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# MSB92WT1G, MSB92AWT1G

## PNP Silicon General Purpose High Voltage Transistor

This PNP Silicon Planar Transistor is designed for general purpose amplifier applications. This device is housed in the SC-70/SOT-323 package which is designed for low power surface mount applications.

### Features

- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

| Rating                         | Symbol        | Value                      | Unit |
|--------------------------------|---------------|----------------------------|------|
| Collector-Base Voltage         | $V_{(BR)CBO}$ | -300                       | Vdc  |
| Collector-Emitter Voltage      | $V_{(BR)CEO}$ | -300                       | Vdc  |
| Emitter-Base Voltage           | $V_{(BR)EBO}$ | -5.0                       | Vdc  |
| Collector Current - Continuous | $I_C$         | 500                        | mAdc |
| Electrostatic Discharge        | ESD           | MM > 16,000,<br>MM > 2,000 | V    |

### THERMAL CHARACTERISTICS

| Rating                     | Symbol    | Max         | Unit             |
|----------------------------|-----------|-------------|------------------|
| Power Dissipation (Note 1) | $P_D$     | 150         | mW               |
| Junction Temperature       | $T_J$     | 150         | $^\circ\text{C}$ |
| Storage Temperature Range  | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

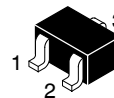
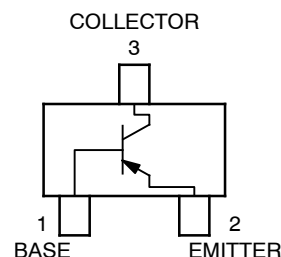
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.



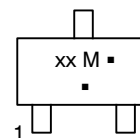
ON Semiconductor®

<http://onsemi.com>



SC-70 (SOT-323)  
CASE 419  
STYLE 3

### MARKING DIAGRAM



- xx = Device Code  
x = 2D or D2
- M = Date Code\*
- = Pb-Free Package

(Note: Microdot may be in either location)  
\*Date Code orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

| Device     | Package                        | Shipping†        |
|------------|--------------------------------|------------------|
| MSB92WT1G  | SC-70/<br>SOT-323<br>(Pb-Free) | 3000/Tape & Reel |
| MSB92AWT1G | SC-70/<br>SOT-323<br>(Pb-Free) | 3000/Tape & Reel |

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# MSB92WT1G, MSB92AWT1G

## ELECTRICAL CHARACTERISTICS

| Characteristic  | Symbol   | Min                   | Max                | Unit    |
|---|--|-----------------------|--------------------|---------|
| Collector-Emitter Breakdown Voltage<br>( $I_C = -1.0$ mA dc, $I_B = 0$ )  | $V_{(BR)CEO}$                                    | -300                  | -                  | Vdc     |
| Collector-Base Breakdown Voltage<br>( $I_C = -100$ $\mu$ A dc, $I_E = 0$ )  | $V_{(BR)CBO}$                                    | -300                  | -                  | Vdc     |
| Emitter-Base Breakdown Voltage<br>( $I_E = -100$ $\mu$ A dc, $I_C = 0$ )  | $V_{(BR)EBO}$                                    | -5.0                  | -                  | Vdc     |
| Collector-Base Cutoff Current<br>( $V_{CB} = -200$ Vdc, $I_E = 0$ )   | $I_{CBO}$  | -                     | -0.25              | $\mu$ A |
| Emitter-Base Cutoff Current<br>( $V_{EB} = -3.0$ Vdc, $I_B = 0$ )   | $I_{EBO}$  | -                     | -0.1               | $\mu$ A |
| DC Current Gain (Note 2)<br>MSB92WT1: ( $V_{CE} = -10$ Vdc, $I_C = -1.0$ mA dc)<br>MSB92AWT1: ( $V_{CE} = -10$ Vdc, $I_C = -1.0$ mA dc)<br>( $V_{CE} = -10$ Vdc, $I_C = -10$ mA dc)<br>( $V_{CE} = -10$ Vdc, $I_C = -30$ mA dc) | $h_{FE1}$<br>$h_{FE1}$<br>$h_{FE2}$<br>$h_{FE3}$ | 25<br>120<br>40<br>25 | -<br>200<br>-<br>- | -       |
| Collector-Emitter Saturation Voltage (Note 2)<br>( $I_C = -20$ mA dc, $I_B = -2.0$ mA dc)   | $V_{CE(sat)}$                                    | -                     | -0.5               | Vdc     |
| Base-Emitter Saturation Voltage<br>( $I_C = -20$ mA dc, $I_B = -2.0$ mA dc)   | $V_{BE(sat)}$                                    | -                     | -0.9               | Vdc     |

