MSD42WT1, MSD42T1

Preferred Device

NPN Silicon General Purpose High Voltage Transistors

This NPN Silicon Planar Transistor is designed for general purpose amplifier applications. This device is housed in the SC-70/SOT-323 and SC−59 packages which are designed for low power surface mount applications.

Features

- Pb−Free Package is 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	$V_{(BR)EBO}$	6.0	Vdc
Collector Current − Continuous	I_C	150	mAdc

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∼+150	°C

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage (I_C = 1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	300	−	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	300	−	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_E = 0)	$V_{(BR)EBO}$	6.0	−	Vdc
Collector-Base Cutoff Current (V_{CB} = 200 Vdc, I_E = 0)	I_{CBO}	−	0.1	μA
Emitter−Base Cutoff Current (V_{EB} = 6.0 Vdc, I_B = 0)	I_{EBO}	−	0.1	μA
DC Current Gain (Note 2) (V_{CE} = 10 Vdc, I_C = 1.0 mAdc) (V_{CE} = 10 Vdc, I_C = 30 mAdc)	h_{FE1} h_{FE2}	25 40	− −	−
Collector-Emitter Saturation Voltage (Note 2) (I_C = 20 mAdc, I_B = 2.0 mAdc)	$V_{CE(sat)}$	−	0.5	Vdc

1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.
2. Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.

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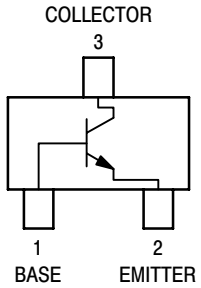
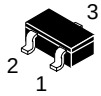
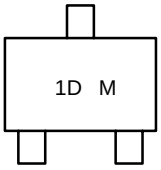


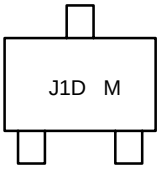
SC−70 (SOT−323)
CASE 419
(SCALE 2:1)



SC−59
CASE 318D
(SCALE 2:1)

MARKING DIAGRAMS





1D = Device Marking Code
M = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
MSD42WT1	SC−70/SOT−323	3000/Tape & Reel
MSD42WT1G	SC−70/SOT−323	3000/Tape & Reel
MSD42T1	SC−59	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.

