# 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<sub>CE(sat)</sub>\*
- Higher Gain (hfe)\*
- Higher Breakdown Voltage Rating\*
- Moisture Sensitivity Level: 1
- This is a Pb-Free Device

#### **Benefits**

- Longer Battery Life
- Improved Performance Through Targeted Design

# **MAXIMUM RATINGS** (T<sub>A</sub> = 25°C)

Rating	Symbol	Value	Unit
Collector-Base Voltage	V <sub>(BR)CBO</sub>	60	Vdc
Collector-Emitter Voltage	V <sub>(BR)CEO</sub>	50	Vdc
Emitter-Base Voltage	V <sub>(BR)EBO</sub>	5.0	Vdc
Collector Current - Continuous	I <sub>C</sub>	150	mAdc
Collector Current - Peak	I <sub>C(P)</sub>	200	mAdc
Base Current	I <sub>B</sub>	30	mAdc
THERMAL CHARACTERISTICS	-0		

#### THERMAL CHARACTERISTICS

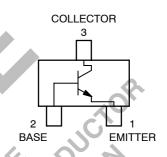
Characteristic	Symbol	Max	Unit
Power Dissipation	$P_{D}$	200	mW
Junction Temperature	TJ	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

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.



# ON Semiconductor®

#### http://onsemi.com





**CASE 318D** STYLE 1

#### MARKING DIAGRAMS



SCG = Specific Date Code = Date Code

#### **ORDERING INFORMATION**

Device	Package	Shipping <sup>†</sup>
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.

### 2SC2712GT1G

#### **ELECTRICAL CHARACTERISTICS**

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

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 2.0 mAdc, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	50	-	Vdc
Collector–Base Breakdown Voltage ( $I_C = 10 \mu Adc, I_E = 0$ )	V <sub>(BR)CBO</sub>	60	-	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 10 \mu Adc, I_C = 0$ )	V <sub>(BR)EBO</sub>	5.0	-	Vdc
Collector-Base Cutoff Current (V <sub>CB</sub> = 60 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	-	0.1	μAdc
Emitter Cut-off Current (V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0 V)	I <sub>EBO</sub>	=	0.1	μΑ
	I <sub>CEO</sub>		0.1 2.0 1.0	μAdc μAdc mAdc
DC Current Gain (Note 1) (V <sub>CE</sub> = 6.0 Vdc, I <sub>C</sub> = 2.0 mAdc)	h <sub>FE</sub>	200	400	-
Collector–Emitter Saturation Voltage (I <sub>C</sub> = 100 mAdc, I <sub>B</sub> = 10 mAdc)	V <sub>CE(sat)</sub>	" -0 <sup>1</sup>	0.25	Vdc
SMALL-SIGNAL CHARACTERISTICS		N P	0,	
Current - Gain - Bandwidth Product	fτ	60.2		MHz

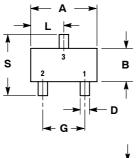
Current – Gain – Bandwidth Product (I <sub>C</sub> = 1.0 mA, V <sub>CE</sub> = 10.0 V, f = 10 MHz)	fτ 80	_	MHz
Output Capacitance (V <sub>CB</sub> = 10 V, f = 1.0 MHz)	C <sub>obo</sub> –	3.5	pF
Noise Figure (I <sub>C</sub> = 0.1 mA, $V_{CE}$ = 6.0 Vdc, $R_S$ = 10 k $\Omega$ , f = 1.0 kHz, BW = 200 Hz)	NF -	10	dB
1. Pulse Test: Pulse Width ≤ 300 µs, D.C. ≤ 2%.	, cor		

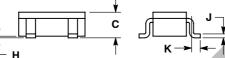
<sup>1.</sup> Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.

# 2SC2712GT1G

#### PACKAGE DIMENSIONS

#### SC-59 CASE 318D-04 **ISSUE F**



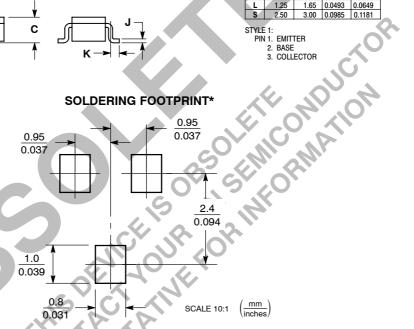


NOTES:

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

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
Α	2.70	3.10	0.1063	0.1220
В	1.30	1.70	0.0512	0.0669
С	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
Н	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
Г	1.25	1.65	0.0493	0.0649
S	2.50	3.00	0.0985	0.1181

## **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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