## SMALL SIGNAL CHARACTERISTICS

|  |          |    |     |     |
|--|----------|----|-----|-----|
| Current - Gain - Bandwidth Product<br>( $I_C = -10$ mA dc, $V_{CE} = -20$ Vdc, $f = 20$ MHz) | $f_T$    | 50 | -   | MHz |
| Collector-Base Capacitance<br>( $V_{CB} = -20$ Vdc, $I_E = 0$ , $f = 1.0$ MHz)               | $C_{cb}$ | -  | 6.0 | pF  |

2. Pulse Test: Pulse Width  $\leq 300$   $\mu$ s, D.C.  $\leq 2\%$ .

# MSB92WT1G, MSB92AWT1G

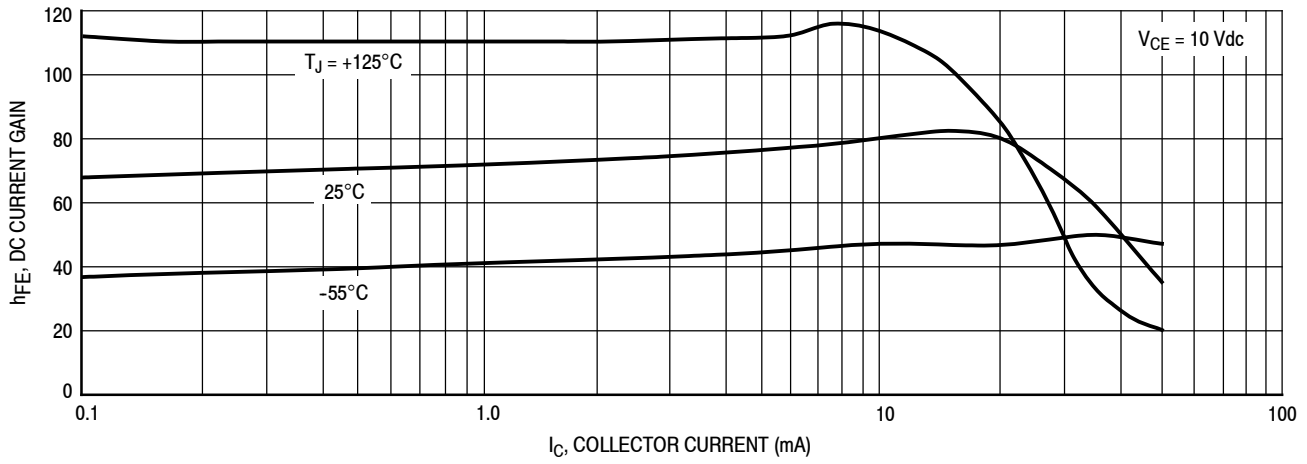


Figure 1. DC Current Gain

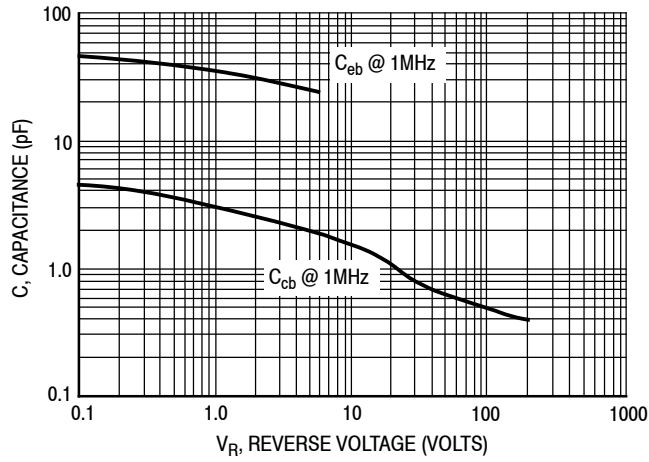


Figure 2. Capacitance

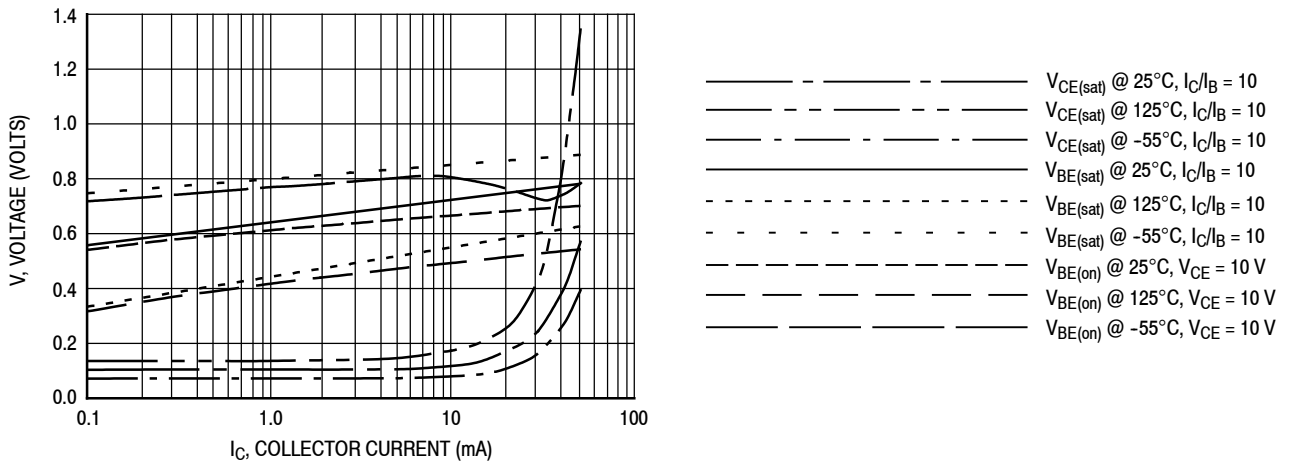
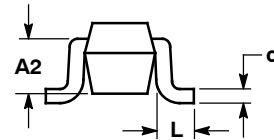
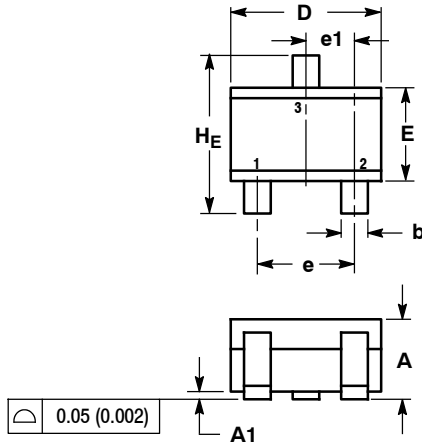


Figure 3. "ON" Voltages

# MSB92WT1G, MSB92AWT1G

## PACKAGE DIMENSIONS

SC-70 (SOT-323)  
CASE 419-04  
ISSUE N



NOTES:

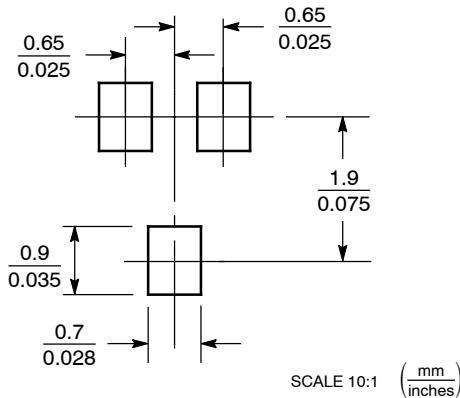
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| DIM | MILLIMETERS |      |      | INCHES    |       |       |
|-----|-------------|------|------|-----------|-------|-------|
|     | MIN         | NOM  | MAX  | MIN       | NOM   | MAX   |
| A   | 0.80        | 0.90 | 1.00 | 0.032     | 0.035 | 0.040 |
| A1  | 0.00        | 0.05 | 0.10 | 0.000     | 0.002 | 0.004 |
| A2  | 0.70 REF    |      |      | 0.028 REF |       |       |
| b   | 0.30        | 0.35 | 0.40 | 0.012     | 0.014 | 0.016 |
| c   | 0.10        | 0.18 | 0.25 | 0.004     | 0.007 | 0.010 |
| D   | 1.80        | 2.10 | 2.20 | 0.071     | 0.083 | 0.087 |
| E   | 1.15        | 1.24 | 1.35 | 0.045     | 0.049 | 0.053 |
| e   | 1.20        | 1.30 | 1.40 | 0.047     | 0.051 | 0.055 |
| e1  | 0.65 BSC    |      |      | 0.026 BSC |       |       |
| L   | 0.20        | 0.38 | 0.56 | 0.008     | 0.015 | 0.022 |
| HE  | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

STYLE 3:

1. BASE
2. EMITTER
3. COLLECTOR

### SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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