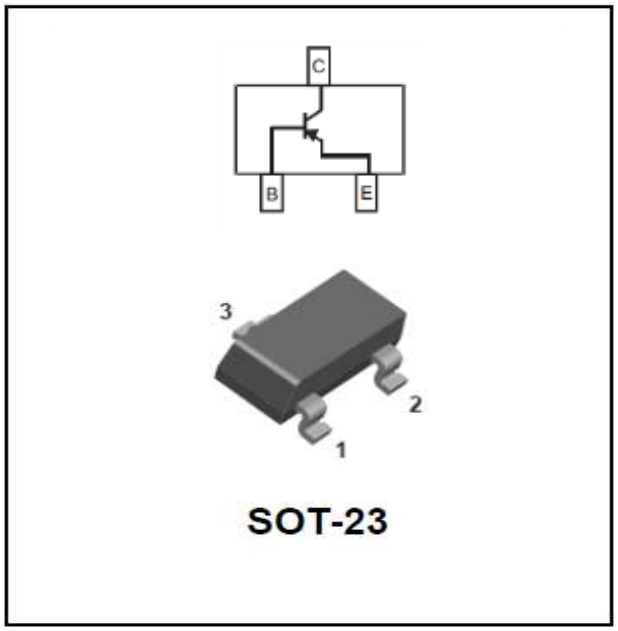
# PNP General Purpose Amplifier




## Features

- ●Epoxy meets UL-94 V-0 flammability rating
- ●Moisure Sensitivity Level 1
- ●Marking:2L

## ■Maximum Rantings (Ta=25℃)

| Item | Symbol | Unit | Conditions | Value |
|---|---|---|---|---|
| Collector-Emitter Voltage* | $V_{CEO}$ | V | $I_C$=-1.0mAdc, $I_B$=0 | -160 |
| Collector-Base Voltage | $V_{CBO}$ | V | $I_C$=-100uAdc, $I_E$=0 | -180 |
| Emitter-Base Voltage | $V_{EBO}$ | V | $I_E$=-10uAdc, $I_C$=0 | -6.0 |
| Collector Current | $I_C$ | mA | | 600 |
| Power Dissipation | $P_D$ | mW | | 300 |
| Operation Junction Temperature | $T_J$ | ℃ | | -55 to +150 |
| Storage Temperature | $T_{STG}$ | ℃ | | -55 to +150 |

## ■Electrical Characteristics（$T_a$=25℃）

| Item | Symbol | Unit | Conditions | Min | Max |
|---|---|---|---|---|---|
| Collector-Emitter Voltage* | $V_{CEO}$ | V | $I_C$=-1.0mAdc, $I_B$=0 | -160 | |
| Collector-Base Voltage | $V_{CBO}$ | V | $I_C$=-100uAdc, $I_E$=0 | -180 | |
| Emitter-Base Voltage | $V_{EBO}$ | V | $I_E$=-10uAdc, $I_C$=0 | -6.0 | |
| Collector Cutoff Current | $I_{CBO}$ | nA | $V_{CB}$=-120Vdc | | -50 |
| Collector Cutoff Current | $I_{EB0}$ | nA | $V_{CE}$=-4.0Vdc | | -50 |
| DC Current Gain | $h_{FE}$ | | $I_C$=-1.0mA $V_{CE}$=-5.0Vdc | 80 | |
| | | | $I_C$=-10mA $V_{CE}$=-5.0Vdc | 100 | 300 |
| | | | $I_C$=-50mA $V_{CE}$=-5.0Vdc | 50 | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | V | $I_C$=50mA $I_B$=5.0mA | | -0.5 |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | V | $I_C$=50mA $I_B$=5.0mA | | -1.0 |

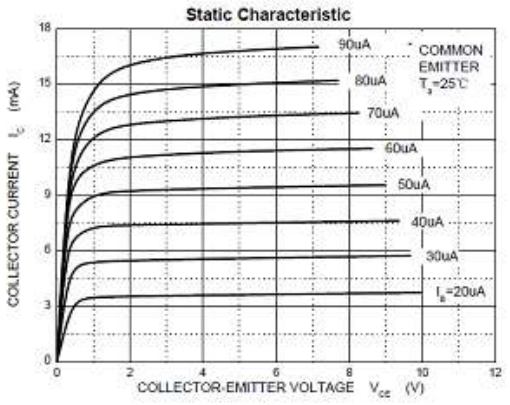
## ■Small-signal Characteristics（Ta=25℃）

