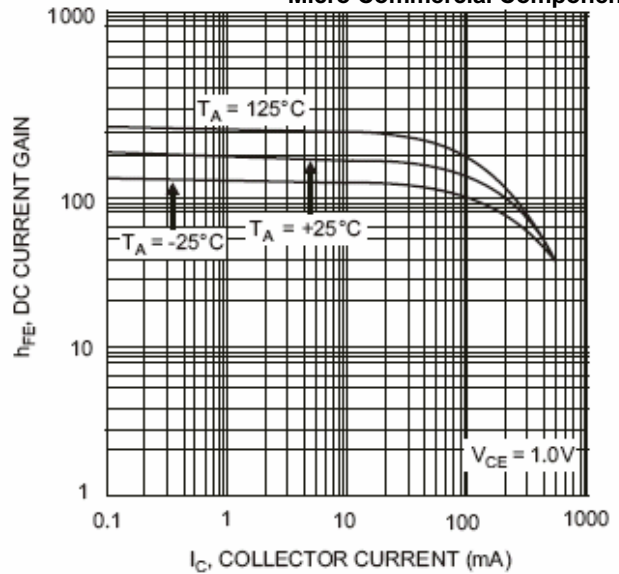


Fig. 2 Typical DC Current Gain vs Collector Current

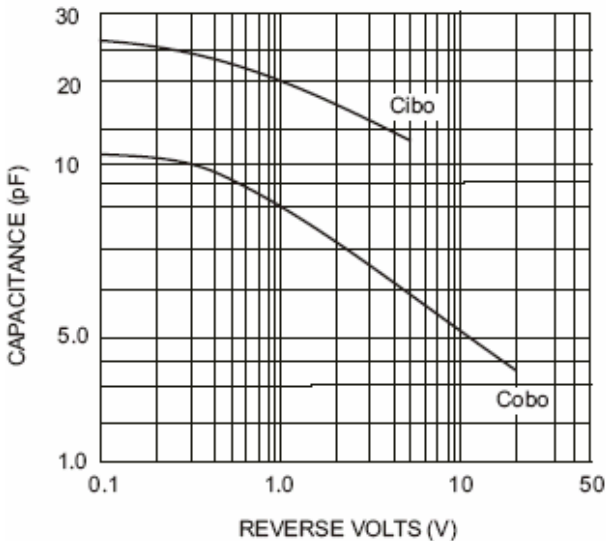


Fig. 3 Typical Capacitance

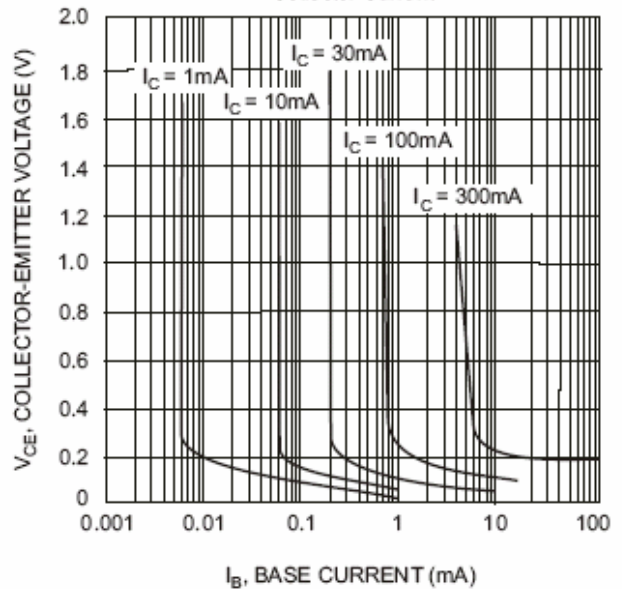


Fig. 4 Typical Collector Saturation Region

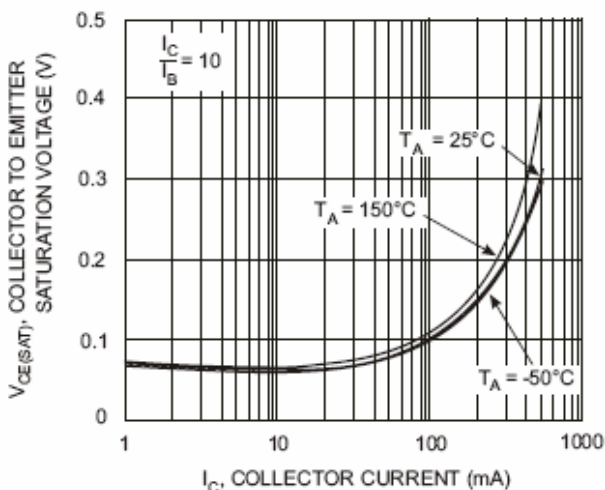


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

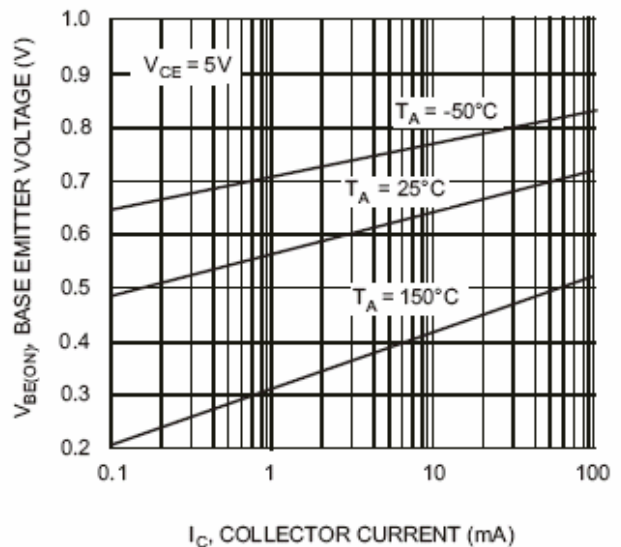


Fig. 6 Base Emitter Voltage vs. Collector Current

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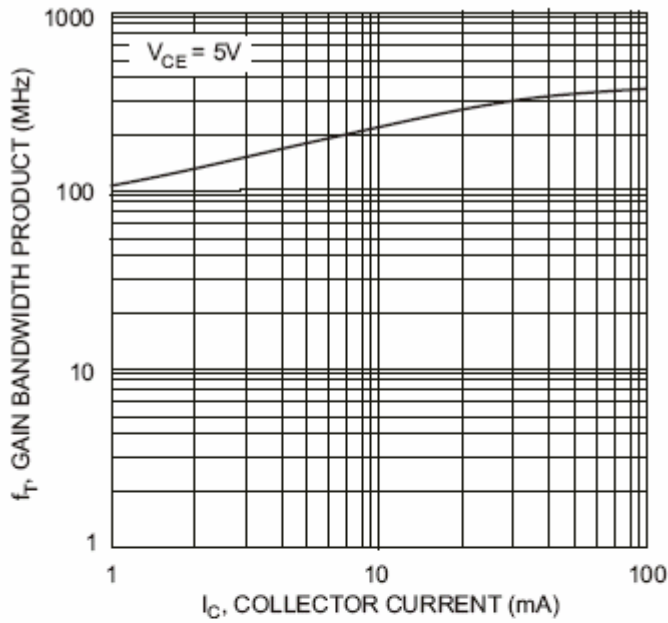


Fig. 7 Gain Bandwidth Product vs. Collector Current



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Ordering Information :

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

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

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