# DATA SHEET

## MMBT2907A

GENERAL PURPOSE TRANSISTOR PNP

**VOLTAGE** **-60 Volts** **POWER** **300 mW**

### FEATURES

- HIGH DC CURRENT GAIN.
- LOW COLLECTOR-EMITTER SATURATION VOLTAGE BOTH NORMAL AND PB-FREE PACKAGE ARE AVAILABLE.
- LEAD FREE AND HALOGEN-FREE

### MECHANICAL DATA

- CASE：SOT-23
- TERMINAL：SOLDERABLE PER MIL-STD-202, METHOD 208
- APPROX. WEIGHT:0.008GRAM


CASE：SOT-23

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

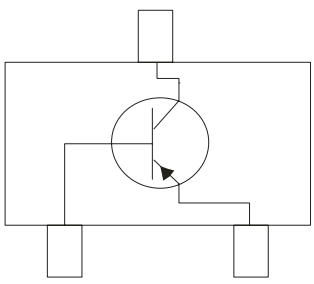
**RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.**

| PARAMETER | SYMBOL | MMBT2907A | 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 |
| POWER DISSIPATION @ $T_A$ = 25˚C | $P_D$ | 300 | mW |
| OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE | $T_J$;$T_{STG}$ | - 55 TO +150 | ˚C |

**NOTE:**

1. Indicates Data in addition to JEDEC Requirements.

PNP



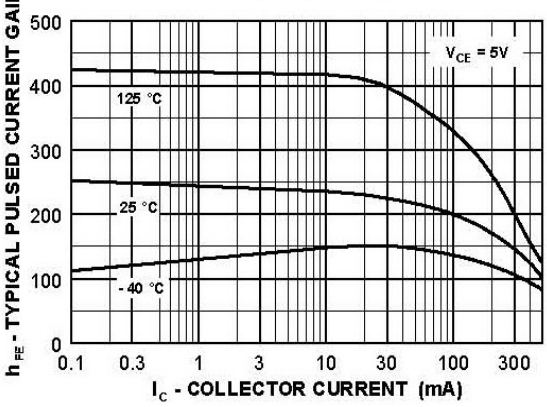
## ELECTRICAL CHARACTERISTICS

| ELECTRICAL CHARACTERISTICS (AT $T_A$ = 25˚C UNLESS OTHERWISE NOTED) | | | | | |
|---|---|---|---|---|---|
| CHARACTERISTIC | SYMBOL | TEST CONDITIONS | MIN. | MAX. | UNITS |
| **OFF CHARACTERISTICS** | | | | | |
| Collector-Emitter Breakdown Voltage (Note.1) | $V_{(BR)CEO}$ | $I_C$= -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 |
| Emitter cut-off Current | $I_{EBO}$ | $V_{EB}$= -3V, $I_C$=0 | - | -0.1 | μA |
| Collector Cut-off Current | $I_{CBO}$ | $V_{CB}$= -50V, $I_E$=0 | - | -0.1 | μA |
| Collector Cut-off Current | $I_{CEO}$ | $V_{CE}$= -3V, $I_B$=0 | - | -0.1 | μA |
| **ON CHARACTERISTICS** | | | | | |
| DC Current Gain | $h_{FE}$ | $V_{CE}$= -10V, $I_C$= -0.1mA | 75 | - | - |
| | | $V_{CE}$= -10V, $I_C$= -1.0mA | 100 | - | |
| | | $V_{CE}$= -10V, $I_C$= -10mA | 100 | - | |
| | | $V_{CE}$= -10V, $I_C$= -150mA | 100 | 300 | |
| | | $V_{CE}$= -10V, $I_C$= -500mA | 50 | - | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C$= -150mA, $I_B$=-15mA | - | -0.4 | V |
| | | $I_C$= -500mA, $I_B$=-50mA | - | -1.6 | |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C$= -150mA, $I_B$=-15mA | - | -1.3 | V |
| | | $I_C$= -500mA, $I_B$=-50mA | - | -2.6 | |
| **SMALL-SIGNAL CHARACTERISTICS** | | | | | |
| Current-Gain-Bandwidth Product | $f_T$ | $I_C$= -50mA, $V_{CE}$=-20V, f=100 MHz | 200 | - | MHz |
| Delay Time | $t_d$ | $V_{CC}$= -30V, $I_C$=-150mA, $I_{B1}$= $I_{B2}$= -15mA | - | 10 | μS |
| Rise Time | $t_r$ | | | 40 | μS |
| Storage Time | $t_s$ | $V_{CC}$= -6.0V, $I_C$=-150mA, $I_{B1}$= $I_{B2}$= -15mA | - | 80 | μS |
| Fall Time | $t_f$ | | | 30 | μS |

