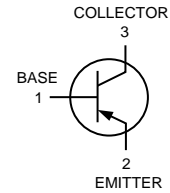
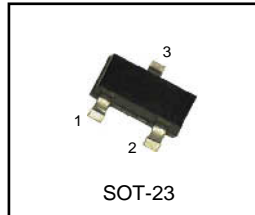


General Purpose Transistor
PNP Silicon
Halogen-free type
Lead free product
MMBT2907AGH

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 Derate above 25°C | P _D | 225 1.8 | mW mW / °C |
| Thermal Resistance Junction to Ambient | R _{θJA} | 556 | °C / W |
| Total Device Dissipation Alumina Substrate, ⁽²⁾ T _A =25°C Derate above 25°C | P _D | 300 2.4 | mW mW / °C |
| Thermal Resistance Junction to Ambient | R _{θJA} | 417 | °C / W |
| Junction and Storage Temperature | T _J ,T _{STG} | -55 to +150 | °C |

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

| Characteristic | Symbol | Min. | Max. | Unit |
|----------------|--------|------|------|------|
|----------------|--------|------|------|------|

OFF CHARACTERISTICS

| | | | | |
|---|----------------------|------|---------------|------|
| Collector-Emitter Breakdowe Voltage ⁽³⁾ (I _C = -1.0mAdc, I _B =0) | V _{(BR)CEO} | -60 | - | Vdc |
| Collector-Base Breakdowe Voltage (I _C = -10uAdc, I _E =0) | V _{(BR)CBO} | -60 | - | Vdc |
| Emitter - Base Breakdowe Voltage (I _E = -10 uAdc, I _C =0) | V _{(BR)EBO} | -5.0 | - | Vdc |
| Collector Cutoff Current (V _{CE} = -30 Vdc, V _{BE (off)} = -0.5 Vdc) | I _{CEX} | - | -50 | nAdc |
| Collector Cutoff Current (V _{CB} = -50 Vdc, I _E =0) (V _{CB} = -50 Vdc, I _E =0, T _A =125°C) | I _{CBO} | - | -0.010 -10 | uAdc |
| Base Cutoff Current (V _{CE} =60 V, V _{EB (off)} =3.0 Vdc) | I _B | - | -50 | nAdc |

(1) FR-5=1.0 x 0.75 x 0.062in.

(2) Alumina=0.4 x 0.3 x 0.024in. 99.5% alumina.

(3) Pulse Test : Pulse Width ≤ 300 uS, Duty Cycle ≤ 2.0%.

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted) (Continued)

| Characteristic | Symbol | Min. | Max. | Unit |
|----------------|--------|------|------|------|
|----------------|--------|------|------|------|

ON CHARACTERISTICS

| | | | | |
|--|---------------|-------------------------------|-------------------------|-----|
| DC Current Gain ($I_C = -0.1 \text{ mA}$, $V_{CE} = -10 \text{ Vdc}$) ($I_C = -1.0 \text{ mA}$, $V_{CE} = -10 \text{ Vdc}$) ($I_C = -10 \text{ mA}$, $V_{CE} = -10 \text{ Vdc}$) ($I_C = -150 \text{ mA}$, $V_{CE} = -10 \text{ Vdc}$) ⁽³⁾ ($I_C = -500 \text{ mA}$, $V_{CE} = -10 \text{ Vdc}$) ⁽³⁾ | HFE | 75 100 100 100 50 | - - - 300 - | - |
| Collector-Emitter Saturation Voltage ⁽³⁾ ($I_C = -150 \text{ mA}$, $I_B = -15 \text{ mA}$) ($I_C = -500 \text{ mA}$, $I_B = -50 \text{ mA}$) | $V_{CE(sat)}$ | - - | -0.4 -1.6 | Vdc |
| Base-Emitter Saturation Voltage ⁽³⁾ ($I_C = -150 \text{ mA}$, $I_B = -15 \text{ mA}$) ($I_C = -500 \text{ mA}$, $I_B = -50 \text{ mA}$) | $V_{BE(sat)}$ | - - | -1.3 -2.6 | Vdc |

