2SC2712GT1G

Medium Frequency NPN Amplifier Transistor

50 V, 200 mA, 80 MHz

The 2SC2712GT1G is designed for low to medium frequency applications such as wireless toys. The targeted design enables improved performance versus the industry standard MMBT3904* in some key parametric specifications.

Features

- Lower $V_{CE(sat)}$*
- Higher Gain (h_{fe})*
- Higher Breakdown Voltage Rating*
- Moisture Sensitivity Level: 1
- This is a Pb−Free Device

Benefits

- Longer Battery Life
- Improved Performance Through Targeted Design

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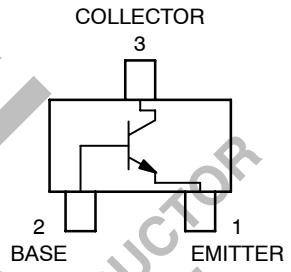
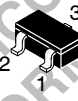
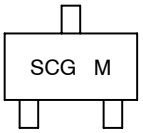
http://onsemi.com





SC−59
CASE 318D
STYLE 1

MARKING DIAGRAMS



SCG = Specific Date Code
M = Date Code

MAXIMUM RATINGS (T_A = 25°C)

Rating	Symbol	Value	Unit
Collector−Base Voltage	$V_{(BR)CBO}$	60	Vdc
Collector−Emitter Voltage	$V_{(BR)CEO}$	50	Vdc
Emitter−Base Voltage	$V_{(BR)EBO}$	5.0	Vdc
Collector Current − Continuous	I_C	150	mAdc
Collector Current − Peak	$I_{C(P)}$	200	mAdc
Base Current	I_B	30	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature	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.
*Specifications compared to MMBT3904.

ORDERING INFORMATION

Device	Package	Shipping†
2SC2712GT1G	SC−59 (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
Collector−Emitter Breakdown Voltage (I_C = 2.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	50	–	Vdc
Collector−Base Breakdown Voltage (I_C = 10 μAdc, 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
Collector−Base Cutoff Current (V_{CB} = 60 Vdc, I_E = 0)	I_{CBO}	–	0.1	μAdc
Emitter Cut−off Current (V_{EB} = 5 V, I_C = 0 V)	I_{EBO}	–	0.1	μA
Collector−Emitter Cutoff Current (V_{CE} = 10 Vdc, I_B = 0) (V_{CE} = 30 Vdc, I_B = 0) (V_{CE} = 30 Vdc, I_B = 0, T_A = 80°C)	I_{CEO}	 – – –	 0.1 2.0 1.0	 μAdc μAdc mAdc
DC Current Gain (Note 1) (V_{CE} = 6.0 Vdc, I_C = 2.0 mAdc)	h_{FE}	200	400	–
Collector−Emitter Saturation Voltage (I_C = 100 mAdc, I_B = 10 mAdc)	$V_{CE(sat)}$	–	0.25	Vdc

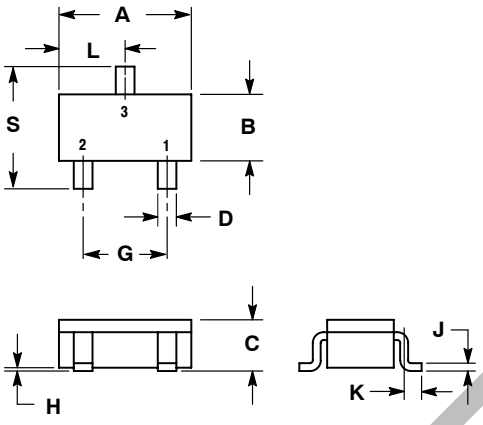
SMALL−SIGNAL CHARACTERISTICS

Current−Gain − Bandwidth Product (I_C = 1.0 mA, V_{CE} = 10.0 V, f = 10 MHz)	f_T	80	–	MHz
Output Capacitance (V_{CB} = 10 V, f = 1.0 MHz)	C_{obo}	–	3.5	pF
Noise Figure (I_C = 0.1 mA, V_{CE} = 6.0 Vdc, R_S = 10 kΩ, f = 1.0 kHz, BW = 200 Hz)	NF	–	10	dB

1. Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.

PACKAGE DIMENSIONS

SC−59
CASE 318D−04
ISSUE F

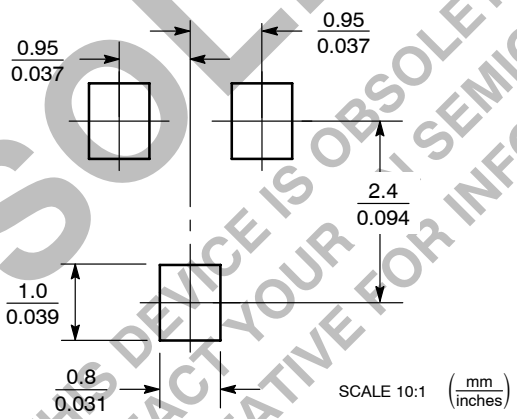


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

	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

STYLE 1:
PIN 1. EMITTER
2. BASE
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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Email: orderlit@onsemi.com

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