Micro Commercial Components

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20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

MMBT200

PNP General Purpose Amplifier

Features

- This device is designed for general purpose amplifier applications at collector currents to 300mA.
- Case Material:Molded Plastic. UL Flammability Classificatio Rating 94-0 and MSL Rating 1

Absolute Maximum Ratings*

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	45	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current-Continuous	500	mA
T_J	Junction Temperature	-55 to +150	^{O}C
T_{STG}	Storage Temperature	-55 to +150	^{O}C

Thermal Characteristics

Symbol	Rating	Rating	Unit
P_C	Total Device dissipation Derate above 25^{O}C	350 2.8	mW mW /^{O}C
R_{JA}	Thermal Resistance, Junction to ambient	357	^{O}C/W

Electrical Characteristics @ 25ºC Unless Otherwise Specified

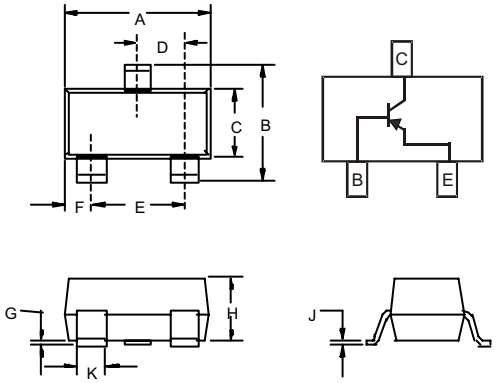
Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (I_C=10uAdc, I_B=0)	45	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C=1.0mAdc, I_E=0)	60	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage (I_E=10uAdc, I_C=0)	6.0	---	Vdc
I_{CBO}	Collector-Base Cutoff Current (V_{CB}=50Vdc,I_E=0)	---	50	nAdc
I_{CES}	Collector-Base Cutoff Current (V_{CE}=40Vdc,I_E=10)	---	50	nAdc
I_{EBO}	Emitter-Base Cutoff Current (V_{EB}=4.0Vdc, I_C=0)	---	50	nAdc
ON CHARACTERISTICS				
h_{FE}	DC Current Gain (I_C=100uAdc, V_{CE}=1.0Vdc) (I_C=10mAdc, V_{CE}=1.0Vdc) (I_C=100mAdc, V_{CE}=1.0Vdc)* (I_C=150mAdc, V_{CE}=5.0Vdc)*	 80 100 100 100	 --- 450 --- 350	---

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Notes: 1. These ratings are based on a maximum junction temperature of 150 degrees C.

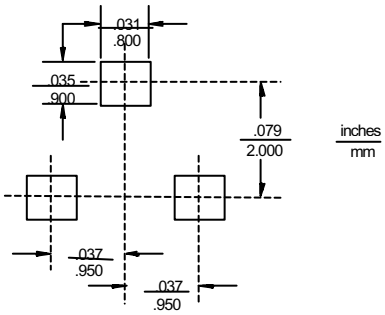
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

SOT-23



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.110	.120	2.80	3.04	
B	.083	.098	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

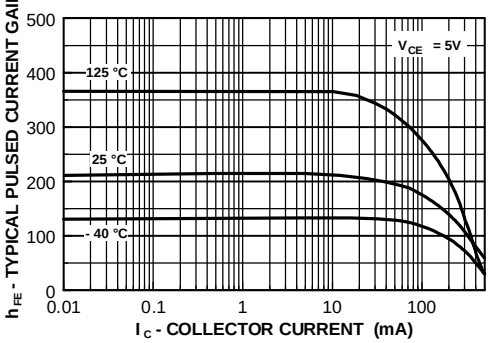
Suggested Solder Pad Layout



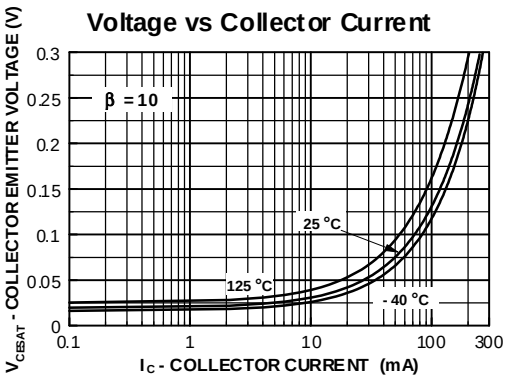
Symbol	Parameter	Min	Max	Units
ON CHARACTERISTICS				
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C=10mAdc, I_B=1.0mAdc) (I_C=200mAdc, I_B=20mAdc)*	 --- ---	 0.2 0.4	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (I_C=10mAdc, I_B=1.0mAdc) (I_C=200mAdc, I_B=20mAdc)*	 --- ---	 0.85 1.0	Vdc
SMALL SIGNAL CHARACTERISTICS				
fT	Current Gain-Bandwidth Product (V_{CE}=20Vdc, IC=20mAdc)	250	---	MHz
C_{obo}	Output Capacitance (V_{CE}=10Vdc, f=1.0MHz)	---	6.0	pF
NF	Noise Figure (I_C=100uAdc, V_{CE}=5.0Vdc, R_G=2.0KOHM, f=1.0KHz)	---	4.0	dB

*Pulse Test: Pulse Width<300us, Duty Cycle<2.0%

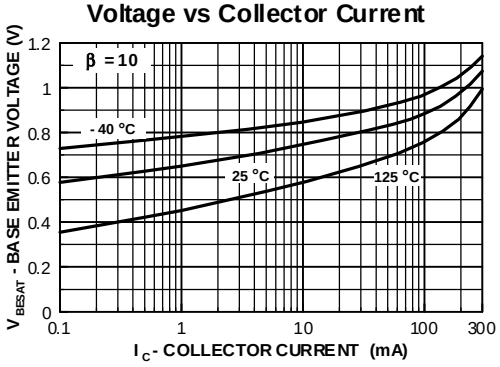
Typical Pulsed Current Gain vs Collector Current



