



MMBT2907A

SMALL SIGNAL PNP TRANSISTOR

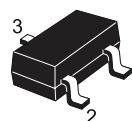
PRELIMINARY DATA

| Type | Marking |
|-----------|---------|
| MMBT2907A | M29 |

- SILICON EPITAXIAL PLANAR PNP TRANSISTOR
- MINIATURE SOT-23 PLASTIC PACKAGE FOR SURFACE MOUNTING CIRCUITS
- TAPE & REEL PACKING
- THE NPN COMPLEMENTARY TYPE IS MMBT2222A

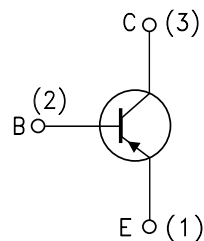
APPLICATIONS

- WELL SUITABLE FOR PORTABLE EQUIPMENT
- SMALL LOAD SWITCH TRANSISTOR WITH HIGH GAIN AND LOW SATURATION VOLTAGE



SOT-23

INTERNAL SCHEMATIC DIAGRAM



DS10120

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|---|------------|------|
| V_{CBO} | Collector-Emitter Voltage ($I_E = 0$) | -60 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | -60 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | -5 | V |
| I_C | Collector Current | -0.6 | A |
| I_{CM} | Collector Peak Current ($t_p < 5$ ms) | -0.8 | A |
| P_{tot} | Total Dissipation at $T_{amb} = 25$ °C | 350 | mW |
| T_{stg} | Storage Temperature | -65 to 150 | °C |
| T_j | Max. Operating Junction Temperature | 150 | °C |

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THERMAL DATA

| | | | | |
|-----------------|-------------------------------------|-----|-------|------|
| $R_{thj-amb}$ • | Thermal Resistance Junction-Ambient | Max | 357.1 | °C/W |
|-----------------|-------------------------------------|-----|-------|------|

