

MSB92WT1, MSB92AWT1

Preferred Device

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

- Pb-Free Packages are Available

MAXIMUM RATINGS (T_A = 25°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 | MBM > 16,000, MM > 2,000 | V |

THERMAL CHARACTERISTICS

| Rating | Symbol | Max | Unit |
|----------------------------|------------------|-------------|------|
| Power Dissipation (Note 1) | P _D | 150 | mW |
| Junction Temperature | T _J | 150 | °C |
| Storage Temperature Range | T _{stg} | -55 to +150 | °C |

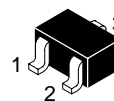
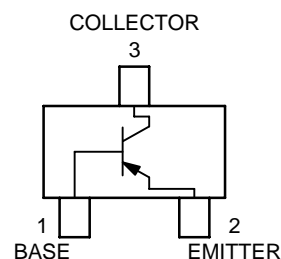
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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



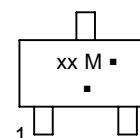
ON Semiconductor®

<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† |
|------------|--------------------------------|------------------|
| MSB92WT1 | SC-70/ SOT-323 | 3000/Tape & Reel |
| MSB92WT1G | SC-70/ SOT-323 (Pb-Free) | 3000/Tape & Reel |
| MSB92AWT1 | SC-70/ SOT-323 | 3000/Tape & Reel |
| MSB92AWT1G | SC-70/ SOT-323 (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.

Preferred devices are recommended choices for future use and best overall value.

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ELECTRICAL CHARACTERISTICS

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

SMALL SIGNAL CHARACTERISTICS

| | | | | |
|--|----------|----|-----|-----|
| Current-Gain – Bandwidth Product ($I_C = -10 \text{ mAdc}$, $V_{CE} = -20 \text{ Vdc}$, $f = 20 \text{ MHz}$) | f_T | 50 | - | MHz |
| Collector-Base Capacitance ($V_{CB} = -20 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$) | C_{cb} | - | 6.0 | pF |