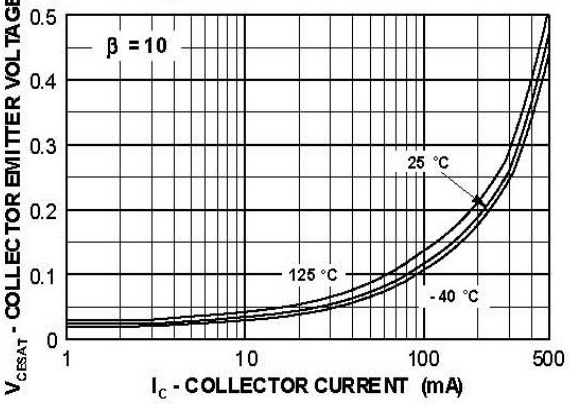
**NOTE:**

1.Pulse Test: Pulse Width≦300 μs; Duty Cycle≦2%.

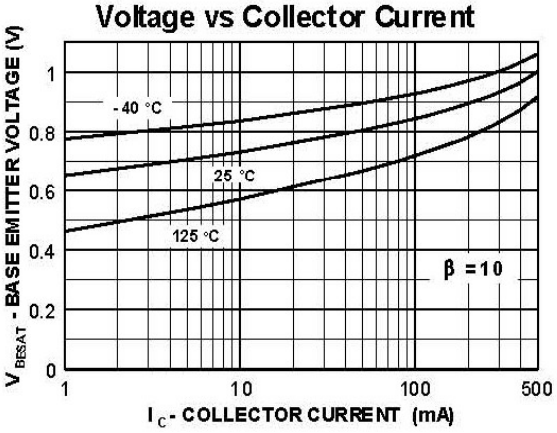
## Typical Pulsed Current Gain vs Collector Current