• Device mounted on a PCB area of 1 cm²

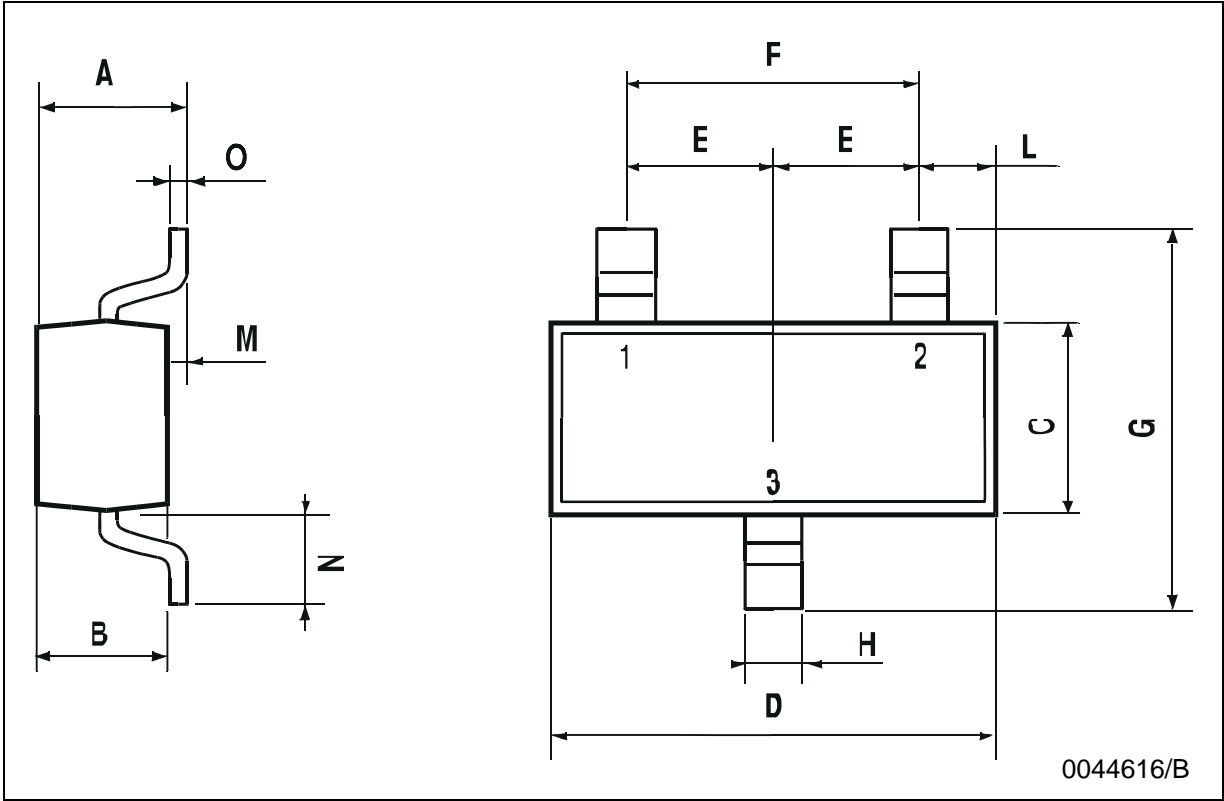
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------------|--|--|-------------------------------|------|--------------|--------|
| I _{CEX} | Collector Cut-off Current (V _{BE} = -3 V) | V _{CE} = -30 V | | | -50 | nA |
| I _{BEX} | Base Cut-off Current (V _{BE} = -3 V) | V _{CE} = -30 V | | | -50 | nA |
| I _{CBO} | Collector Cut-off Current (I _E = 0) | V _{CB} = -50 V | | | -10 | nA |
| V _{(BR)CEO} * | Collector-Emitter Breakdown Voltage (I _B = 0) | I _C = -10 mA | -60 | | | V |
| V _{(BR)CBO} | Collector-Base Breakdown Voltage (I _E = 0) | I _C = -10 μA | -60 | | | V |
| V _{(BR)EBO} | Emitter-Base Breakdown Voltage (I _C = 0) | I _E = -10 μA | -5 | | | V |
| V _{CE(sat)} * | Collector-Emitter Saturation Voltage | I _C = -150 mA I _B = -15 mA I _C = -500 mA I _B = -50 mA | | | -0.4 -1.6 | V V |
| V _{BE(sat)} * | Collector-Base Saturation Voltage | I _C = -150 mA I _B = -15 mA I _C = -500 mA I _B = -50 mA | | | -1.3 -2.6 | V V |
| h _{FE} * | DC Current Gain | I _C = -0.1 mA V _{CE} = -10 V I _C = -1 mA V _{CE} = -10 V I _C = -10 mA V _{CE} = -10 V I _C = -150 mA V _{CE} = -10 V I _C = -500 mA V _{CE} = -10 V | 75 100 100 100 50 | | 300 | |
| f _T | Transition Frequency | I _C = -50 mA V _{CE} = -20V f = 100MHz | 200 | | | MHz |
| C _{CBO} | Collector-Base Capacitance | I _E = 0 V _{CB} = -10 V f = 1 MHz | | | 8 | pF |
| C _{EBO} | Emitter-Base Capacitance | I _C = 0 V _{EB} = -2 V f = 1 MHz | | | 30 | pF |
| t _d | Delay Time | I _C = -150 mA I _B = -15 mA V _{CC} = -30V | | | 10 | ns |
| t _r | Rise Time | | | | 40 | ns |
| t _{on} | Switching On Time | | | | 45 | ns |
| t _s | Storage Time | | | 190 | | ns |
| t _f | Fall Time | I _C = -150 mA I _{B1} = -I _{B2} = -15mA V _{CC} = -30V | | | 30 | ns |
| t _{off} | Switching Off Time | | | 220 | | ns |

* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %

SOT-23 MECHANICAL DATA

| DIM. | mm | | | mils | | |
|------|------|------|------|-------|------|------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 0.85 | | 1.1 | 33.4 | | 43.3 |
| B | 0.65 | | 0.95 | 25.6 | | 37.4 |
| C | 1.20 | | 1.4 | 47.2 | | 55.1 |
| D | 2.80 | | 3 | 110.2 | | 118 |
| E | 0.95 | | 1.05 | 37.4 | | 41.3 |
| F | 1.9 | | 2.05 | 74.8 | | 80.7 |
| G | 2.1 | | 2.5 | 82.6 | | 98.4 |
| H | 0.38 | | 0.48 | 14.9 | | 18.8 |
| L | 0.3 | | 0.6 | 11.8 | | 23.6 |
| M | 0 | | 0.1 | 0 | | 3.9 |
| N | 0.3 | | 0.65 | 11.8 | | 25.6 |
| O | 0.09 | | 0.17 | 3.5 | | 6.7 |



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