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

MSB92WT1, MSB92AWT1

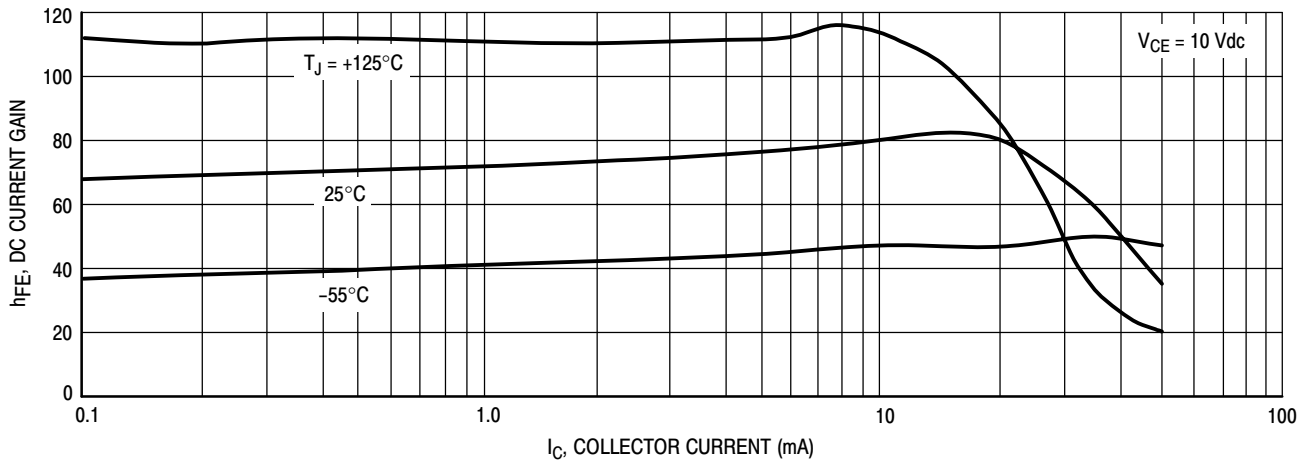


Figure 1. DC Current Gain

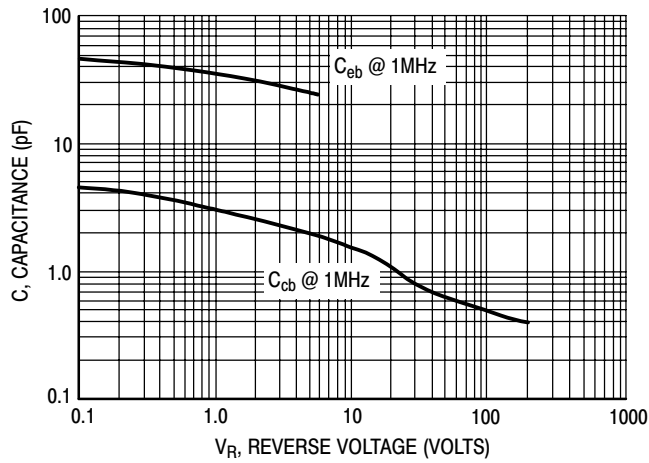


Figure 2. Capacitance

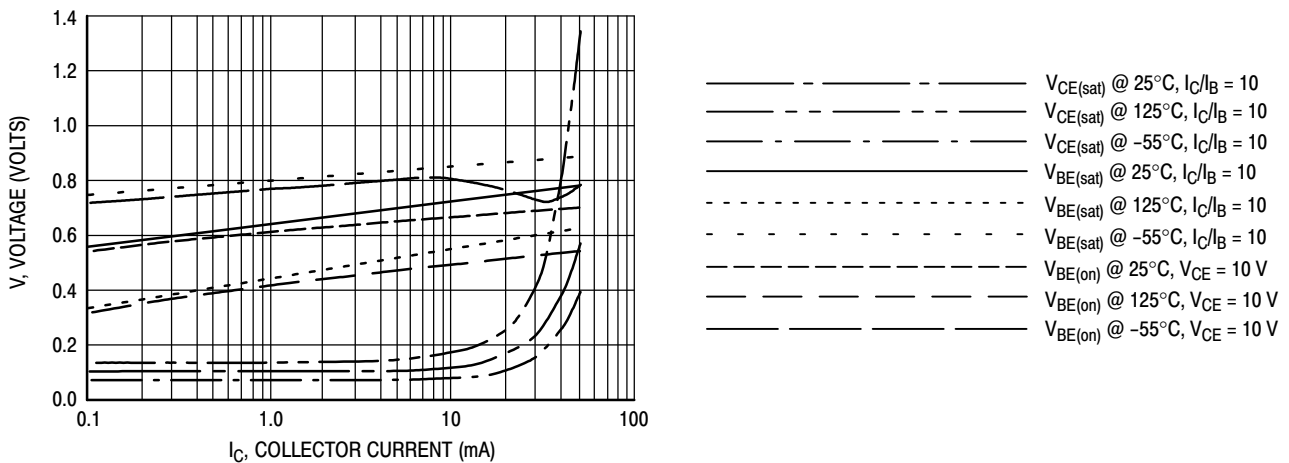
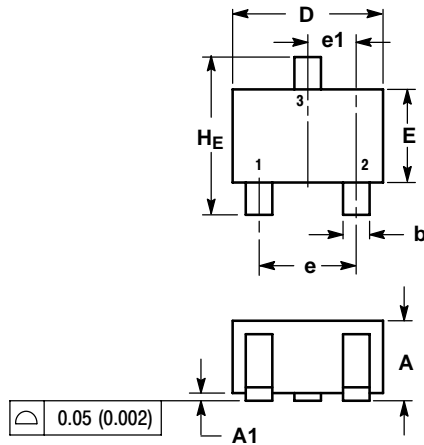


Figure 3. "ON" Voltages

MSB92WT1, MSB92AWT1

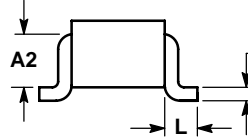
PACKAGE DIMENSIONS

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



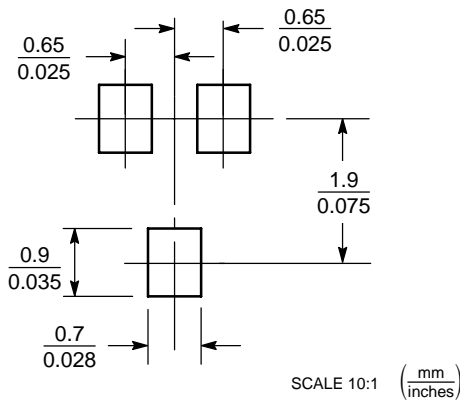
- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| 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 | 0.7 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 | 0.425 REF | | | 0.017 REF | | |
| HE | 2.00 | 2.10 | 2.40 | 0.079 | 0.083 | 0.095 |



- STYLE 3:
PIN 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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