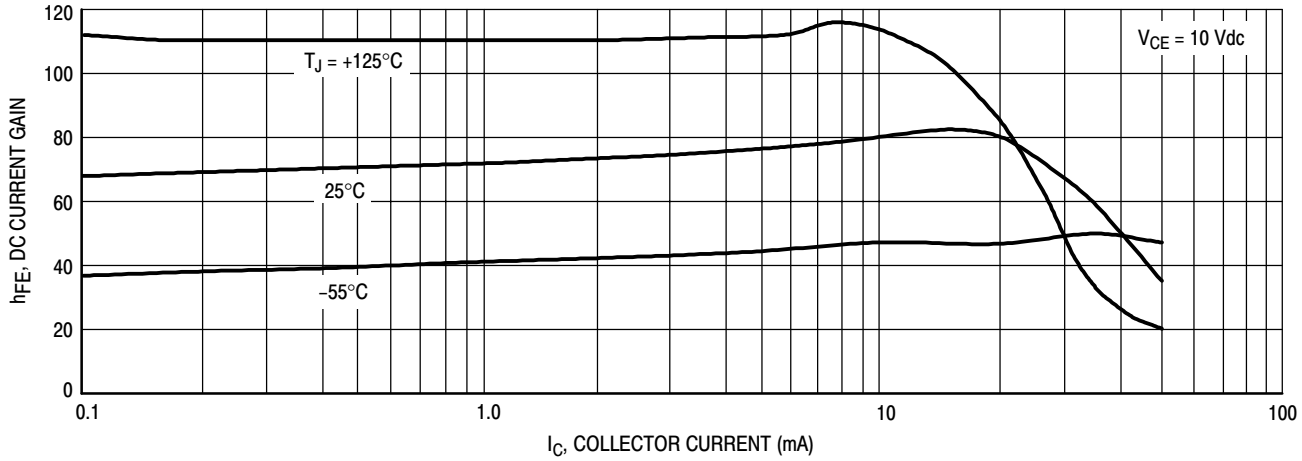


Figure 1. DC Current Gain

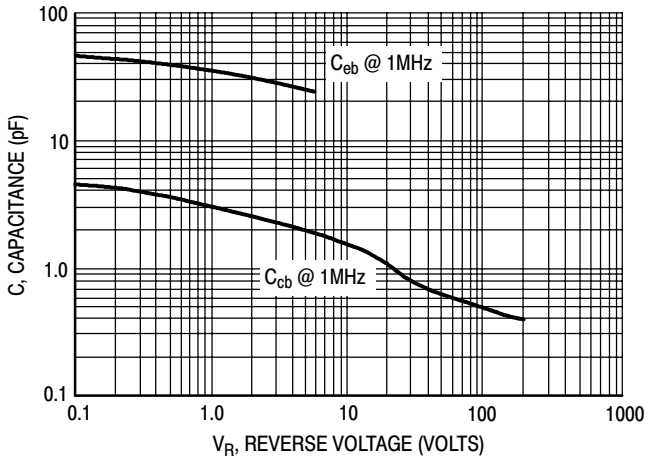


Figure 2. Capacitance

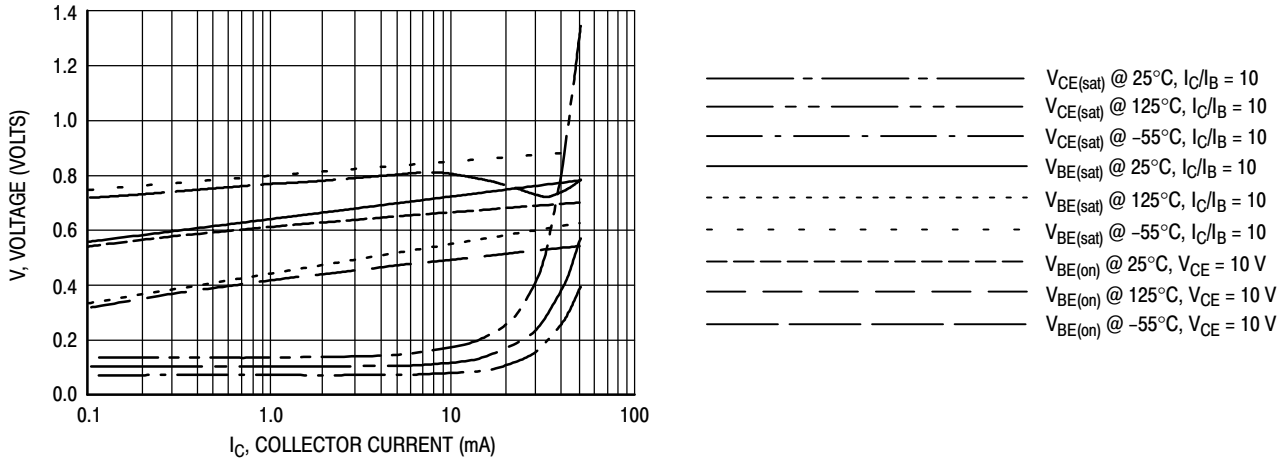
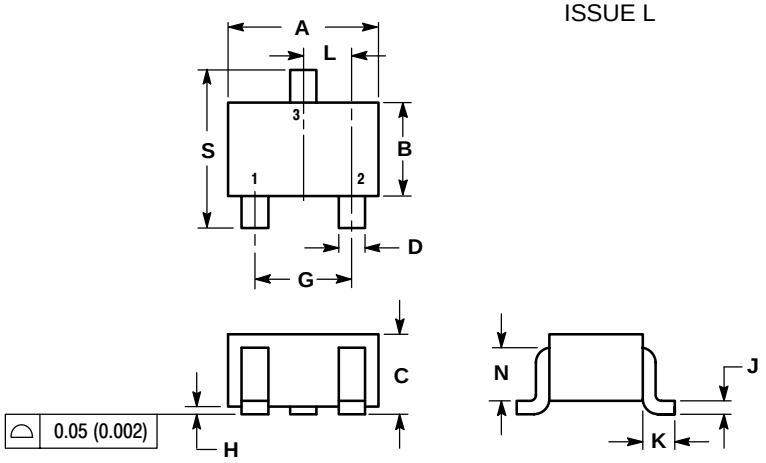


