



MMBT2907A-AU

PNP GENERAL PURPOSE SWITCHING TRANSISTOR

VOLTAGE 60 Volt **POWER** 225 mWatt

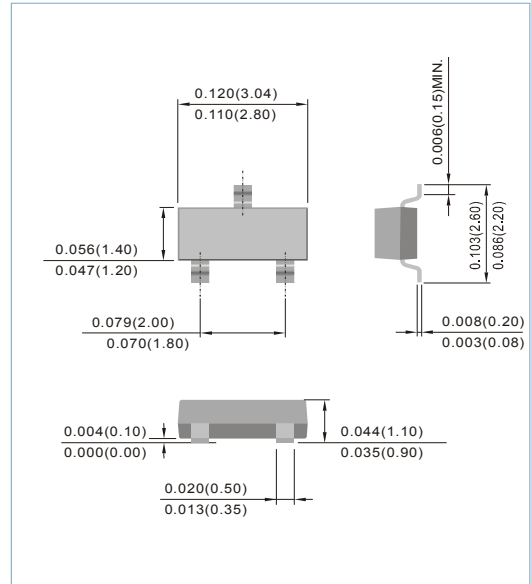
SOT-23 Unit : inch(mm)

FEATURES

- PNP epitaxial silicon, planar design
- Collector-emitter voltage $V_{CE} = -60V$
- Collector current $I_C = -600mA$
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

MECHANICAL DATA

- Case: SOT-23
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx Weight: 0.0003 ounces, 0.0084 grams
- Device Marking: M7A



ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Units |
|------------------------------|-----------|-------|-------|
| Collector-Emitter Voltage | V_{CEO} | -60 | V |
| Collector-Base Voltage | V_{CBO} | -60 | V |
| Emitter-Base Voltage | V_{EBO} | -5.0 | V |
| Collector Current-Continuous | I_C | -600 | mA |

THERMAL CHARACTERISTICS

| Parameter | Symbol | Value | Units |
|---|-----------------|------------|-----------------|
| Max Power Dissipation (Note 1) | P_{TOT} | 225 | mW |
| Storage Temperature | T_{STG} | -55 to 150 | $^{\circ}C$ |
| Junction Temperature | T_J | -55 to 150 | $^{\circ}C$ |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 556 | $^{\circ}C / W$ |

Note 1 : Transistor mounted on FR-4 board 70 x 60 x 1 mm.



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ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Units |
|--------------------------------------|-----------------------|---|------|------|--------------|-------|
| Collector-Emitter Breakdown Voltage | V _(BR) CEO | I _C =-10mA, I _B =0 | -60 | - | - | V |
| Collector-Base Breakdown Voltage | V _(BR) CBO | I _C =-10μA, I _E =0 | -60 | - | - | V |
| Emitter-Base Breakdown Voltage | V _(BR) EBO | I _E =-10μA, I _C =0 | -5.0 | - | - | V |
| Base Cutoff Current | I _{BL} | V _{CE} =-30V, V _{EB} =-0.5V | - | - | -50 | nA |
| Collector Cutoff Current | I _{CEX} | V _{CE} =-30V, V _{EB} =-0.5V | - | - | -50 | nA |
| | I _{CBO} | V _{CE} =-50V, I _E =0 | - | - | -10 | nA |
| | | V _{CE} =-50V, I _E =0 T _J =125°C | - | - | -10 | μA |
| DC Current Gain | h _{FE} | I _C =-0.1mA, V _{CE} =-10V | 75 | - | - | - |
| | | I _C =-1.0mA, V _{CE} =-10V | 100 | - | - | - |
| | | I _C =-10mA, V _{CE} =-10V | 100 | - | - | - |
| | | I _C =-150mA, V _{CE} =-10V | 100 | - | - | 300 |
| | | I _C =-500mA, V _{CE} =-10V | 50 | - | - | - |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | I _C =-150mA, I _B =-15mA I _C =-500mA, I _B =-50mA | - | - | -0.4 -1.6 | V |
| Base-Emitter Saturation Voltage | V _{BE(SAT)} | I _C =-150mA, I _B =-15mA I _C =-500mA, I _B =-50mA | - | - | -1.3 -2.6 | V |
| Collector-Base Capacitance | C _{CBO} | V _{CB} =-10V, I _E =0, f=1MHz | - | - | 8.0 | pF |
| Emitter-Base Capacitance | C _{EBO} | V _{CB} =-2V, I _C =0, f=1MHz | - | - | 30 | pF |
| Current Gain-Bandwidth Product | F _T | I _C =-50mA, V _{CE} =-20V, f=100MHz | 200 | - | - | MHz |
| Turn-On Time | t _{on} | V _{CC} =-30V, V _{BE} =-0.5V, I _C =-150mA, I _B =-15mA | - | - | 45 | ns |
| Delay Time | t _d | V _{CC} =-30V, V _{BE} =-0.5V, I _C =-150mA, I _B =-15mA | - | - | 10 | ns |
| Rise Time | t _r | V _{CC} =-30V, V _{BE} =-0.5V, I _C =-150mA, I _B =-15mA | - | - | 40 | ns |
| Turn-Off Time | t _{off} | V _{CC} =-6V, I _C =-150mA, I _{B1} =I _{B2} =-15mA | - | - | 100 | ns |
| Storage Time | t _s | V _{CC} =-6V, I _C =-150mA, I _{B1} =I _{B2} =-15mA | - | - | 80 | ns |
| Fall Time | t _f | V _{CC} =-6V, I _C =-150mA, I _{B1} =I _{B2} =-15mA | - | - | 30 | ns |



