



Micro Commercial Components



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MMDT4401

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

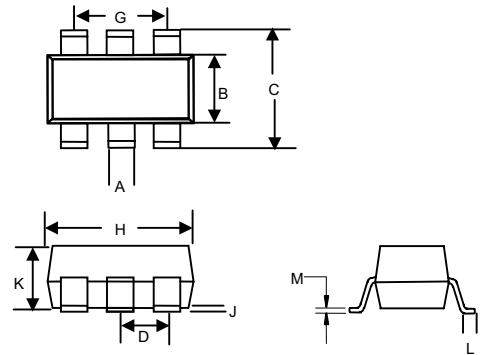
Symbol	Rating	Rating(NPN)	Unit
V_{CEQ}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	0.6	A
P_C	Collector Dissipation	0.2	W
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Electrical Characteristics @ 25°C Unless Otherwise Specified

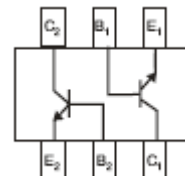
Symbol	Parameter	Min	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ($I_C=1\text{mA}$, $I_B=0$)	40	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=100\mu\text{A}$, $I_E=0$)	60	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage ($I_E=100\mu\text{A}$, $I_C=0$)	6	---	Vdc
I_{CBO}	Collector Cutoff Current ($V_{CB}=50\text{Vdc}$, $I_E=0$)	---	0.1	μA
I_{EBO}	Emitter Cutoff Current ($V_{EB}=-5\text{Vdc}$, $I_C=0$)	---	0.1	μA
h_{FE}	DC Current Gain ($I_C=0.1\text{mA}$, $V_{CE}=1\text{Vdc}$) ($I_C=1\text{mA}$, $V_{CE}=1\text{Vdc}$) ($I_C=10\text{mA}$, $V_{CE}=1\text{Vdc}$) ($I_C=150\text{mA}$, $V_{CE}=1\text{Vdc}$) ($I_C=500\text{mA}$, $V_{CE}=2\text{Vdc}$)	20 40 80 100 40	--- --- --- 300 ---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=150\text{mA}$, $I_B=15\text{mA}$) ($I_C=500\text{mA}$, $I_B=50\text{mA}$)	---	0.4 0.75	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ($I_C=150\text{mA}$, $I_B=15\text{mA}$) ($I_C=500\text{mA}$, $I_B=50\text{mA}$)	0.75 ---	0.95 1.2	Vdc
f_T	Current Gain-Bandwidth Product ($V_{CE}=10.0\text{Vdc}$, $I_C=20\text{mA}$, $f=100\text{MHz}$)	250	---	MHz
C_{ob}	Output Capacitance ($V_{CB}=5\text{Vdc}$, $f=1.0\text{MHz}$, $I_E=0$)	---	6.5	pF
t_d	Delay Time $V_{CC}=30\text{V}$, $I_C=150\text{mA}$	---	15	ns
t_r	Rise Time $V_{BE}=2.00\text{V}$, $I_{B1}=15.00\text{mA}$	---	20	ns
t_s	Storage Time $V_{CC}=30\text{V}$, $I_C=150\text{mA}$	---	225	ns
t_f	Fall Time $I_{B1}=-I_{B2}=15\text{mA}$	---	30	ns

NPN Plastic-Encapsulate Transistors

SOT-363



DIMENSIONS					
DIM	INCHES		MM		NOTE
	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	



