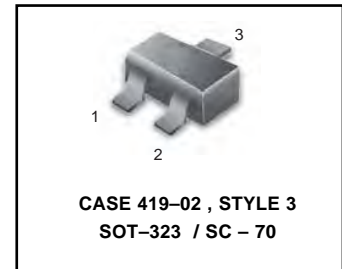


FEATURE

We declare that the material of product compliance with RoHS requirements.
S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

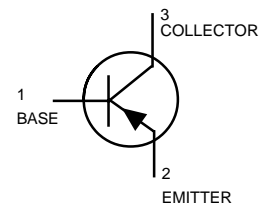
ORDERING INFORMATION

Device	Marking	Shipping
MBT2907AWT1G S-MBT2907AWT1G	20	3000/Tape&Reel
MBT2907AWT3G S-MBT2907AWT3G	20	10000/Tape&Reel



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	mAcd



THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (1) $T_A = 25^\circ\text{C}$	P_D	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

DEVICE MARKING

MBT2907AWT1G =20

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(2) ($I_C = -10\text{ mAcd}, I_B = 0$)	$V_{(BR)CEO}$	-60	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = -10\ \mu\text{ Acd}, I_E = 0$)	$V_{(BR)CBO}$	-60	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = -10\ \mu\text{ Acd}, I_C = 0$)	$V_{(BR)EBO}$	-5.0	—	Vdc
Base Cutoff Current ($V_{CE} = -30\text{Vdc}, V_{EB(OFF)} = -0.5\text{Vdc}$)	I_{BL}	—	-50	nAcd
Collector Cutoff Current ($V_{CE} = -30\text{Vdc}, V_{EB(OFF)} = -0.5\text{Vdc}$)	I_{CEX}	—	-50	nAcd

1. FR-5 = 1.0 x 0.75 x 0.062 in.

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

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

Characteristic	Symbol	Min	Max	Unit
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ON CHARACTERISTICS

DC Current Gain(1)	h_{FE}			—
(I _C = -0.1 mA, V _{CE} = -10 Vdc)		75	—	
(I _C = -1.0 mA, V _{CE} = -10 Vdc)		100	—	
(I _C = -10 mA, V _{CE} = -10 Vdc)		100	—	
(I _C = -150 mA, V _{CE} = -10 Vdc)		100	300	
(I _C = -500 mA, V _{CE} = -10 Vdc)		50	—	
Collector-Emitter Saturation Voltage(1)	V _{CE(sat)}			Vdc
(I _C = -150 mA, I _B = -15 mA)		—	-0.4	
(I _C = -500 mA, I _B = -50 mA)		—	-1.6	
Base-Emitter Saturation Voltage(1)	V _{BE(sat)}			Vdc
(I _C = -150 mA, I _B = -15 mA)		—	-1.3	
(I _C = -500 mA, I _B = -50 mA)		—	-2.6	

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product(4)	f _T	200	—	MHz
(I _C = -50 mA, V _{CE} = 20 Vdc, f = 100 MHz)				
Output Capacitance	C _{obo}	—	8.0	pF
(V _{CB} = -10 Vdc, I _E = 0, f = 1.0 MHz)				
Input Capacitance	C _{ibo}	—	30	pF
(V _{EB} = -2.0 Vdc, I _C = 0, f = 1.0 MHz)				

SWITCHING CHARACTERISTICS

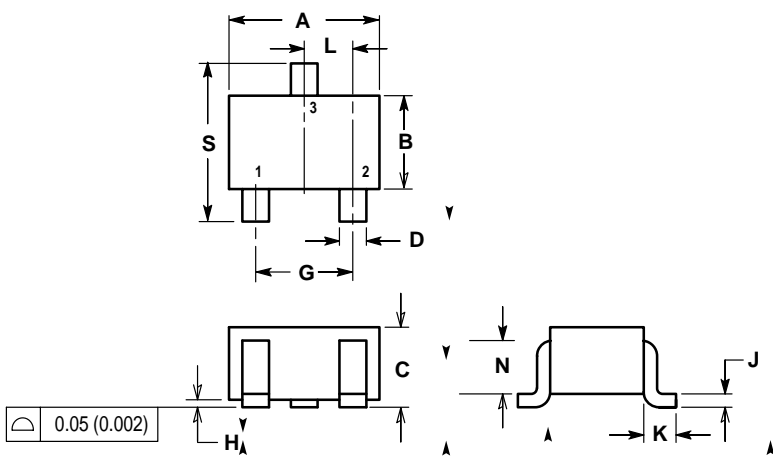
Turn-On Time	(V _{CC} = -30 Vdc,	t _{on}	—	45	
Delay Time	I _C = -150 mA, I _{B1} = -15 mA)	t ^d	—	10	ns
Rise Time		t _r	—	40	
Storage Time	(V _{CC} = -6.0 Vdc,	t _s	—	225	
Fall Time	I _C = -150 mA, I _{B1} = I _{B2} = 15 mA)	t _f	—	60	ns
Turn-Off Time		t _{off}	—	280	

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

SC-70 / SOT-323

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	0.000	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

