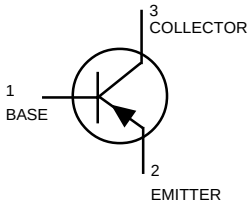
*Preliminary Information*

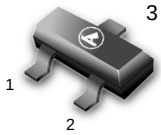
# General Purpose Transistor

## PNP Silicon

**MMBT2907AWT1**

These transistors are designed for general purpose mplifier applications. They are housed in the SOT–323/ SC–70 package which is designed for low power surface mount applications.




**CASE 419–02 , STYLE 3**
**SOT–323 / SC – 70**

### MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Collector–Emitter Voltage | $V_{CEO}$ | – 60 | Vdc |
| Collector–Base Voltage | $V_{CBO}$ | – 60 | Vdc |
| Emitter–Base Voltage | $V_{EBO}$ | – 5.0 | Vdc |
| Collector Current — Continuous | $I_C$ | – 600 | mAdc |

### THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Total Device Dissipation FR– 5 Board, (1) $T_A$ = 25°C | $P_D$ | 150 | mW |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 833 | °C/W |
| Junction and Storage Temperature | $T_J$ , $T_{stg}$ | –55 to +150 | °C |

### DEVICE MARKING

MMBT2907AWT1 = 2F

### ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C unless otherwise noted.)

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | |
| Collector–Emitter Breakdown Voltage(2) ($I_C$ = – 10 mAdc, $I_B$ = 0) | $V_{(BR)CEO}$ | –60 | — | Vdc |
| Collector–Emitter Breakdown Voltage ($I_C$ = – 10 mAdc, $I_E$ = 0) | $V_{(BR)CBO}$ | –60 | — | Vdc |
| Emitter–Base Breakdown Voltage ($I_E$ = –10µAdc, $I_C$ = 0) | $V_{(BR)EBO}$ | –5.0 | — | Vdc |
| Base Cutoff Current ( $V_{CE}$ = –30Vdc, $V_{EB(OFF)}$ = –0.5Vdc ) | $I_{BL}$ | — | – 50 | nAdc |
| Collector Cutoff Current ( $V_{CE}$ = –30Vdc, $V_{EB(OFF)}$ = –0.5Vdc ) | $I_{CEX}$ | — | – 50 | nAdc |

1. FR–5 = 1.0 x 0.75 x 0.062 in.
2. Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%.

**MMBT2907AWT1**

**ELECTRICAL CHARACTERISTICS** (T A = 25°C unless otherwise noted) (Continued)

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| **ON CHARACTERISTICS** | | | | |
| DC Current Gain(1) | $h_{FE}$ | | | — |
| ($I_C$ =–0.1 mAdc, $V_{CE}$ =–10 Vdc) | | 75 | — | |
| ($I_C$ = –1.0 mAdc, $V_{CE}$ = –10 Vdc) | | 100 | — | |
| ($I_C$ = –10 mAdc, $V_{CE}$ = –10 Vdc) | | 100 | — | |
| ($I_C$ = –150mAdc, $V_{CE}$ = –10Vdc) | | 100 | — | |
| ($I_C$ = –500mAdc, $V_{CE}$ =–10 Vdc) | | 50 | — | |
| Collector–Emitter Saturation Voltage(1) | $V_{CE(sat)}$ | | | Vdc |
| ($I_C$ = –150 mAdc, $I_B$ = –15 mAdc) | | — | –0.4 | |
| ($I_C$ = –500 mAdc, $I_B$ = –50 mAdc) | | — | –1.6 | |
| Base–Emitter Saturation Voltage(1) | $V_{BE(sat)}$ | | | Vdc |
| ($I_C$ = –150 mAdc, $I_B$ = –15mAdc) | | — | –1.3 | |
| ($I_C$ = –500mAdc, $I_B$ = –50mAdc ) | | — | –2.6 | |
| **SMALL–SIGNAL CHARACTERISTICS** | | | | |
| Current–Gain — Bandwidth Product(4) ($I_C$ = –50mAdc, $V_{CE}$= 20Vdc, f = 100MHz) | $f_T$ | 200 | — | MHz |
| Output Capacitance ($V_{CB}$ = –10 Vdc, $I_E$ = 0, f = 1.0 MHz) | $C_{obo}$ | — | 8.0 | pF |
| Input Capacitance ($V_{EB}$ = –2.0Vdc, $I_C$ = 0, f = 1.0 MHz) | $C_{ibo}$ | — | 30 | pF |
| **SWITCHING CHARACTERISTICS** | | | | |
| Turn–On Time ($V_{CC}$ = –30 Vdc, | $t_{on}$ | — | 45 | |
| Delay Time $I_C$ = –150 mAdc, $I_{B1}$ = –15 mAdc) | $t_d$ | — | 10 | ns |
| Rise Time | $t_r$ | — | 40 | |
| Storage Time ($V_{CC}$ = –6.0 Vdc, | $t_s$ | — | 80 | |
| Fall Time $I_C$ = –150 mAdc,$I_{B1}$ = $I_{B2}$ = 15 mAdc) | $t_f$ | — | 30 | ns |
| Turn–Off Time | $t_{off}$ | — | 100 | |

1. Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.