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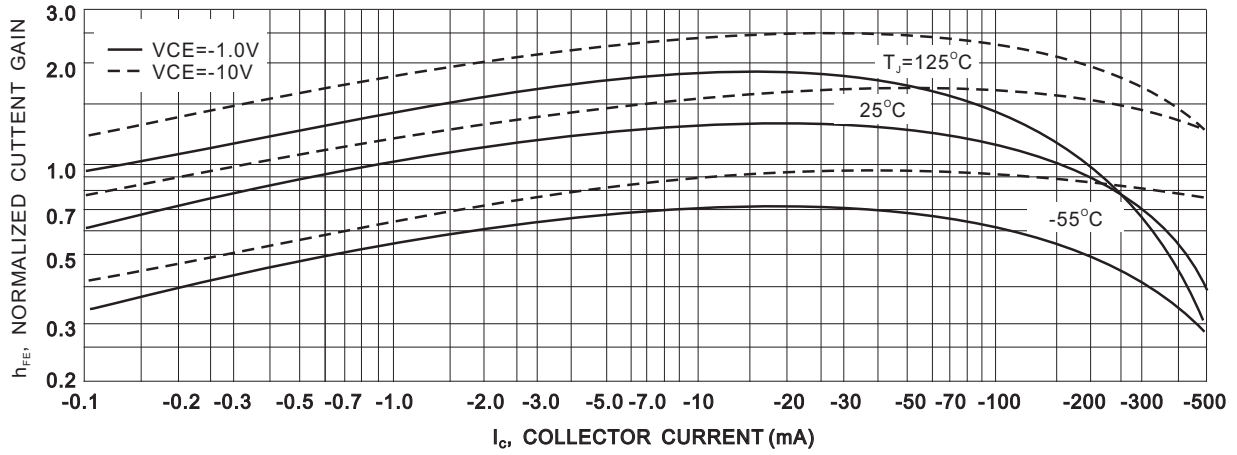