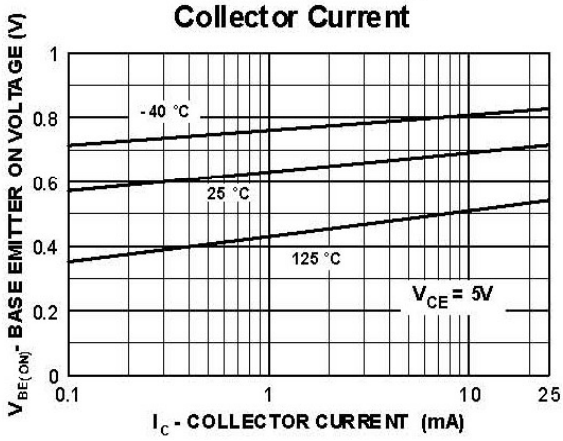

## Collector-Emitter Saturation Voltage vs Collector Current



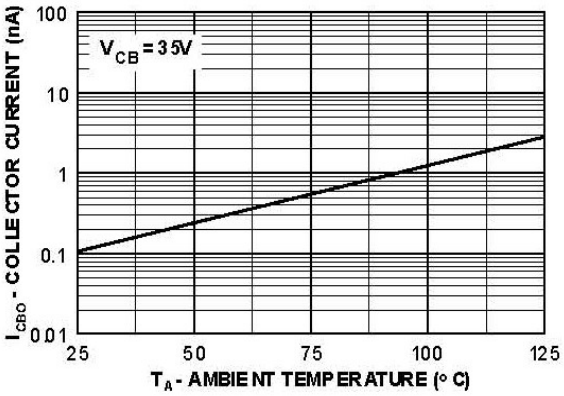

## Base-Emitter Saturation Voltage vs Collector Current



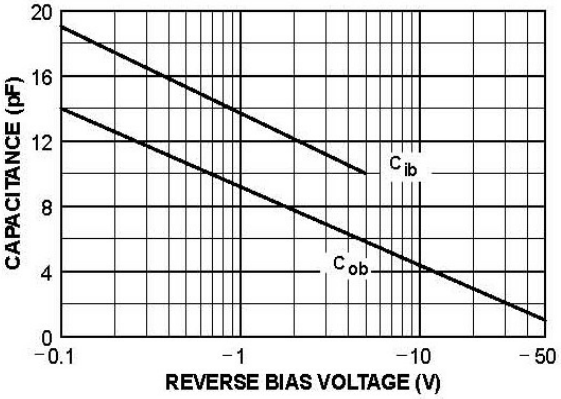

## Base Emitter ON Voltage vs Collector Current



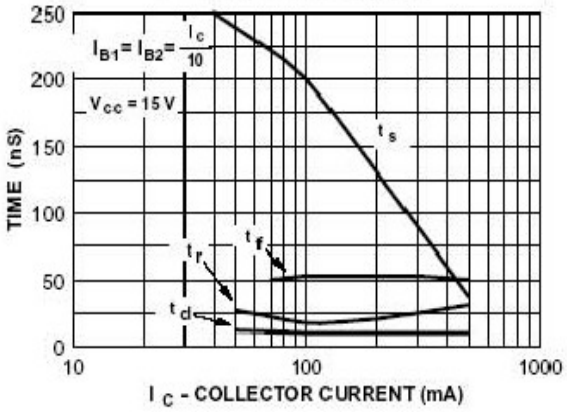

## Collector-Cutoff Current vs Ambient Temperature



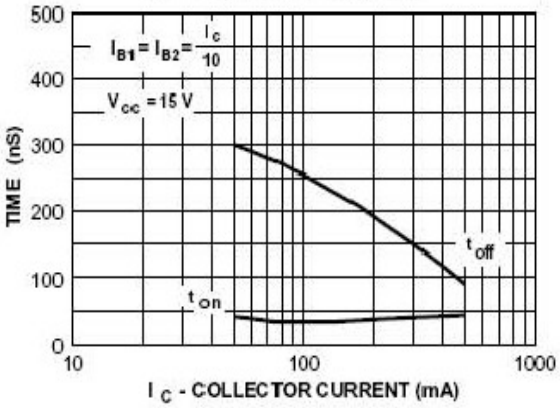

## Input and Output Capacitance vs Reverse Bias Voltage



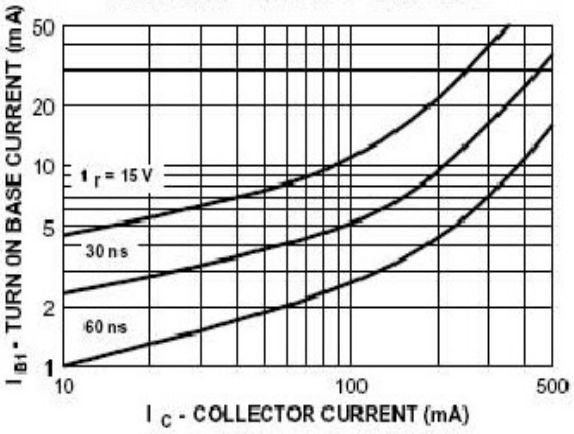
## Switching Times vs Collector Current



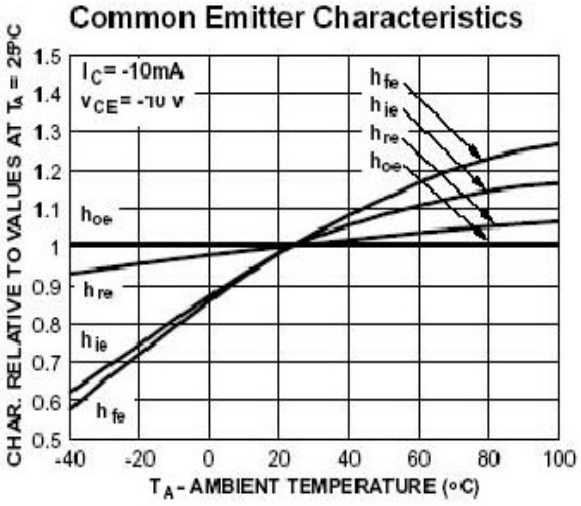

## Turn On and Turn Off Times vs Collector Current



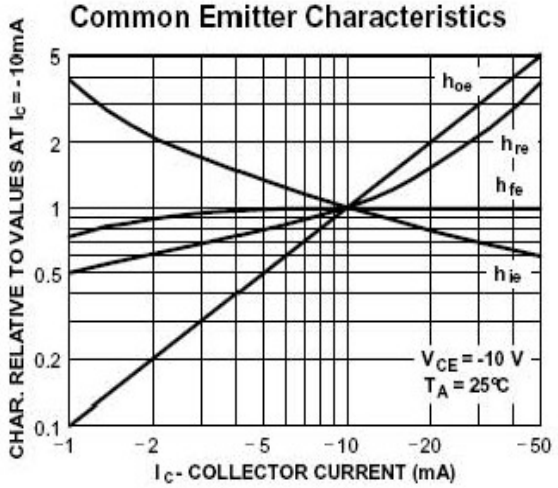