SMALL-SIGNAL CHARACTERISTIC

| | | | | |
|--|-----------|-----|-----|-----|
| Current-Gain-Bandwidth Product ^{(3),(4)} ($I_C = -50 \text{ mA}$, $V_{CE} = -20 \text{ Vdc}$, $f = 100 \text{ MHz}$) | f_T | 200 | - | MHz |
| Output Capacitance ($V_{CB} = -10 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$) | C_{obo} | - | 8.0 | pF |
| Input Capacitance ($V_{EB} = -2.0 \text{ Vdc}$, $I_C = 0$, $f = 1.0 \text{ MHz}$) | C_{ibo} | - | 30 | pF |

SWITCHING CHARACTERISTICS

| | | | | | |
|--------------|---|-----------|---|-----|----|
| Turn-On Time | ($V_{CC} = -30 \text{ Vdc}$, $I_C = -150 \text{ mA}$, $I_{B1} = -15 \text{ mA}$) | t_{on} | - | 45 | nS |
| Delay Time | | t_d | - | 10 | |
| Rise Time | | t_r | - | 40 | |
| Turn-On Time | ($V_{CC} = -6.0 \text{ Vdc}$, $I_C = -150 \text{ mA}$, $I_{B1} = I_{B2} = -15 \text{ mA}$) | t_{off} | - | 100 | nS |
| Storage Time | | t_s | - | 80 | |
| Fall Time | | t_f | - | 30 | |

(3) Pulse Test : Pulse Width 300 μs , Duty Cycle 2.0%.

(4) f_T is defined as the frequency at which h_{fe} extrapolates to unity.

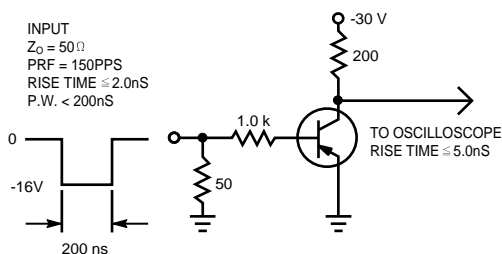
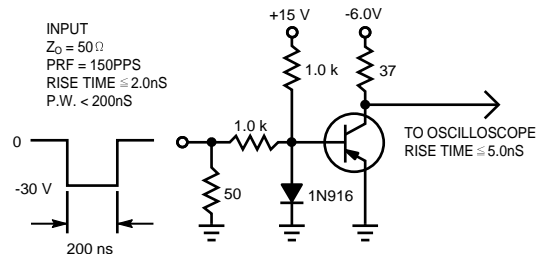
Figure 1. Delay and Rise Time Test Circuit