Fig.1-DC Current Gain

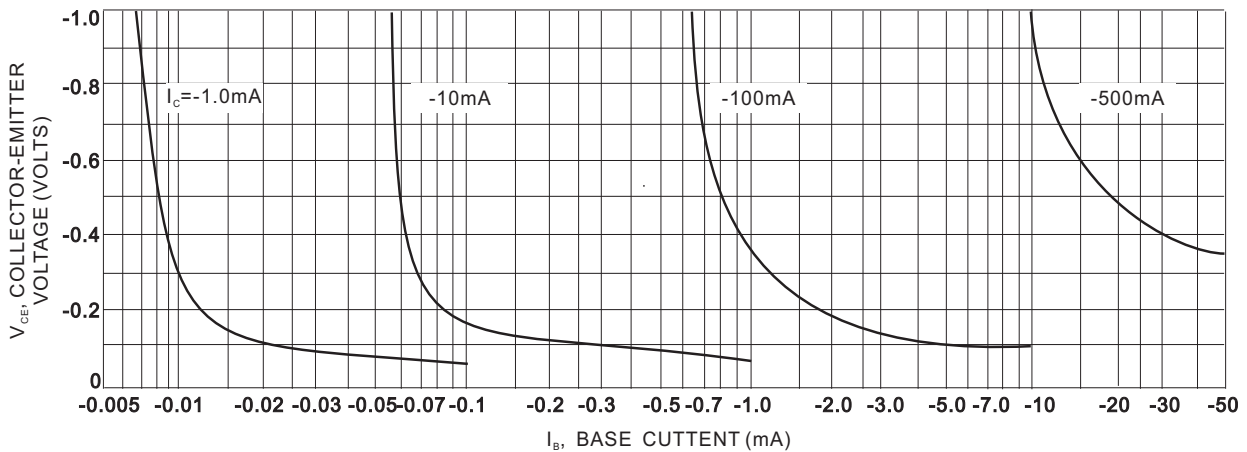


Fig.2-Collector Saturation Region

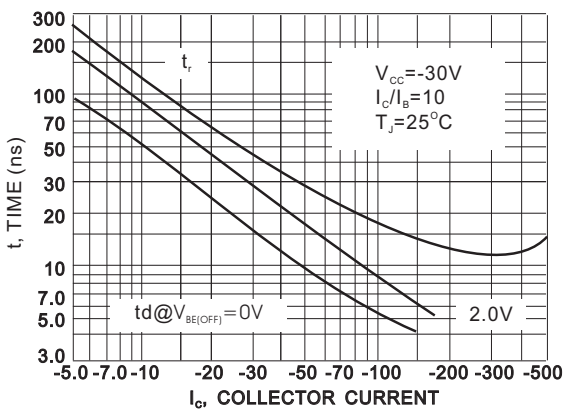


Fig.3-Turn-On Time

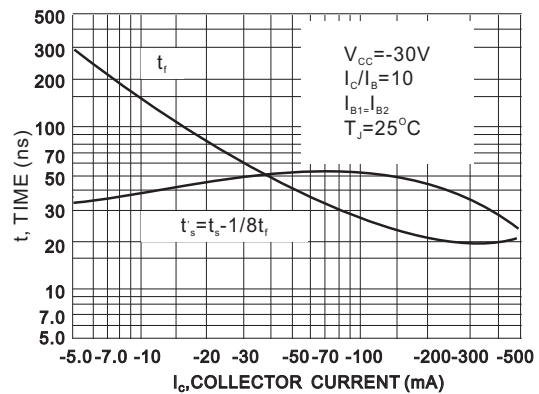


Fig.4-Turn-Off Time



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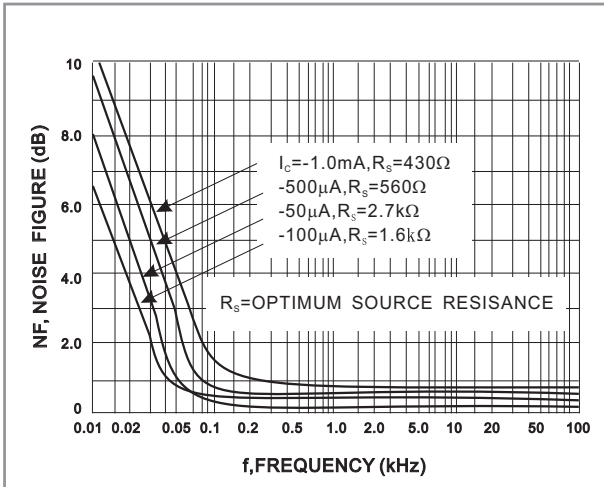