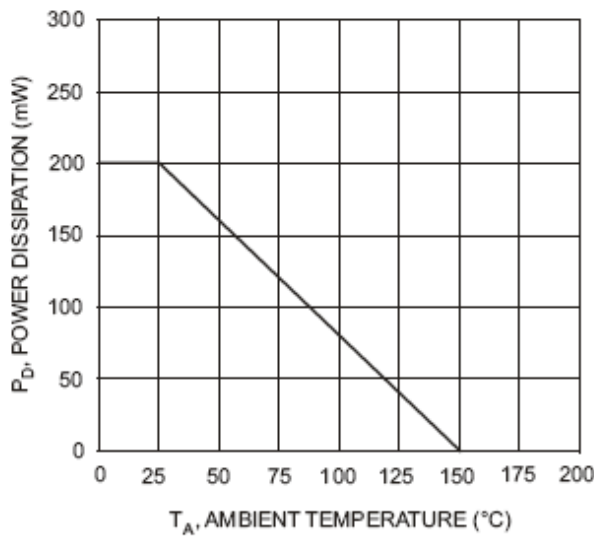


Fig. 1 Max Power Dissipation vs Ambient Temperature

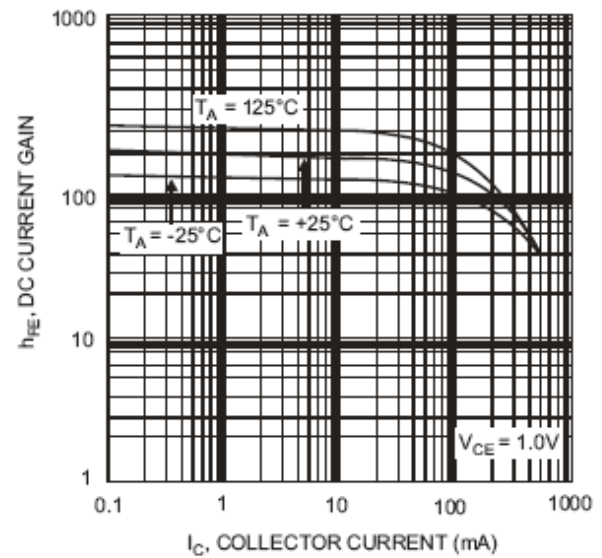


Fig. 2 Typical DC Current Gain vs Collector Current

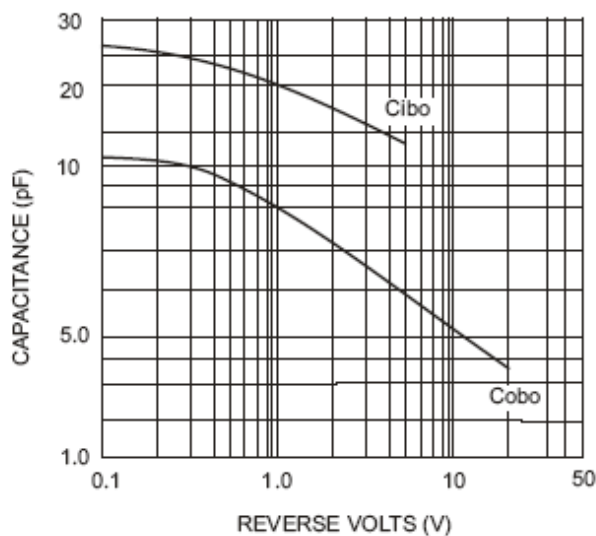


Fig. 3 Typical Capacitance

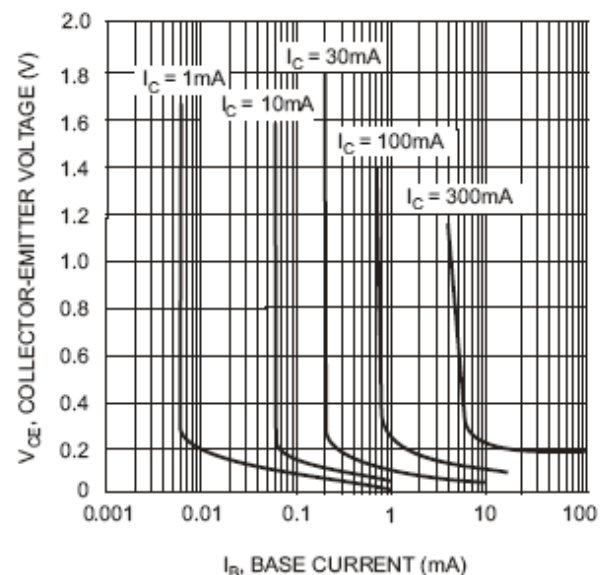


Fig. 4 Typical Collector Saturation Region

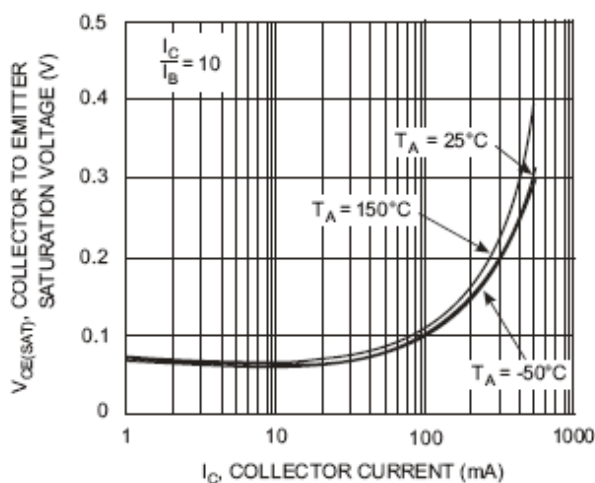


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

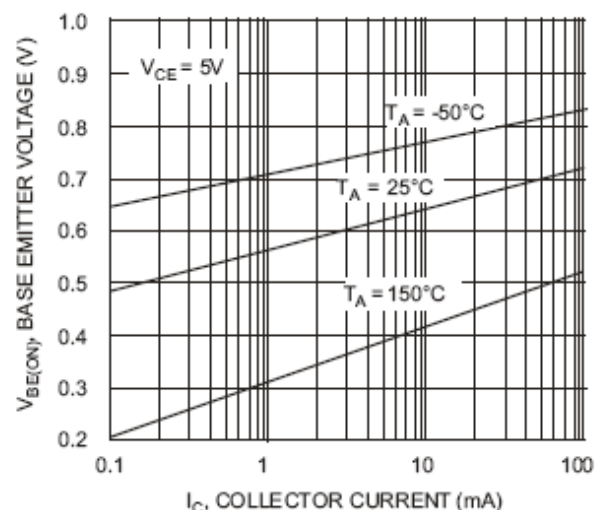


Fig. 6 Base Emitter Voltage vs. Collector Current

Ordering Information :

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

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