

# PNP Silicon General Purpose High Voltage Transistor

## MSB92ASWT1G, MSB92AS1WT1G

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<sub>A</sub> = 25°C)

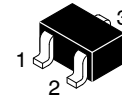
Symbol	Rating	Value	Unit
V <sub>(BR)CBO</sub>	Collector-Base Voltage	-300	Vdc
V <sub>(BR)CEO</sub>	Collector-Emitter Voltage	-300	Vdc
V <sub>(BR)EBO</sub>	Emitter-Base Voltage	-5.0	Vdc
I <sub>C</sub>	Collector Current – Continuous	500	mAdc
ESD	ESD Rating: Human Body Model Machine Model	Class 1C Class C	–

### THERMAL CHARACTERISTICS

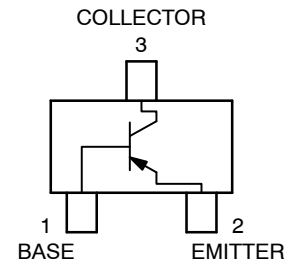
Symbol	Rating	Max	Unit
P <sub>D</sub>	Power Dissipation (Note 1)	150	mW
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

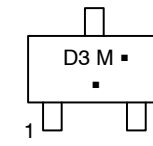
- Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.



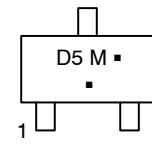
SC-70 (SOT-323)  
CASE 419  
STYLE 3



### MARKING DIAGRAM



MSB92ASWT1G



MSB92AS1WT1G

Dx = Device Code  
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†
MSB92ASWT1G	SC-70 (Pb-Free)	3,000/Tape & Reel

### DISCONTINUED (Note 1)

MSB92AS1WT1G	SC-70 (Pb-Free)	3,000/Tape & Reel
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†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, [BRD8011/D](#).

- DISCONTINUED:** This device is not recommended for new design. Please contact your onsemi representative for information. The most current information on this device may be available on [www.onsemi.com](http://www.onsemi.com).