## Rise Time vs Collector and Turn On Base Currents



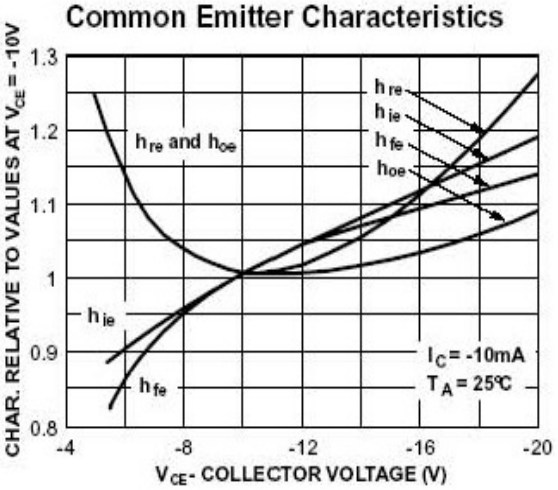

## Common Emitter Characteristics



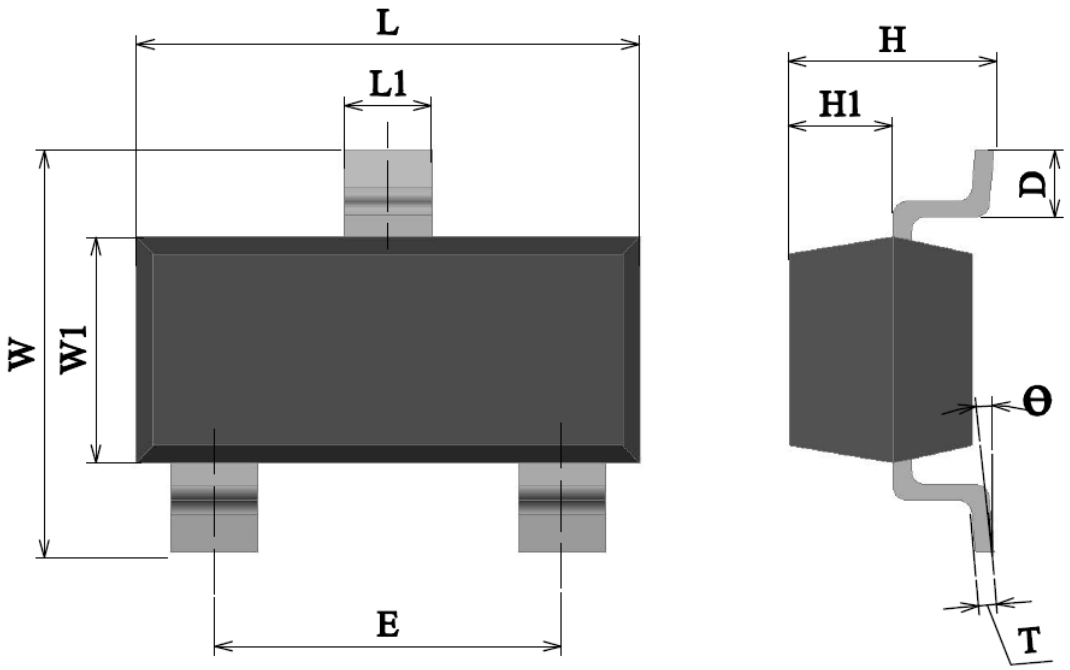

## Common Emitter Characteristics




## Common Emitter Characteristics



# SOT-23 DIMENSION




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| L | 2.80 | 3.10 | 0.110 | 0.122 |
| L1 | 0.30 | 0.50 | 0.012 | 0.020 |
| W | 2.25 | 2.54 | 0.089 | 0.100 |
| W1 | 1.20 | 1.40 | 0.047 | 0.055 |
| E | 1.80 | 2.00 | 0.071 | 0.079 |
| H | 0.90 | 1.15 | 0.035 | 0.045 |
| H1 | 0.40 | 0.80 | 0.016 | 0.031 |
| D | 0.30 | 0.50 | 0.012 | 0.020 |
| T | 0.08 | 0.15 | 0.003 | 0.006 |
| θ | 0° | 8° | 0 ° | 8° |