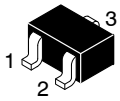
PNP Silicon General Purpose High Voltage Transistor

MSB92WT1G, MSB92AWT1G

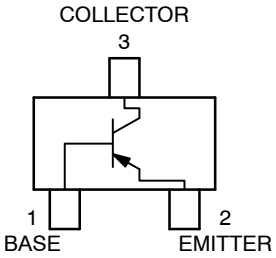


SC−70 (SOT−323)
CASE 419
STYLE 3

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°C)

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

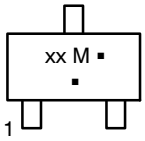
THERMAL CHARACTERISTICS

Symbol	Rating	Max	Unit
P_D	Power Dissipation (Note 1)	150	mW
T_J	Junction Temperature	150	°C
T_{stg}	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.

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

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/ SOT−323 (Pb−Free)	3,000/Tape & Reel
MSB92AWT1G	SC−70/ SOT−323 (Pb−Free)	3,000/Tape & Reel

†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.

ELECTRICAL CHARACTERISTICS

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

SMALL SIGNAL CHARACTERISTICS

f_T	Current − Gain − Bandwidth Product (I_C = −10 mAdc, V_{CE} = −20 Vdc, f = 20 MHz)	50	–	MHz
C_{cb}	Collector−Base Capacitance (V_{CB} = −20 Vdc, I_E = 0, f = 1.0 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 ≤ 300 μs, D.C. ≤ 2%.

