MMBT2907AWT1G, NSVMMBT2907AWT1G

General Purpose Transistor

PNP Silicon

These transistors are designed for general purpose amplifier applications. They are 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
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable

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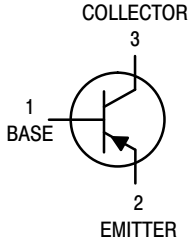
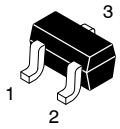




SC−70/SOT−323
CASE 419−04
STYLE 3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	−60	Vdc
Collector−Base Voltage	V_{CBO}	−60	Vdc
Emitter−Base Voltage	V_{EBO}	−5.0	Vdc
Collector Current − Continuous	I_C	−600	mAdc

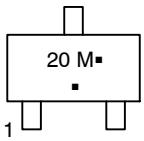
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board (Note 1) T_A = 25°C	P_D	150	mW
Thermal Resistance Junction−to−Ambient	$R_{\theta JA}$	833	°C/W
Junction and Storage Temperature	T_J, T_{stg}	−55 to +150	°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. FR−5 = 1.0 x 0.75 x 0.062 in.

MARKING DIAGRAM



20 = Specific 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†
MMBT2907AWT1G	SC−70 (Pb−Free)	3000 Tape & Reel
NSVMMBT2907AWT1G	SC−70 (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.

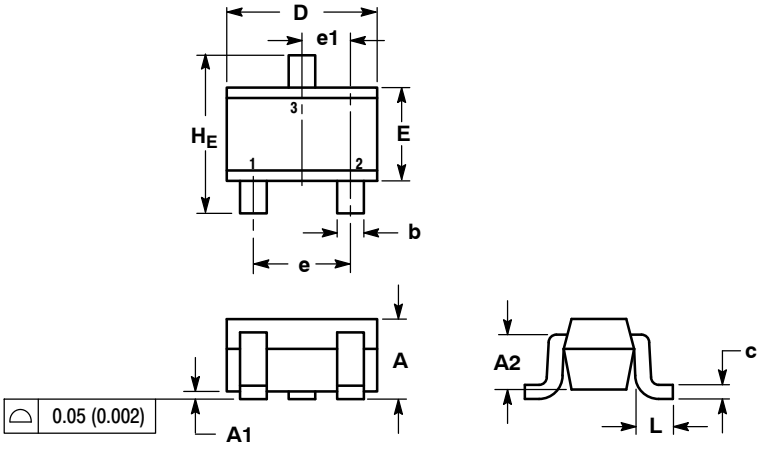
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector – Emitter Breakdown Voltage (Note 2) (I_C = −10 mAdc, I_B = 0)	$V_{(BR)CEO}$	−60	–	Vdc
Collector – Base Breakdown Voltage (I_C = −10 mAdc, I_E = 0)	$V_{(BR)CBO}$	−60	–	Vdc
Emitter – Base Breakdown Voltage (I_E = −10 μAdc, I_C = 0)	$V_{(BR)EBO}$	−5.0	–	Vdc
Base Cutoff Current (V_{CE} = −30 Vdc, $V_{EB(off)}$ = −0.5 Vdc)	I_{BL}	–	−50	nAdc
Collector Cutoff Current (V_{CE} = −30 Vdc, $V_{EB(off)}$ = −0.5 Vdc)	I_{CEX}	–	−50	nAdc
ON CHARACTERISTICS(3)				
DC Current Gain (Note 2)	H_{FE}			–
(I_C = −0.1 mAdc, V_{CE} = −10 Vdc)		75	–	
(I_C = −1.0 mAdc, V_{CE} = −10 Vdc)		100	–	
(I_C = −10 mAdc, V_{CE} = −10 Vdc)		100	–	
(I_C = −150 mAdc, V_{CE} = −10 Vdc)		100	–	
(I_C = −500 mAdc, V_{CE} = −10 Vdc)		50	–	
Collector – Emitter Saturation Voltage (Note 2)	$V_{CE(sat)}$			Vdc
(I_C = −150 mAdc, I_B = −15 mAdc)		–	−0.4	
(I_C = −500 mAdc, I_B = −50 mAdc)		–	−1.6	
Base – Emitter Saturation Voltage (Note 2)	$V_{BE(sat)}$			Vdc
(I_C = −150 mAdc, I_B = −15 mAdc)		–	−1.3	
(I_C = −500 mAdc, I_B = −50 mAdc)		–	−2.6	
SMALL−SIGNAL CHARACTERISTICS				
Current – Gain – Bandwidth Product (I_C = −50 mAdc, V_{CE} = 20 Vdc, f = 100 MHz)	f_T	200	–	MHz
Output Capacitance (V_{CB} = −10 Vdc, I_E = 0, f = 1.0 MHz)	C_{obo}	–	8.0	pF
Input Capacitance (V_{EB} = −2.0 Vdc, I_C = 0, f = 1.0 MHz)	C_{ibo}	–	30	pF
SWITCHING CHARACTERISTICS				
Turn−On Time	(V_{CC} = −30 Vdc, I_C = −150 mAdc, I_{B1} = −15 mAdc)	t_{on}	–	45	ns
Delay Time		t_d	–	10	
Rise Time		t_r	–	40	
Storage Time	(V_{CC} = −6.0 Vdc, I_C = −150 mAdc, I_{B1} = I_{B2} = 15 mAdc)	t_s	–	80	
Fall Time		t_f	–	30	
Turn−Off Time		t_{off}	–	100	

2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

PACKAGE DIMENSIONS

SC−70 (SOT−323)
CASE 419−04
ISSUE N

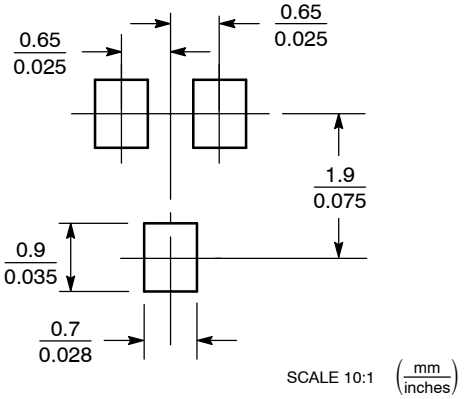


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	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 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
H_E	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.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
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