Figure 3. “ON” Voltages

PACKAGE DIMENSIONS

SC−70 (SOT−323)
CASE 419−04
ISSUE L

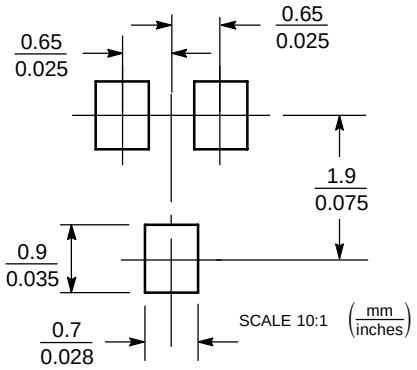


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.032	0.040	0.80	1.00
D	0.012	0.016	0.30	0.40
G	0.047	0.055	1.20	1.40
H	0.000	0.004	0.00	0.10
J	0.004	0.010	0.10	0.25
K	0.017 REF		0.425 REF	
L	0.026 BSC		0.650 BSC	
N	0.028 REF		0.700 REF	
S	0.079	0.095	2.00	2.40

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

SOLDERING FOOTPRINT*

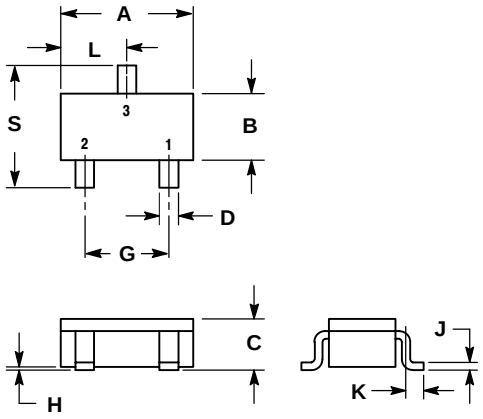


SC−70/SOT−323

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

PACKAGE DIMENSIONS

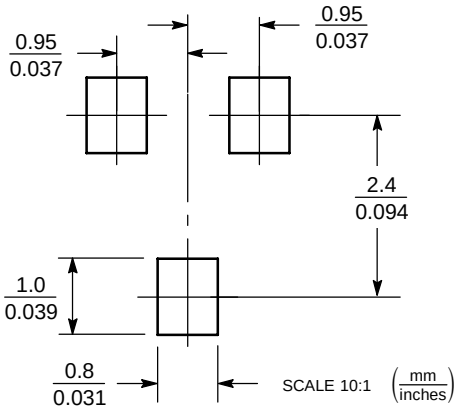
SC−59
CASE 318D−04
ISSUE F



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

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	2.70	3.10	0.1063	0.1220
B	1.30	1.70	0.0512	0.0669
C	1.00	1.30	0.0394	0.0511
D	0.35	0.50	0.0138	0.0196
G	1.70	2.10	0.0670	0.0826
H	0.013	0.100	0.0005	0.0040
J	0.09	0.18	0.0034	0.0070
K	0.20	0.60	0.0079	0.0236
L	1.25	1.65	0.0493	0.0649
S	2.50	3.00	0.0985	0.1181

SOLDERING FOOTPRINT*



SC−59

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
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For additional information, please contact your local Sales Representative.

MSD42WT1/D