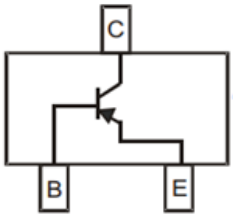
# PNP General Purpose Amplifier




**SOT-323**

## Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Ultra-Small Surface Mount Package
- Part no. with suffix “Q” means AEC-Q101 qualified

## Applications

- Ideal for Amplification and Switching

## Mechanical Data

- Case: SOT-323
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Marking: 2GM

## ■Maximum Ratings (Ta=25℃ unless otherwise noted)

| Item | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | -80 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | -80 | V |
| Emitter-Base Voltage | $V_{EBO}$ | -4 | V |
| Collector Current | $I_C$ | -500 | mA |
| Collector Power Dissipation (*) | $P_C$ | 200 | mW |
| Thermal Resistance From Junction to Ambient (*) | $R_{\theta JA}$ | 625 | K/W |
| Junction Temperature | $T_j$ | -55 to +150 | ℃ |
| Storage Temperature | $T_{stg}$ | -55 to +150 | ℃ |

(*) Device mounted on FR-4 PCB 1.0 x 1.0 x 0.06 inch

## ■Electrical Characteristics（$T_a$=25℃ Unless otherwise specified）

| Item | Symbol | Unit | Conditions | Min | Max |
|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{CBO}$ | V | $I_C$= -100μA, $I_E$=0 | -80 | |
| Collector-emitter breakdown voltage | $V_{CEO}$ | V | $I_C$= -1mA, $I_B$=0 | -80 | |
| Emitter-base breakdown voltage | $V_{EBO}$ | V | $I_E$= -100μA, $I_C$=0 | -4 | |
| Collector-base cut-off current | $I_{CBO}$ | μA | $V_{CB}$= -80V, $I_E$=0, | | -0.1 |
| Collector-emitter cut-off current | $I_{CES}$ | μA | $V_{CE}$= -60V, $I_B$=0V, | | -0.1 |
| Emitter-base cut-off current | $I_{EBO}$ | uA | $V_{EB}$= -4V, $I_C$=0 | | -0.1 |
| DC current gain | $h_{FE}$ | | $V_{CE}$= -1V, $I_C$= -10mA | 100 | |
| | $h_{FE}$ | | $V_{CE}$= -1V, $I_C$= -100mA | 100 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | V | $I_C$= -100mA, $I_B$= -10mA | | -0.25 |
| Base-emitter saturation voltage | $V_{BE(sat)*}$ | V | $I_C$= -100mA, $I_B$= -10mA | | -1.2 |

## ■Other Characteristics（$T_a$=25℃ Unless otherwise specified）

| Item | Symbol | Unit | Conditions | Min | Max |
|---|---|---|---|---|---|
| Transition frequency | fT | MHz | $V_{CE}$= -20V,$I_C$= -10mA,f=100MHz | 100 | |

## ■Ordering Information (Example)

| PREFERED P/N | PACKING CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|---|
| MMSTA56Q | F2 | Approximate 0.006 | 3000 | 30000 | 120000 | 7” reel |