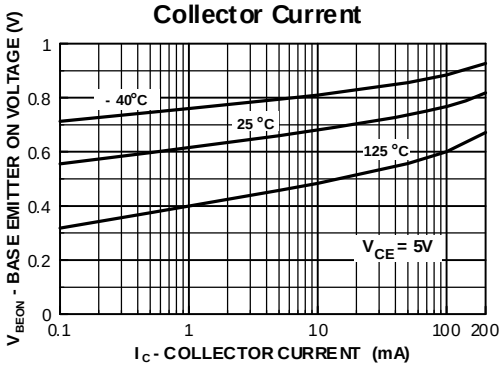
Collector-Emitter Saturation Voltage vs Collector Current



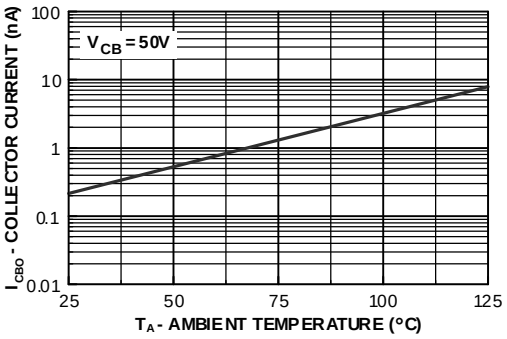
Base-Emitter Saturation Voltage vs Collector Current



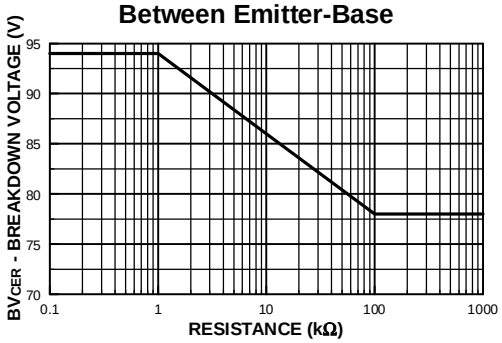
Base Emitter ON Voltage vs Collector Current

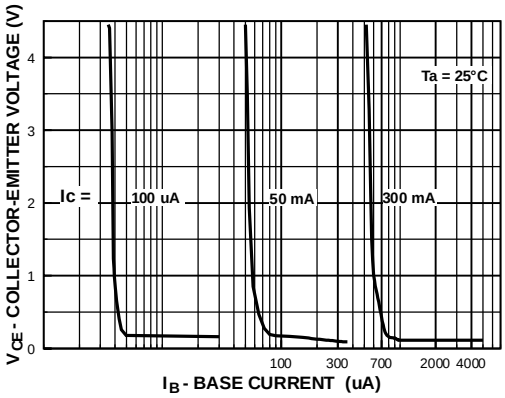


Collector-Cutoff Current vs Ambient Temperature

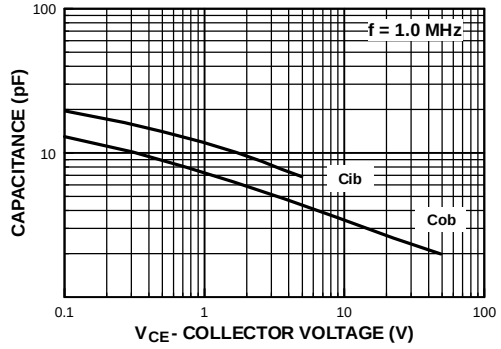


Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

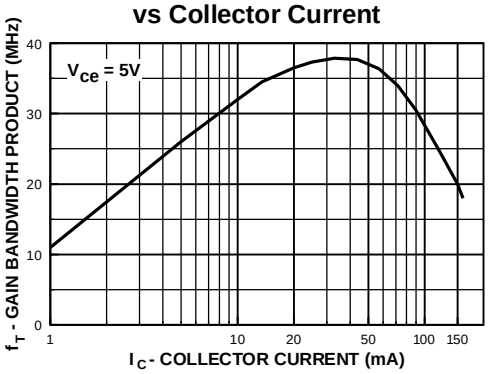




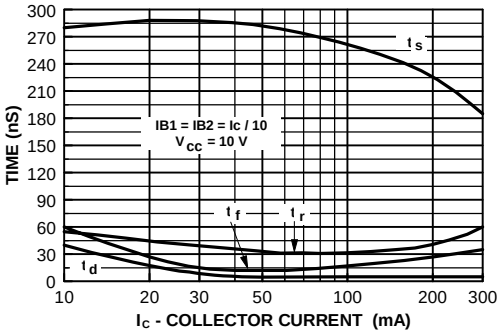
Input and Output Capacitance vs Reverse Voltage



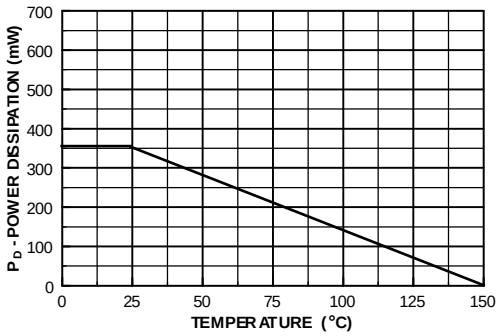
Gain Bandwidth Product vs Collector Current



Switching Times vs Collector Current



Power Dissipation vs Ambient Temperature



Ordering Information

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