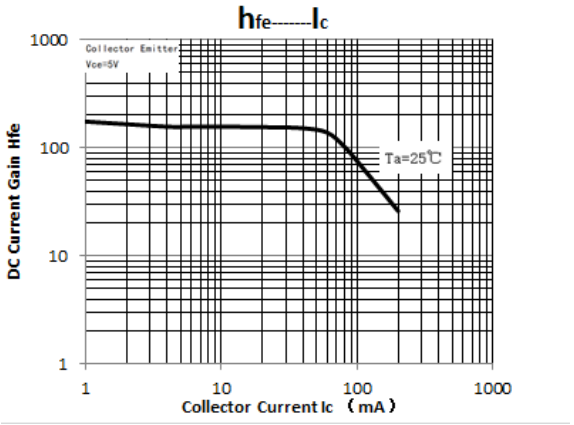
| Item | Symbol | Unit | Conditions | Min | Max |
|---|---|---|---|---|---|
| Current Gain-Bandwidth Product | $f_T$ | MHz | $I_C$=10mAdc, $V_{CE}$=5.0Vdc,f=30MHz | 100 | 300 |

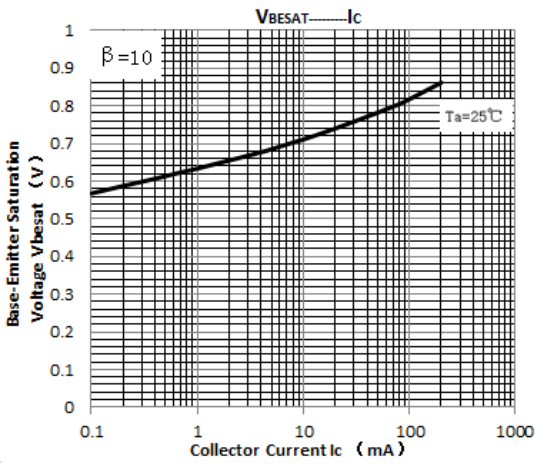
## ■Ordering Information (Example)

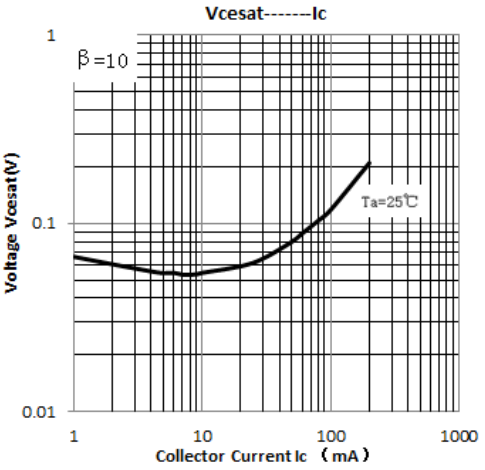
| PREFERED P/N | PACKING CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|---|
| MMBT5401 | F2 | Approximate 0.008 | 3000 | 30000 | 120000 | 7” reel |

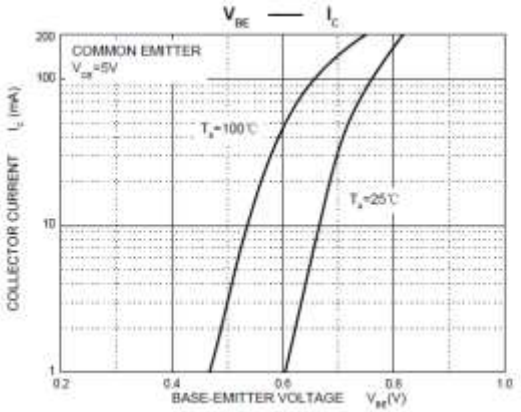
## ■Characteristics(Typical)