## ■Characteristics(Typical)

Fig. 1 - Static characteristic

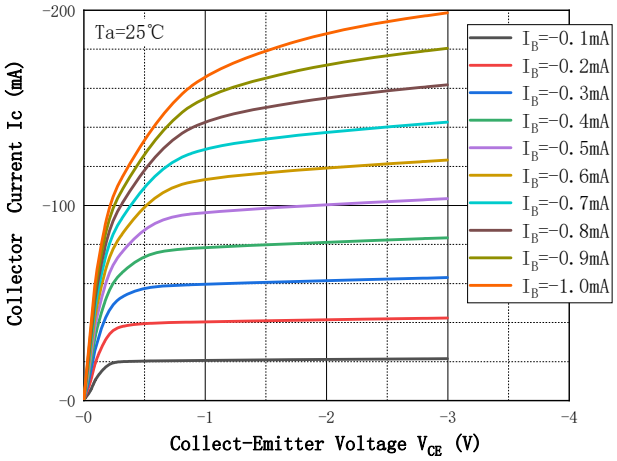



Fig. 2 - DC Current Gain

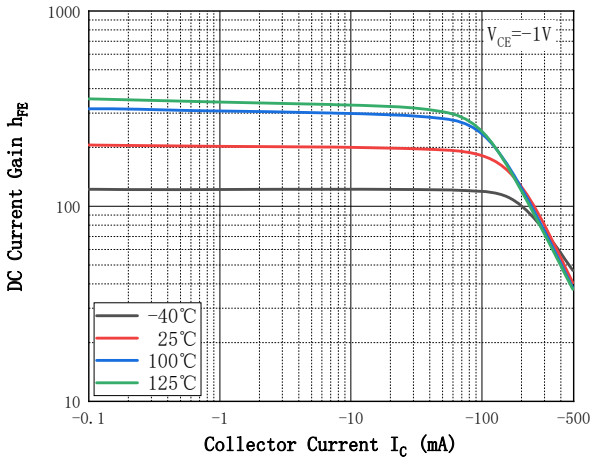



Fig. 3 - Collect-Emitter Saturation Voltage

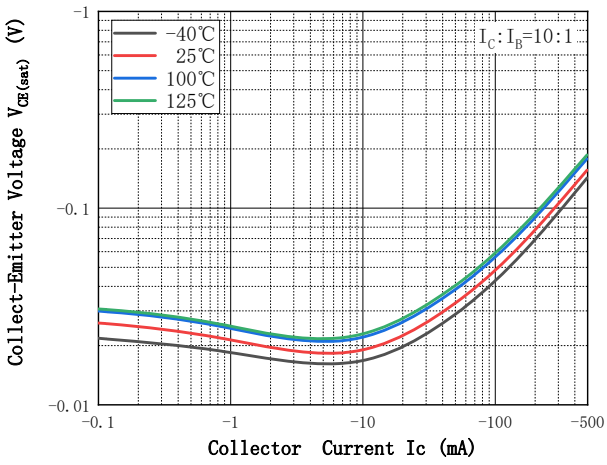



Fig. 4 - Base-Emitter Voltage

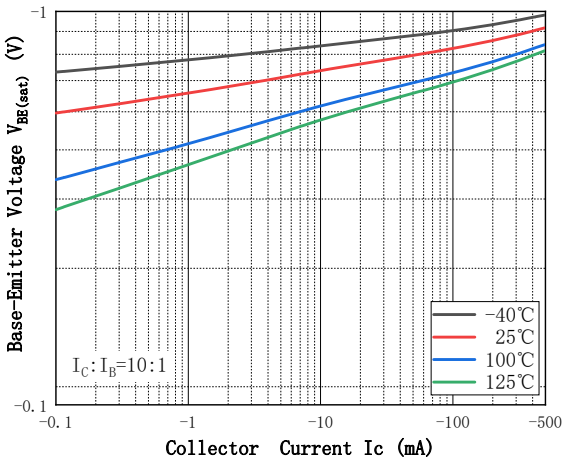



Fig. 5 - Base-Emitter On Voltage

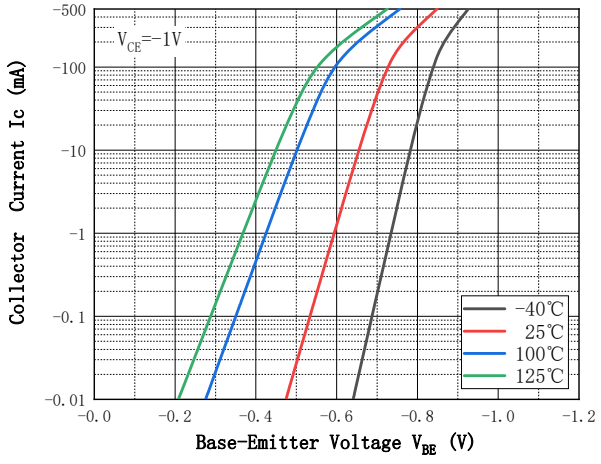
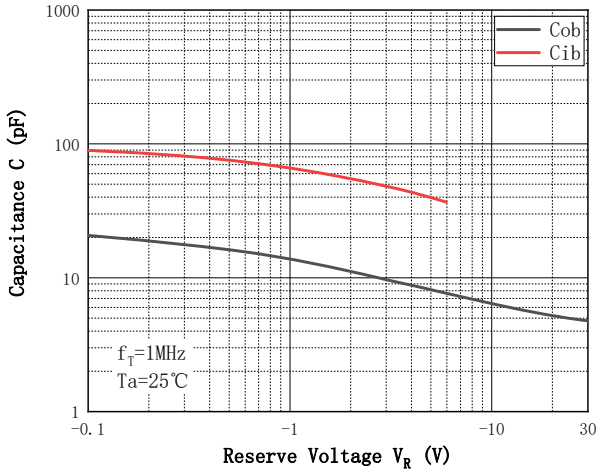
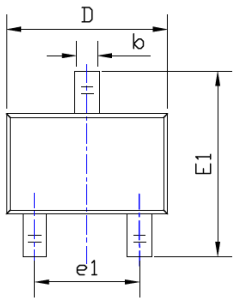


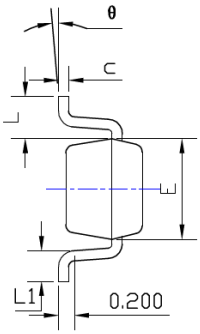

Fig. 6 - Cob/Cib—VCB/VEB



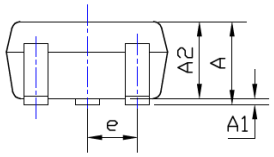
## ■ SOT-323 Package Outline Dimensions & Suggested Pad Layout



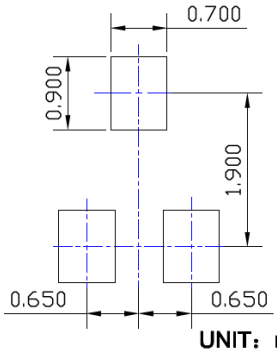

TOP VIEW




SIDE VIEW




SIDE VIEW




UNIT：mm

SUGGESTED SOLDER PAD LAYOUT

| SYMBOL | DIMENSIONS | | | |
|---|---|---|---|---|
| | INCHES | | Millimeter | |
| | MIN. | MAX. | MIN. | MAX. |
| A | 0.035 | 0.043 | 0.900 | 1.100 |
| A1 | 0.000 | 0.004 | 0.000 | 0.100 |
| A2 | 0.035 | 0.039 | 0.900 | 1.000 |
| b | 0.006 | 0.016 | 0.150 | 0.400 |
| c | 0.004 | 0.010 | 0.100 | 0.250 |
| D | 0.071 | 0.087 | 1.800 | 2.200 |
| E | 0.045 | 0.053 | 1.150 | 1.350 |
| E1 | 0.085 | 0.096 | 2.150 | 2.450 |
| e | 0.026TYP | | 0.650TYP | |
| e1 | 0.047 | 0.055 | 1.200 | 1.400 |
| L | 0.021REF | | 0.525REF | |
| L1 | 0.010 | 0.018 | 0.260 | 0.460 |
| θ | 0° | 8° | 0° | 8° |

**NOTE:**
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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