

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

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) $T_A = 25^\circ\text{C}$	P_D	150	mW
Thermal Resistance Junction–to–Ambient	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

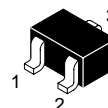
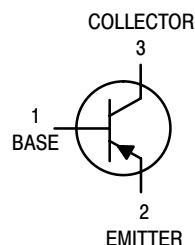
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. FR–5 = 1.0 x 0.75 x 0.062 in.



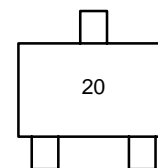
ON Semiconductor®

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SC–70/SOT–323
CASE 419–04
STYLE 3

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.

MMBT2907AWT1

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage (Note 2) ($I_C = -10\text{ mA}$, $I_B = 0$)	$V_{(BR)CEO}$	-60	–	Vdc
Collector–Base Breakdown Voltage ($I_C = -10\text{ mA}$, $I_E = 0$)	$V_{(BR)CBO}$	-60	–	Vdc
Emitter–Base Breakdown Voltage ($I_E = -10\text{ }\mu\text{A}$, $I_C = 0$)	$V_{(BR)EBO}$	-5.0	–	Vdc
Base Cutoff Current ($V_{CE} = -30\text{ Vdc}$, $V_{EB(off)} = -0.5\text{ Vdc}$)	I_{BL}	–	-50	nAdc
Collector Cutoff Current ($V_{CE} = -30\text{ Vdc}$, $V_{EB(off)} = -0.5\text{ Vdc}$)	I_{CEX}	–	-50	nAdc

ON CHARACTERISTICS⁽³⁾

DC Current Gain (Note 2) ($I_C = -0.1\text{ mA}$, $V_{CE} = -10\text{ Vdc}$) ($I_C = -1.0\text{ mA}$, $V_{CE} = -10\text{ Vdc}$) ($I_C = -10\text{ mA}$, $V_{CE} = -10\text{ Vdc}$) ($I_C = -150\text{ mA}$, $V_{CE} = -10\text{ Vdc}$) ($I_C = -500\text{ mA}$, $V_{CE} = -10\text{ Vdc}$)	H_{FE}	75 100 100 100 50	– – – – –	–
Collector–Emitter Saturation Voltage (Note 2) ($I_C = -150\text{ mA}$, $I_B = -15\text{ mA}$) ($I_C = -500\text{ mA}$, $I_B = -50\text{ mA}$)	$V_{CE(sat)}$	– –	-0.4 -1.6	Vdc
Base–Emitter Saturation Voltage (Note 2) ($I_C = -150\text{ mA}$, $I_B = -15\text{ mA}$) ($I_C = -500\text{ mA}$, $I_B = -50\text{ mA}$)	$V_{BE(sat)}$	– –	-1.3 -2.6	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain – Bandwidth Product ($I_C = -50\text{ mA}$, $V_{CE} = 20\text{ Vdc}$, $f = 100\text{ MHz}$)	f_T	200	–	MHz
Output Capacitance ($V_{CB} = -10\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{obo}	–	8.0	pF
Input Capacitance ($V_{EB} = -2.0\text{ Vdc}$, $I_C = 0$, $f = 1.0\text{ MHz}$)	C_{ibo}	–	30	pF

SWITCHING CHARACTERISTICS

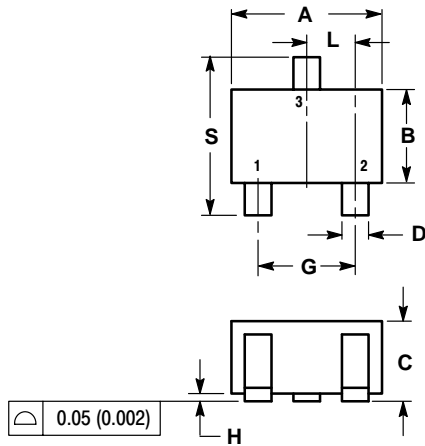
Turn–On Time	$(V_{CC} = -30\text{ Vdc}, I_C = -150\text{ mA}, I_{B1} = -15\text{ mA})$	t_{on}	–	45	ns
Delay Time		t_d	–	10	
Rise Time		t_r	–	40	
Storage Time	$(V_{CC} = -6.0\text{ Vdc}, I_C = -150\text{ mA}, I_{B1} = I_{B2} = 15\text{ mA})$	t_s	–	80	
Fall Time		t_f	–	30	
Turn–Off Time		t_{off}	–	100	

2. Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

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PACKAGE DIMENSIONS

SC-70/SOT-323
CASE 419-04
ISSUE L

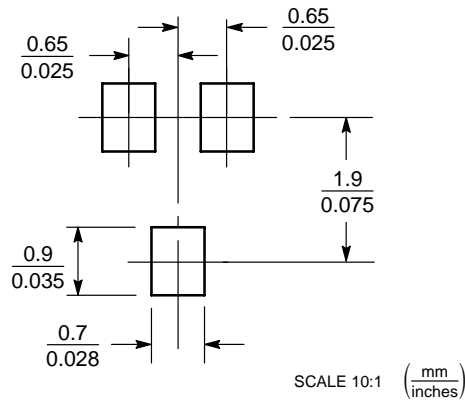


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.


DIM	INCHES		MILLIMETERS	
	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	0.009	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.

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