MMBT2907AWT1

Preferred Device

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

- Pb−Free Package is Available

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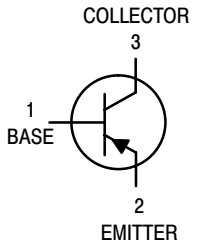
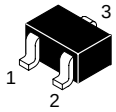




SC−70/SOT−323
CASE 419−04
STYLE 3

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

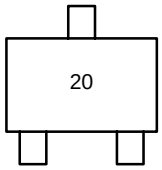
THERMAL CHARACTERISTICS

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

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.

1. FR−5 = 1.0 x 0.75 x 0.062 in.

MARKING DIAGRAM



20 = Specific Device Code

ORDERING INFORMATION

Device	Package	Shipping†
MMBT2907AWT1	SC−70	3000 Tape & Reel
MMBT2907AWT1G	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.

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

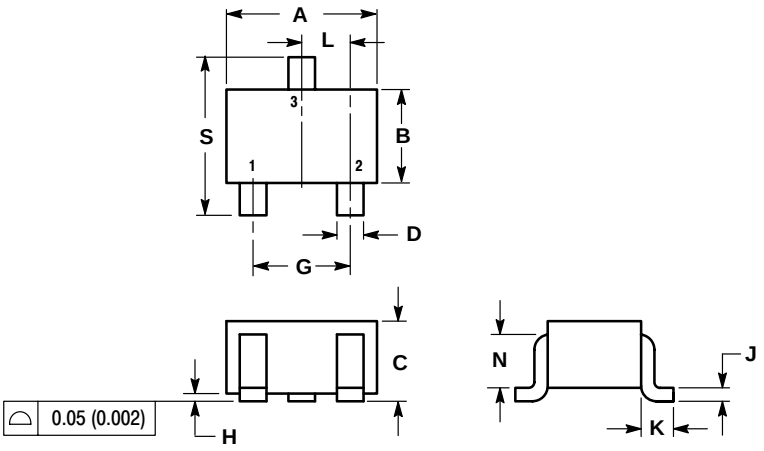
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

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 L

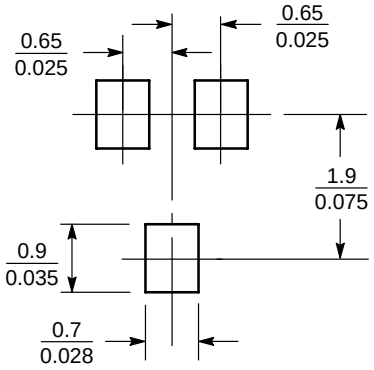


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	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*



*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
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

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