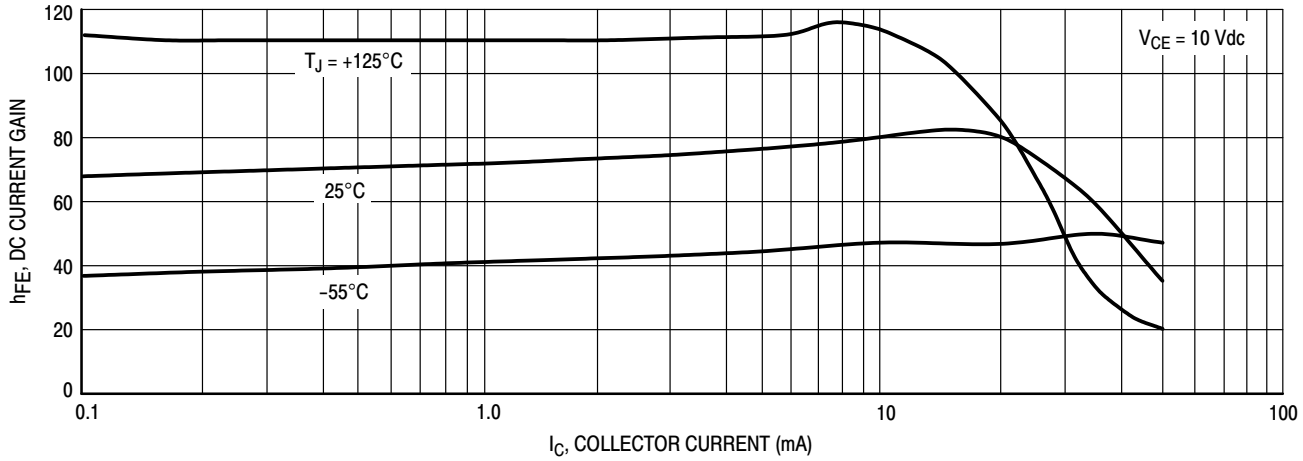


Figure 1. DC Current Gain

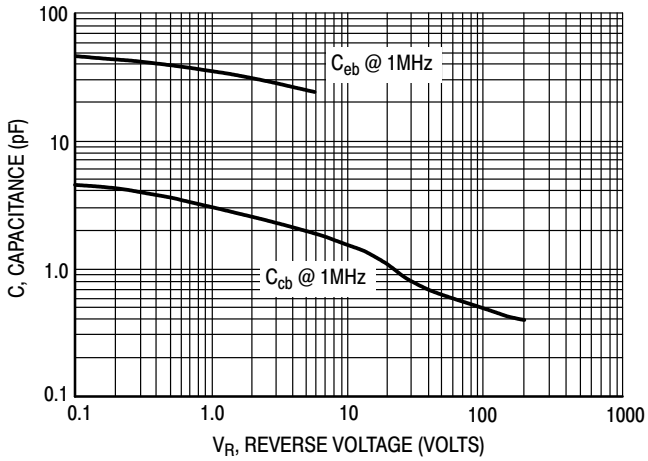


Figure 2. Capacitance

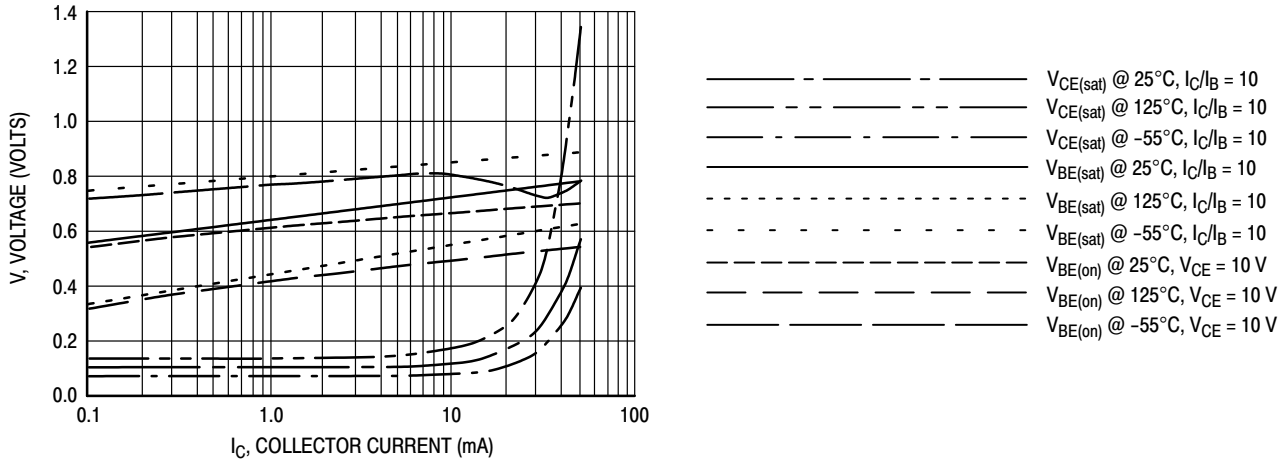
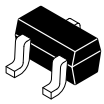


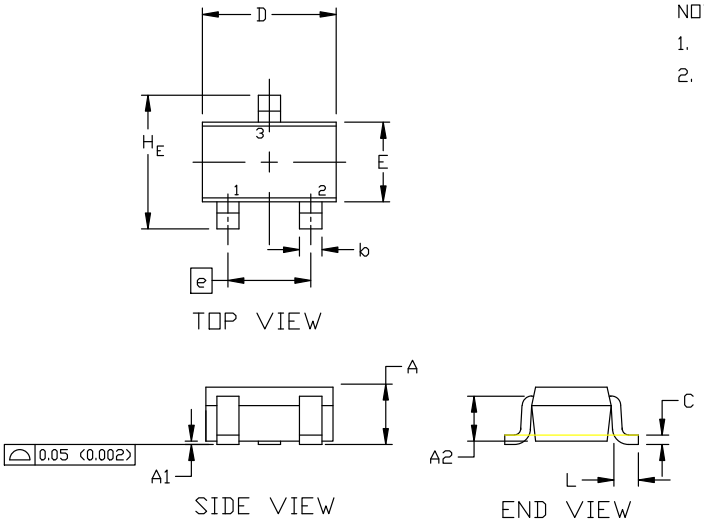
Figure 3. “ON” Voltages



SCALE 4:1

SC−70 (SOT−323)
CASE 419
ISSUE R

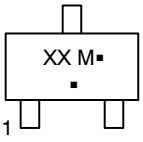
DATE 11 OCT 2022



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

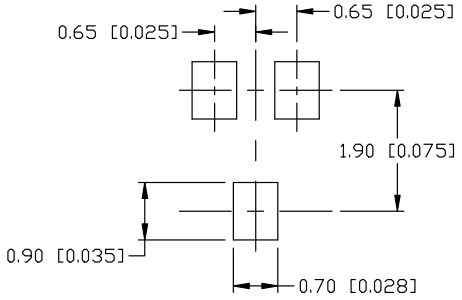
	MILLIMETERS			INCHES		
DIM	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.70 REF			0.028 BSC		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.00	2.20	0.071	0.080	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	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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