Figure 2. Storage and Fall Time Test Circuit


Figure 3. DC Current Gain
TYPICAL CHARACTERISTICS

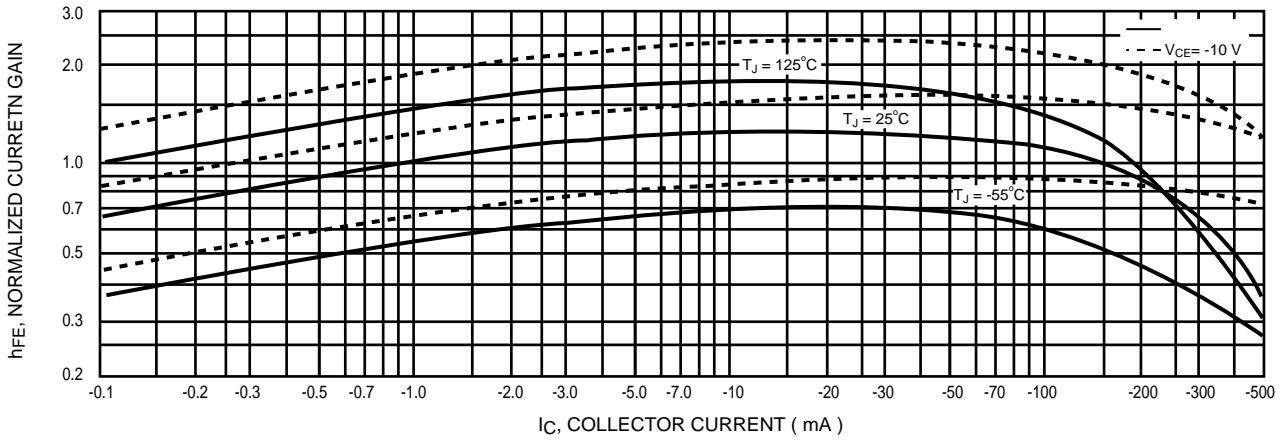


Figure 4. Collector Saturation Region

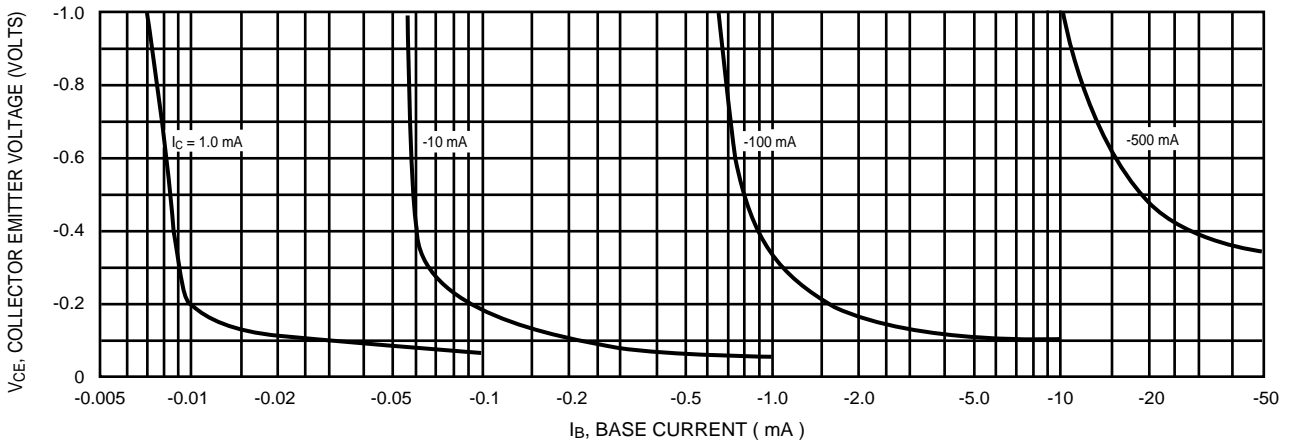


Figure 5. Turn - On Time

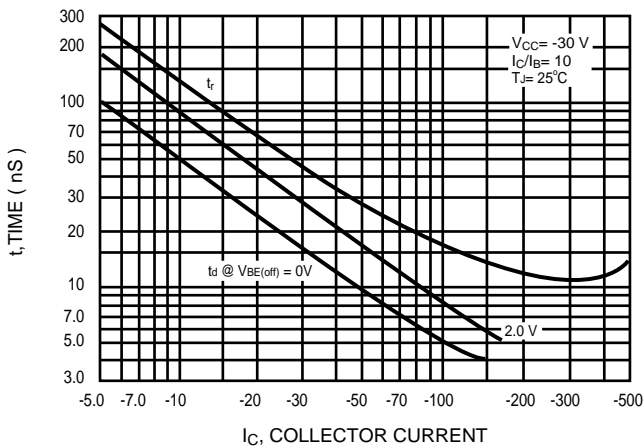


Figure 6. Turn - Off Time