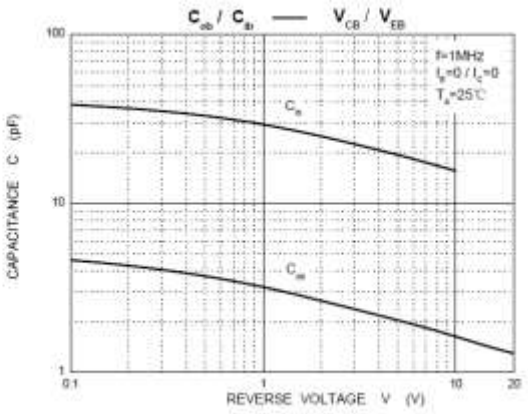


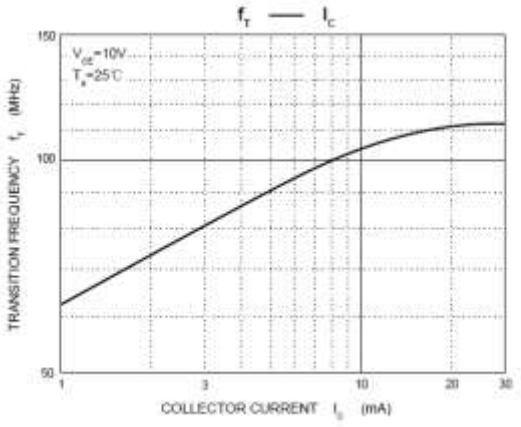



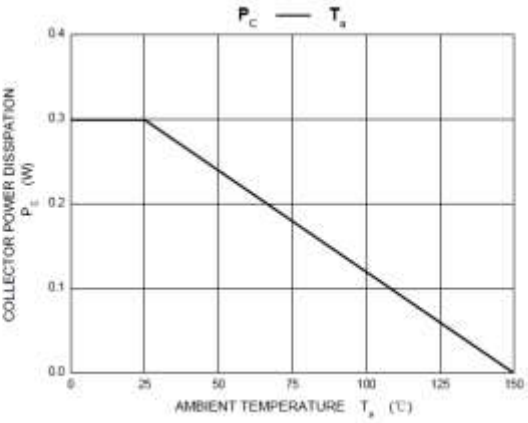

VBESAT------Ic
β=10
Ta=25℃
Base-Emitter Saturation Voltage Vbesat (V)
Collector Current Ic (mA)


Vcesat------Ic
β=10
Ta=25℃
Voltage Vcesat(V)
Collector Current Ic (mA)

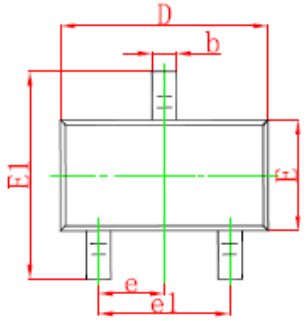

COMMON EMITTER
Ta=100℃
Ta=25℃
COLLECTOR CURRENT
BASE-EMITTER VOLTAGE

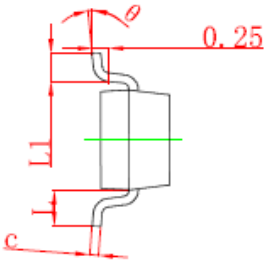

f=1MHz
Ta=25℃
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)

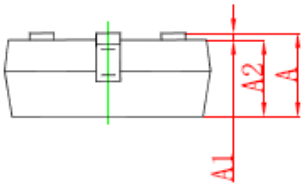

VCE=10V
Ta=25℃
TRANSITION FREQUENCY
COLLECTOR CURRENT (mA)


COLLECTOR POWER DISSIPATION
AMBIENT TEMPERATURE (℃)

## ■SOT-23 Package Outline Dimensions

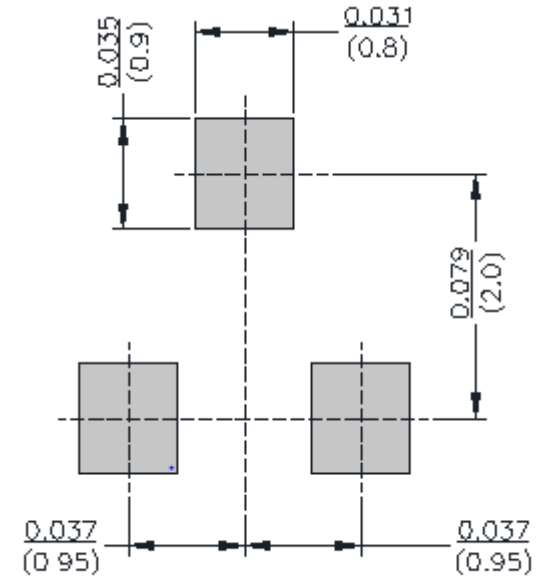



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

## ■SOT-23 Suggested Pad Layout




Unit: inch(mm)

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