Fig.5-Frequency Effects

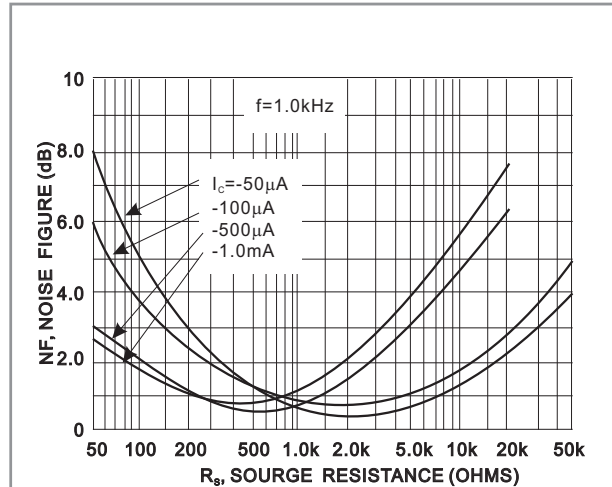


Fig.6-Source Resistance Effects

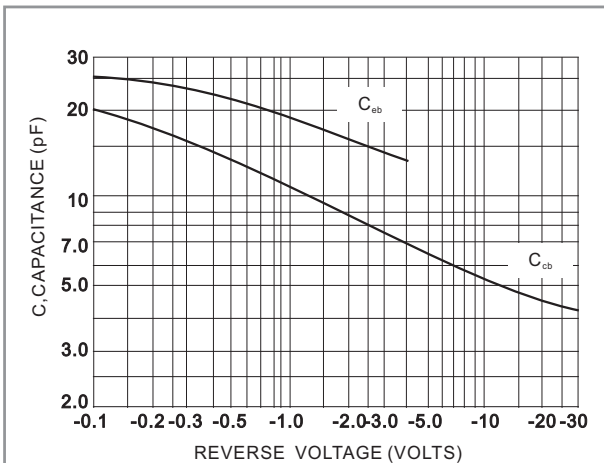


Fig.7-Capacitances

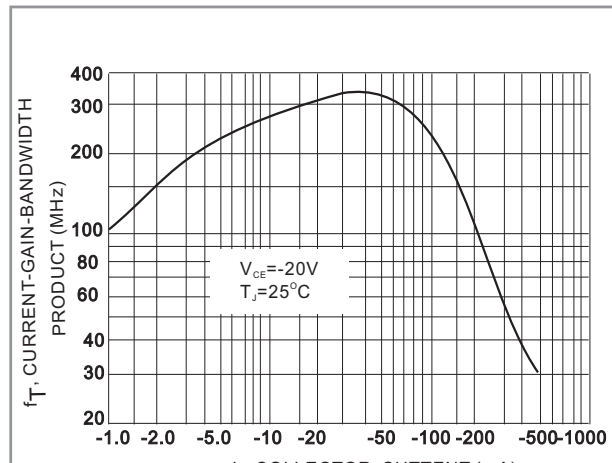


Fig.8-Current-Gain-Bandwidth Product

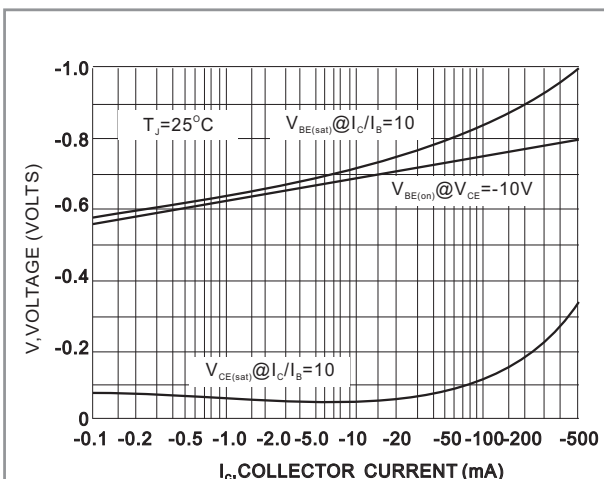


Fig.9-On Voltage

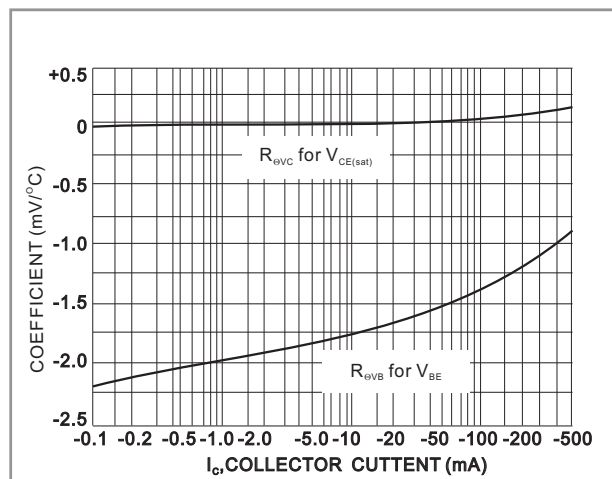
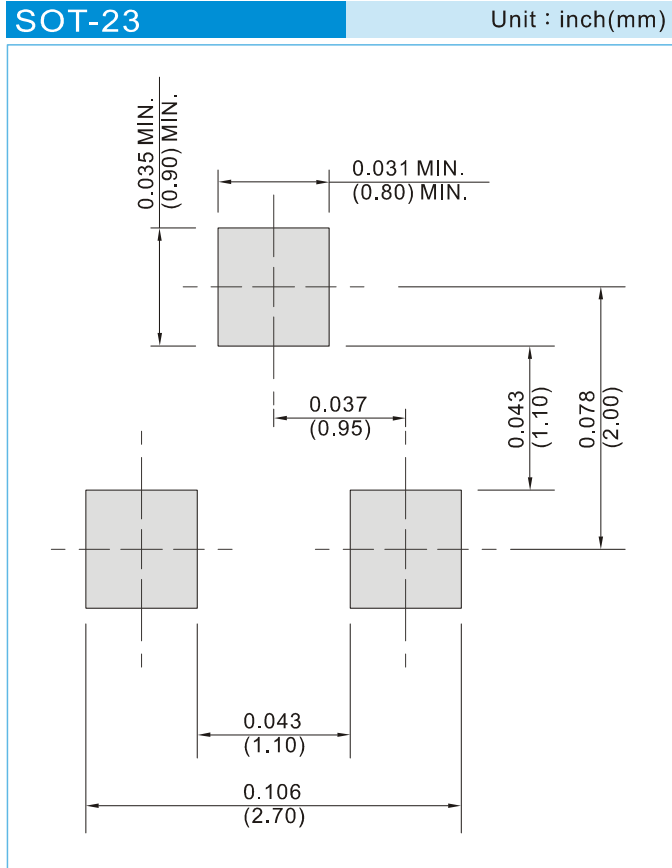


Fig.10-Temperature Coefficients



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MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information
T/R - 12K per 13" plastic Reel
T/R - 3K per 7" plastic Reel



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Part No_packing code_Version

MMBT2907A-AU_R1_000A1

MMBT2907A-AU_R2_000A1

For example :

RB500V-40_R2_00001



| Packing Code XX | | | | Version Code XXXXX | | |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type | 1 st Code | Packing size code | 2 nd Code | HF or RoHS | 1 st Code | 2 nd ~5 th Code |
| Tape and Ammunition Box (T/B) | A | N/A | 0 | HF | 0 | serial number |
| Tape and Reel (T/R) | R | 7" | 1 | RoHS | 1 | serial number |
| Bulk Packing (B/P) | B | 13" | 2 | | | |
| Tube Packing (T/P) | T | 26mm | X | | | |
| Tape and Reel (Right Oriented) (TRR) | S | 52mm | Y | | | |
| Tape and Reel (Left Oriented) (TRL) | L | PANASERT T/B CATHODE UP (PBCU) | U | | | |
| FORMING | F | PANASERT T/B CATHODE DOWN (PBCD) | D | | | |



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