# MSB92ASWT1G, MSB92AS1WT1G

## ELECTRICAL CHARACTERISTICS

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

## SMALL SIGNAL CHARACTERISTICS

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

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

TYPICAL CHARACTERISTICS

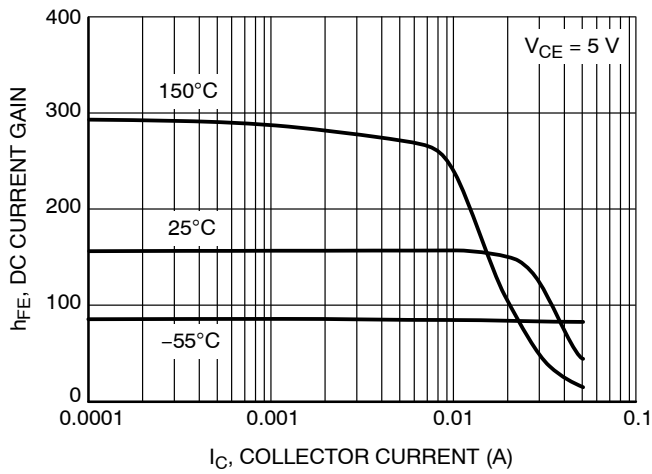


Figure 1. DC Current Gain

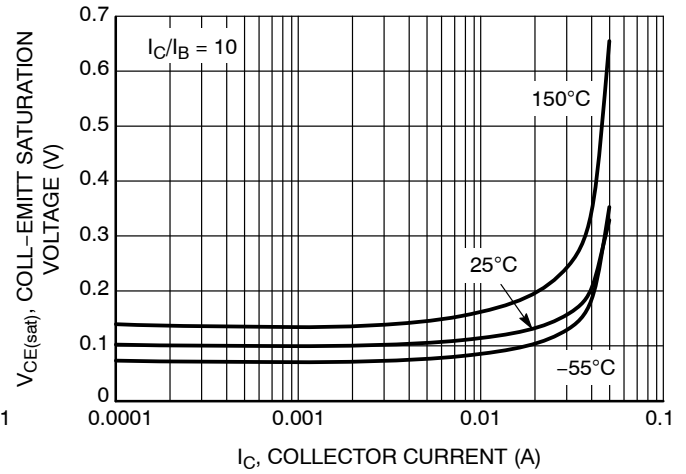


Figure 2.  $V_{CE(sat)}$  Curve

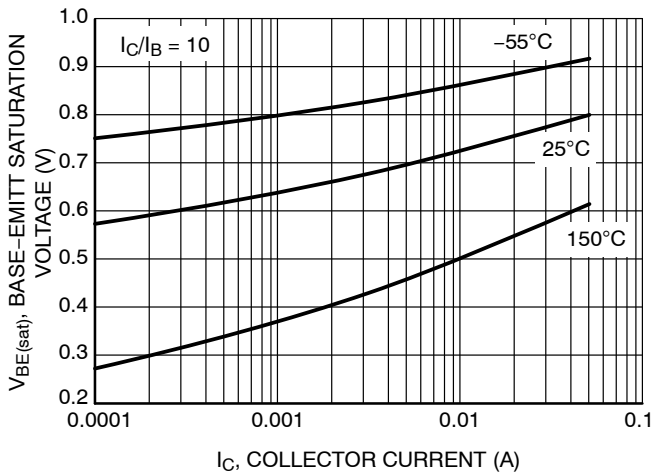


Figure 3.  $V_{BE(sat)}$  Curve

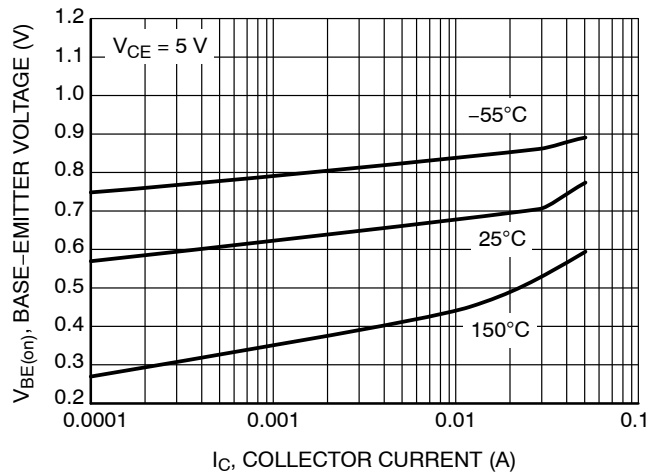


Figure 4.  $V_{BE(on)}$  Curve

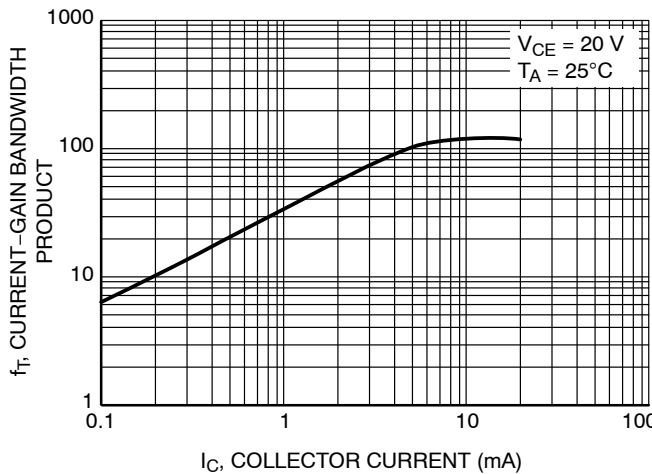


Figure 5. Current-Gain Bandwidth Product

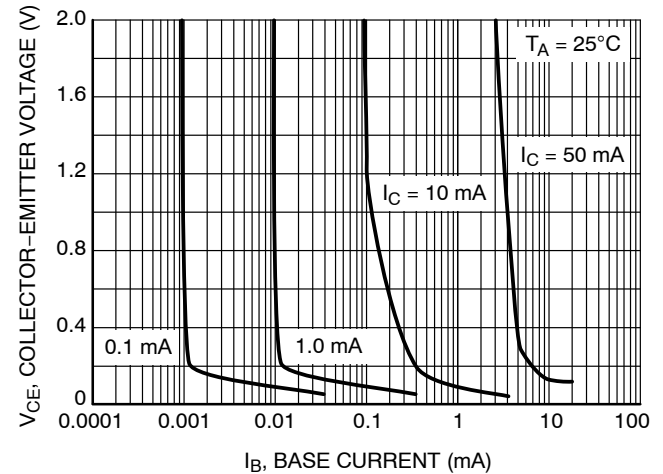


Figure 6. Drain-to-Source Leakage Current vs. Voltage

# MSB92ASWT1G, MSB92AS1WT1G

## TYPICAL CHARACTERISTICS (continued)

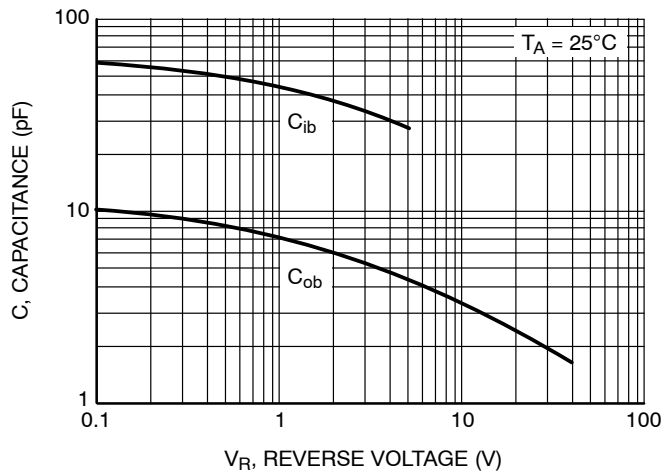


Figure 7. Capacitance

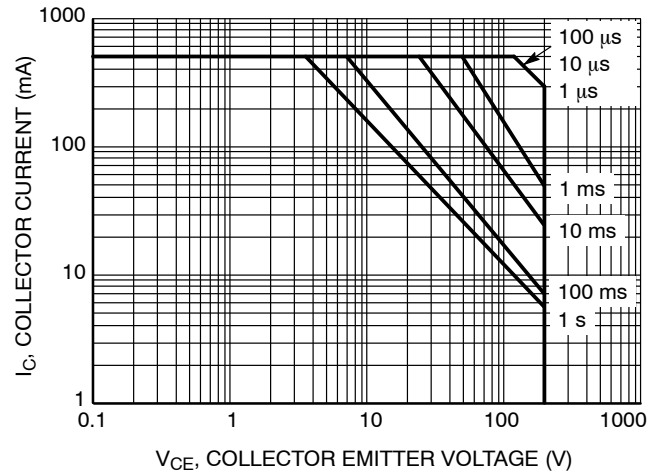


Figure 8. Safe Operating Area



SCALE 4:1

SC-70 (SOT-323)  
CASE 419  
ISSUE R

DATE 11 OCT 2022



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME 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 BSC		
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	2.00	2.20	0.071	0.080	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
H_E	2.00	2.10	2.40	0.079	0.083	0.095

GENERIC  
MARKING DIAGRAM



XX = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



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

SOLDERING FOOTPRINT

STYLE 1:  
CANCELLED

STYLE 2:  
PIN 1. ANODE  
2. N.C.  
3. CATHODE

STYLE 3:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

STYLE 5:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

STYLE 6:  
PIN 1. EMITTER  
2. BASE  
3. COLLECTOR

STYLE 7:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 8:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

STYLE 9:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE-ANODE

STYLE 10:  
PIN 1. CATHODE  
2. ANODE  
3. ANODE-CATHODE

STYLE 11:  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE

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DESCRIPTION:	SC-70 (SOT-323)	PAGE 1 OF 1

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