MSC2712GT1G, MSC2712YT1G

General Purpose Amplifier Transistor

NPN Surface Mount

ON Semiconductor®

Features

- Moisture Sensitivity Level: 1
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

SC−59
CASE 318D
STYLE 1

MARKING DIAGRAMS

| 12G M■ | 12Y M■ |

12M, 12Y = Specific Device Code
M = Date Code
■ = Pb−Free Package
(Note: Microdot may be in either location)

COLLECTOR
3

1
BASE

2
EMITTER

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	$V_{(BR)EBO}$	7.0	Vdc
Collector Current – Continuous	I_C	100	mAdc
Collector Current – Peak	$I_{C(P)}$	200	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 those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.
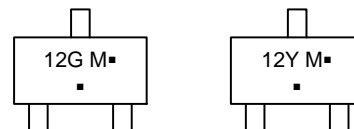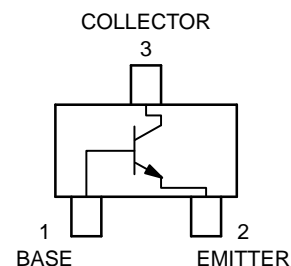
ORDERING INFORMATION

Device	Package	Shipping[†]
MSC2712GT1G	SC−59 (Pb−Free)	3000 / Tape & Reel
MSC2712YT1G	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, $I_C = 0$)	$V_{(BR)EBO}$	7.0	–	Vdc
Collector–Base Cutoff Current ($V_{CB} = 45$ Vdc, $I_E = 0$)	I_{CBO}	–	0.1	μAdc
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) MSC2712GT1G MSC2712YT1G	h_{FE}	 200 120	 400 240	–
Collector–Emitter Saturation Voltage ($I_C = 100$ mAdc, $I_B = 10$ mAdc)	$V_{CE(sat)}$	–	0.5	Vdc
Current–Gain – Bandwidth Product ($I_C = 1$ mA, $V_{CE} = 10.0$ V, f = 10 MHz)	f_T	50	–	MHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

MSC2712GT1G, MSC2712YT1G
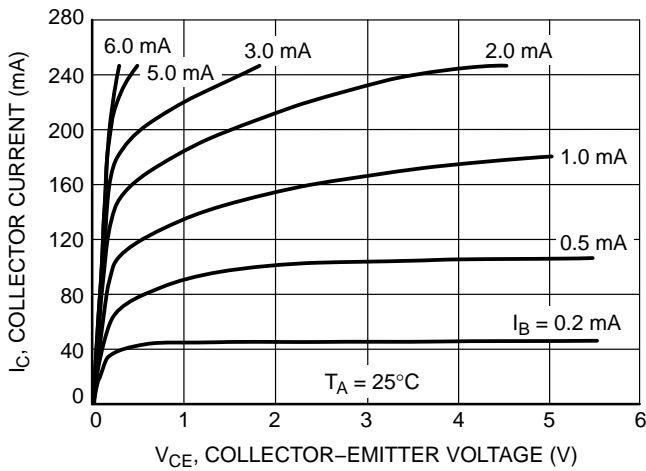
TYPICAL ELECTRICAL CHARACTERISTICS

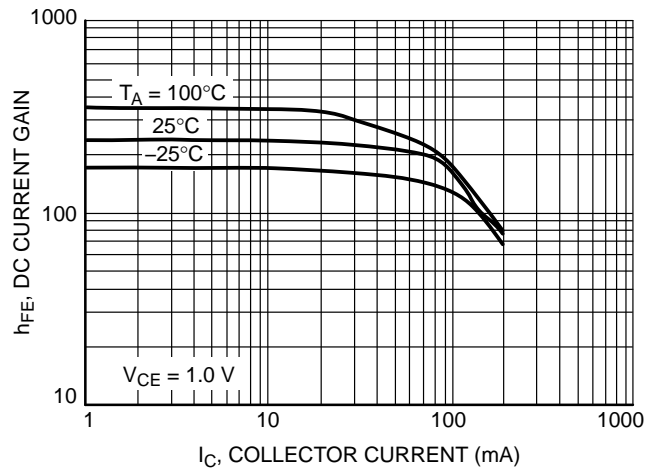**Figure 1. Collector Saturation Voltage**

