



Micro Commercial Components



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MMDT4401

NPN Plastic-Encapsulate Transistors

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Ultra-Small Surface Mount Package
- Epitaxial Planar Die Construction
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:K2X

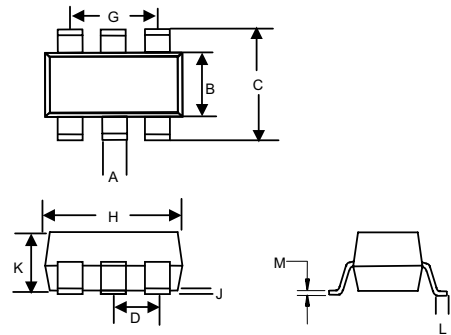
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Rating	Rating(NPN)	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	0.6	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

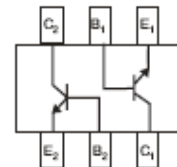
Electrical Characteristics @ 25°C Unless Otherwise Specified

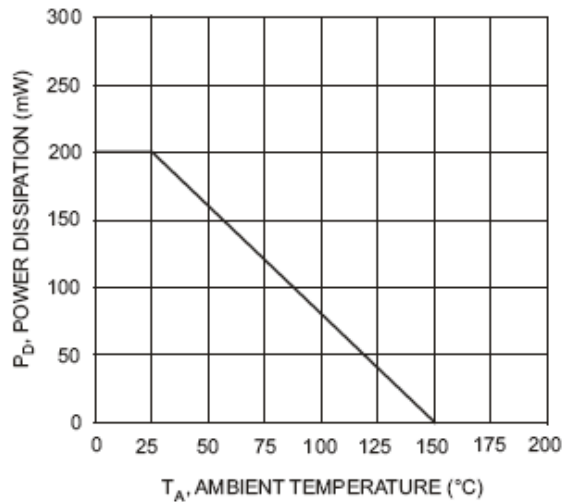
Symbol	Parameter	Min	Max	Units	
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage (I _C =1mA, I _B =0)	40	---	Vdc	
V _{(BR)CBO}	Collector-Base Breakdown Voltage (I _C =100uA, I _E =0)	60	---	Vdc	
V _{(BR)EBO}	Collector-Emitter Breakdown Voltage (I _E =100uA, I _C =0)	6	---	Vdc	
I _{CBO}	Collector Cutoff Current (V _{CB} =50Vdc, I _E =0)	---	0.1	uA	
I _{EBO}	Emitter Cutoff Current (V _{EB} =-5Vdc, I _C =0)	---	0.1	uA	
h _{FE}	DC Current Gain (I _C =0.1mA, V _{CE} =1Vdc)	20	---	---	
	(I _C =1mA, V _{CE} =1Vdc)	40	---		
	(I _C =10mA, V _{CE} =1Vdc)	80	---		
	(I _C =150mA, V _{CE} =1Vdc)	100	300		
	(I _C =500mA, V _{CE} =2Vdc)	40	---		
V _{CE(sat)}	Collector-Emitter Saturation Voltage (I _C =150mA, I _B =15mA) (I _C =500mA, I _B =50mA)	---	0.4 0.75	Vdc	
V _{BE(sat)}	Base-Emitter Saturation Voltage (I _C =150mA, I _B =15mA) (I _C =500mA, I _B =50mA)	0.75 ---	0.95 1.2	Vdc	
f _T	Current Gain-Bandwidth Product (V _{CE} =10.0Vdc, I _C =20mA, f=100MHz)	250	---	MHz	
C _{ob}	Output Capacitance (V _{CB} =5Vdc, f=1.0MHz, I _E =0)	---	6.5	pF	
t _d	Delay Time	V _{CC} =30V, I _C =150mA, V _{BE} =2.00V, I _{B1} =15.00mA	---	15	ns
t _r	Rise Time	V _{CC} =30V, I _C =150mA, I _{B1} =-I _{B2} =15mA	---	20	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	---	30	ns

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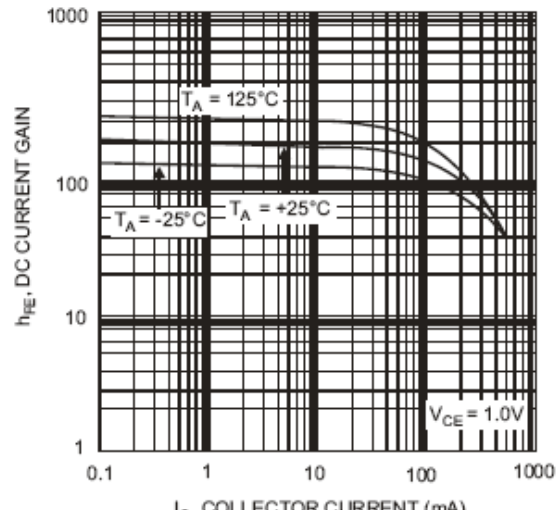


DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.006	.014	0.15	0.35	
B	.045	.053	1.15	1.35	
C	.085	.096	2.15	2.45	
D	.026		0.65Nominal		
G	.047	.055	1.20	1.40	
H	.071	.087	1.80	2.20	
J	---	.004	---	0.10	
K	.035	.043	0.90	1.10	
L	.010	.018	0.26	0.46	
M	.003	.006	0.08	0.15	





T_A , AMBIENT TEMPERATURE (°C)
Fig. 1 Max Power Dissipation vs Ambient Temperature



I_C , COLLECTOR CURRENT (mA)
Fig. 2 Typical DC Current Gain vs Collector Current

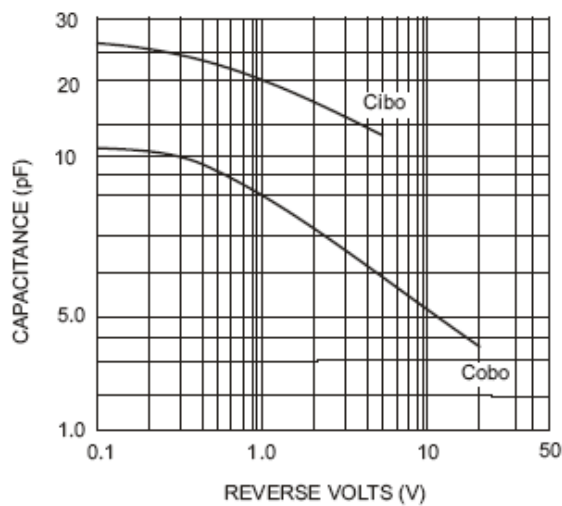
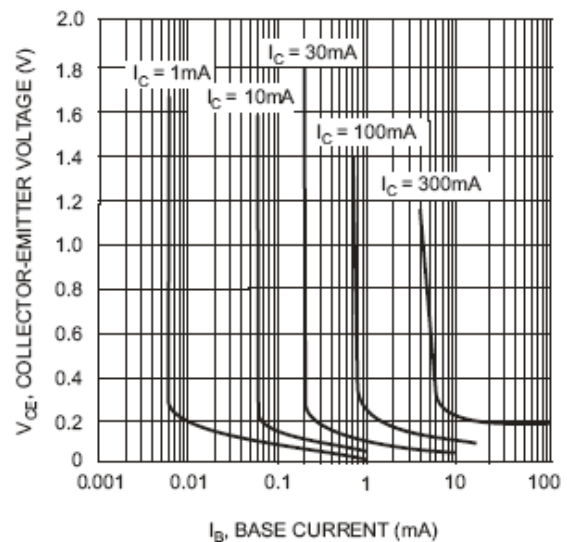
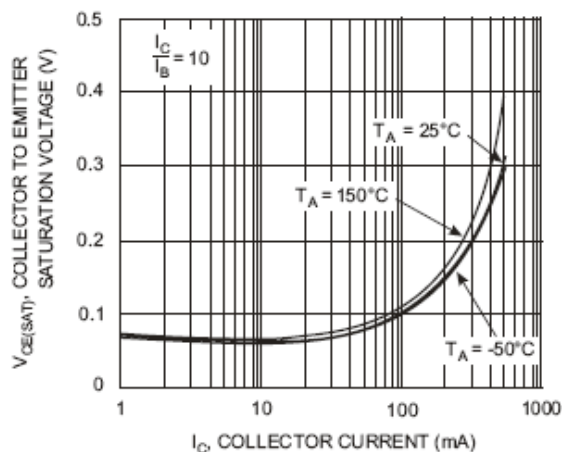


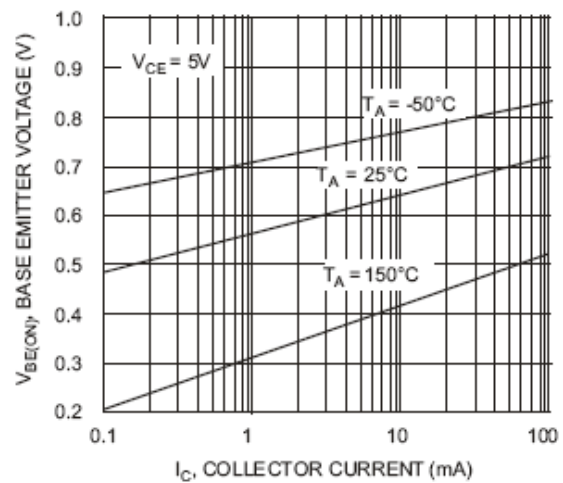
Fig. 3 Typical Capacitance



I_B , BASE CURRENT (mA)
Fig. 4 Typical Collector Saturation Region



I_C , COLLECTOR CURRENT (mA)
Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 6 Base Emitter Voltage vs. Collector Current



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Ordering Information :

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

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