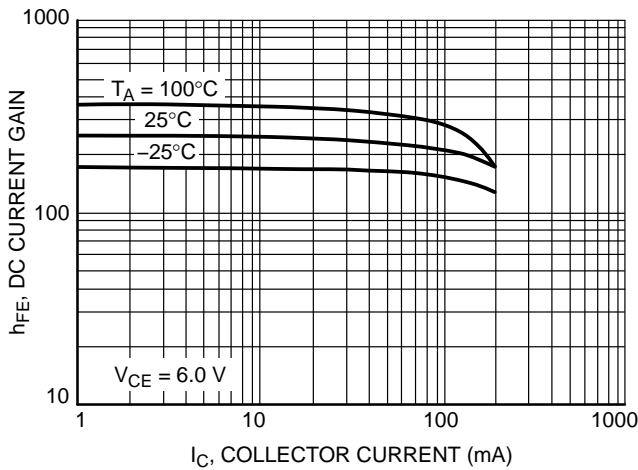**Figure 2. DC Current Gain**
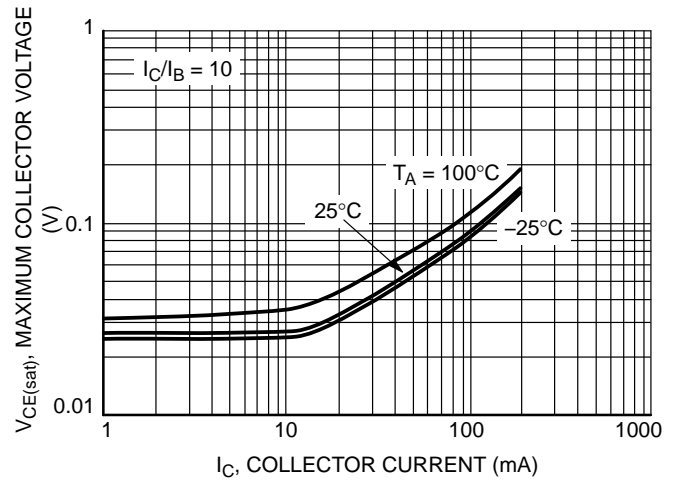
Figure 3. DC Current Gain
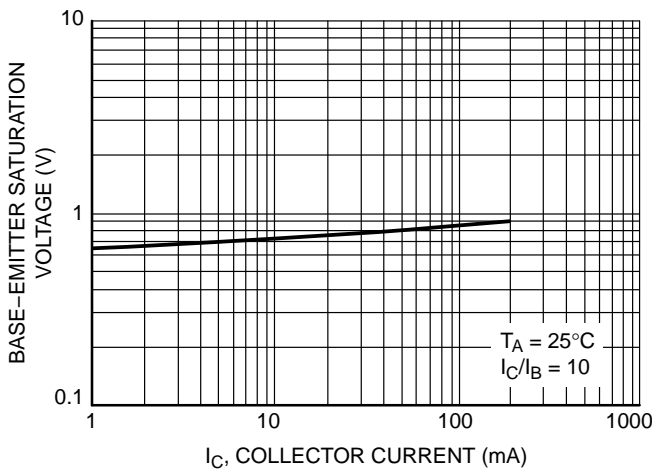
Figure 4. $V_{CE(sat)}$ versus I_C

Figure 5. $V_{BE(sat)}$ versus I_C

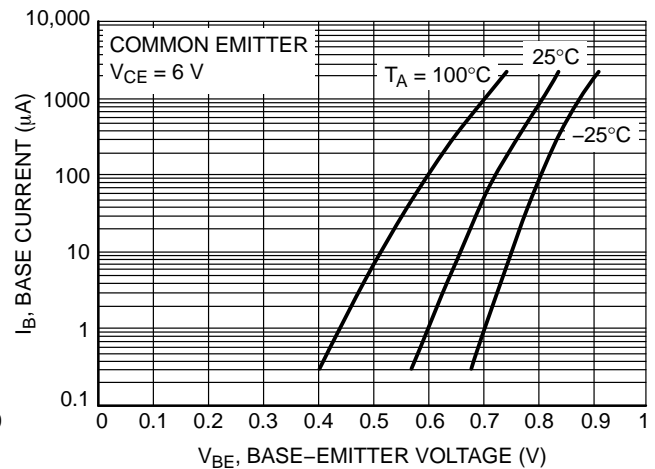**Figure 6. Base−Emitter Voltage**
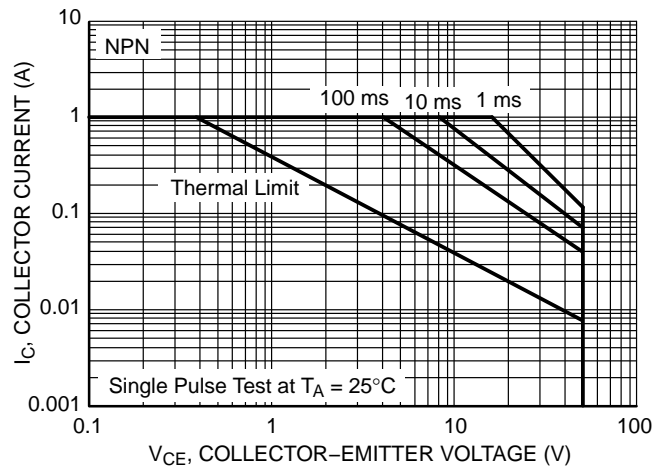
MSC2712GT1G, MSC2712YT1G

TYPICAL ELECTRICAL CHARACTERISTICS

Figure 7. NPN Safe Operating Area

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CASE 318D−04
ISSUE H

DATE 28 JUN 2012

SCALE 2:1

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

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.00	1.15	1.30	0.039	0.045	0.051
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.35	0.43	0.50	0.014	0.017	0.020
c	0.09	0.14	0.18	0.003	0.005	0.007
D	2.70	2.90	3.10	0.106	0.114	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	1.70	1.90	2.10	0.067	0.075	0.083
L	0.20	0.40	0.60	0.008	0.016	0.024
H$_E$	2.50	2.80	3.00	0.099	0.110	0.118

SOLDERING FOOTPRINT*

0.95 / 0.037
0.95 / 0.037
2.4 / 0.094
1.0 / 0.039
0.8 / 0.031

SCALE 10:1 $\left(\dfrac{mm}{inches}\right)$

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

GENERIC MARKING DIAGRAM

XXX M▪
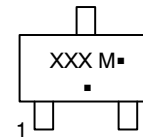
XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package*

(*Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, "G" or microdot " ▪", may or may not be present.

STYLE 1:
PIN 1. BASE
    2. EMITTER
    3. COLLECTOR

STYLE 2:
PIN 1. ANODE
    2. N.C.
    3. CATHODE

STYLE 3:
PIN 1. ANODE
    2. ANODE
    3. CATHODE

STYLE 4:
PIN 1. CATHODE
    2. N.C.
    3. ANODE

STYLE 5:
PIN 1. CATHODE
    2. CATHODE
    3. ANODE

STYLE 6:
PIN 1. ANODE
    2. CATHODE
    3. ANODE/CATHODE

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DESCRIPTION:	SC−59		PAGE 1 OF 1

ADDITIONAL INFORMATION

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