

General Purpose Amplifier Transistor

MSC2712GT1G, MSC2712YT1G

NPN Surface Mount

Features

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

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

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

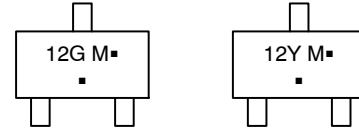
Characteristic	Symbol	Max	Unit
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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.

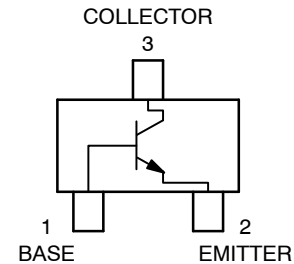


SC-59
CASE 318D
STYLE 1

MARKING DIAGRAM



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



ORDERING INFORMATION

Device	Package	Shipping†
MSC2712GT1G	SC-59 (Pb-Free)	3000 / Tape & Reel

DISCONTINUED (Note 1)

MSC2712YT1G	SC-59 (Pb-Free)	3000 / Tape & Reel
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†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](#).

- DISCONTINUED:** This device is not recommended for new design. Please contact your onsemi representative for information. The most current information on this device may be available on www.onsemi.com.

MSC2712GT1G, MSC2712YT1G

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%.

TYPICAL ELECTRICAL CHARACTERISTICS

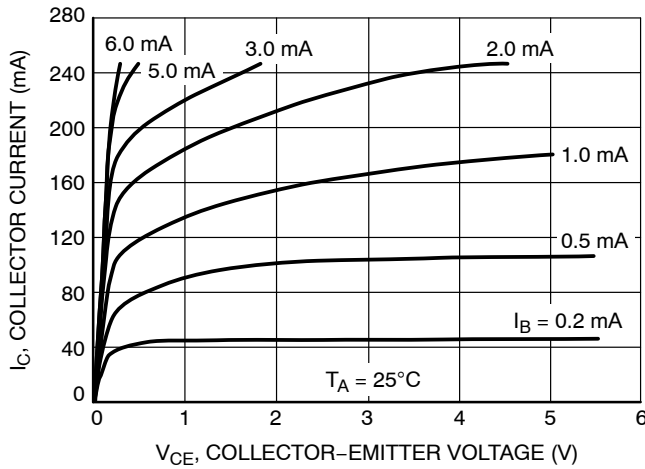


Figure 1. Collector Saturation Voltage

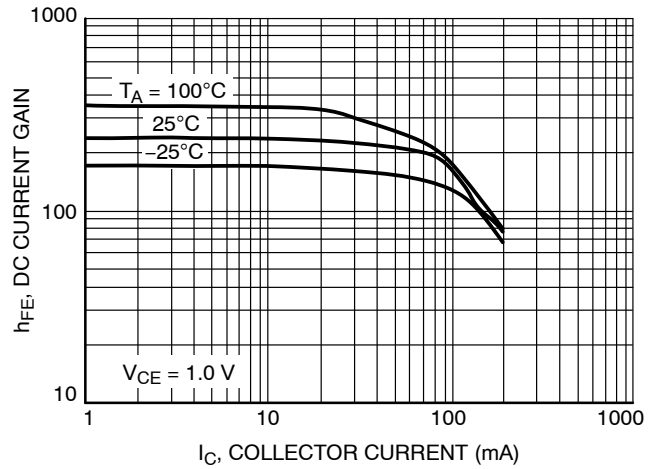


Figure 2. DC Current Gain

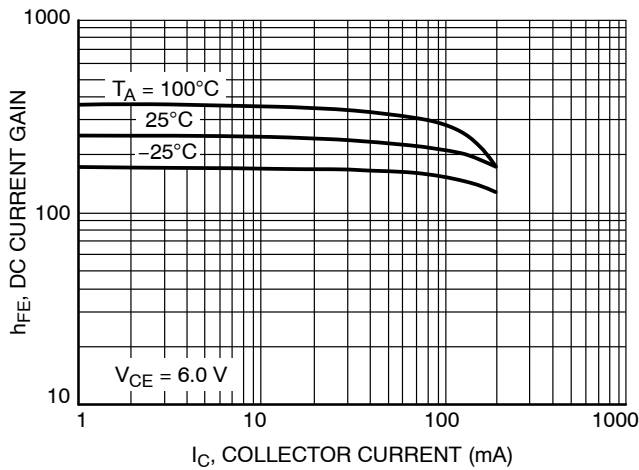


Figure 3. DC Current Gain

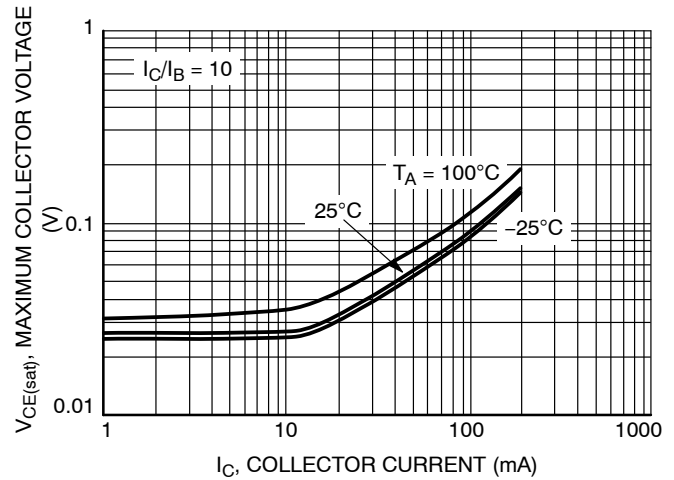


Figure 4. $V_{CE(sat)}$ versus I_C

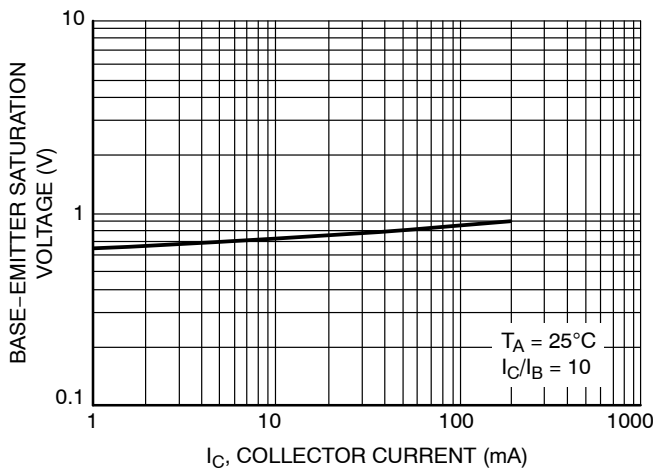


Figure 5. $V_{BE(sat)}$ versus I_C

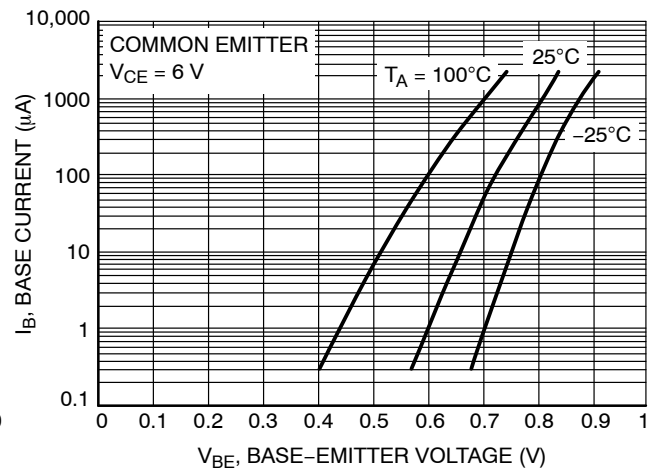


Figure 6. Base-Emitter Voltage

MSC2712GT1G, MSC2712YT1G

TYPICAL ELECTRICAL CHARACTERISTICS

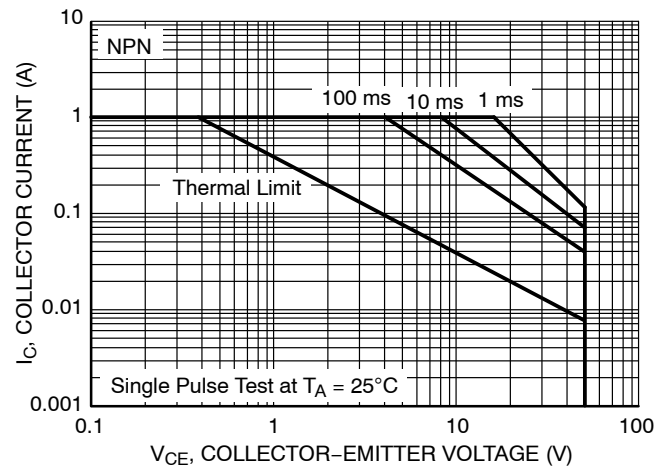
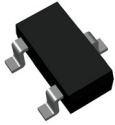
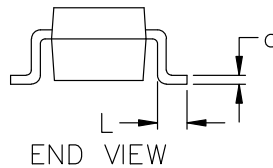
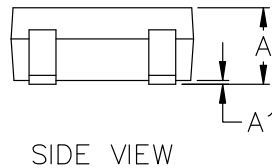
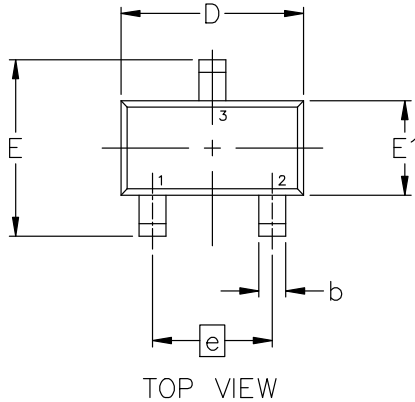


Figure 7. NPN Safe Operating Area


SC-59-3 2.90x1.50x1.15, 1.90P
CASE 318D
ISSUE J

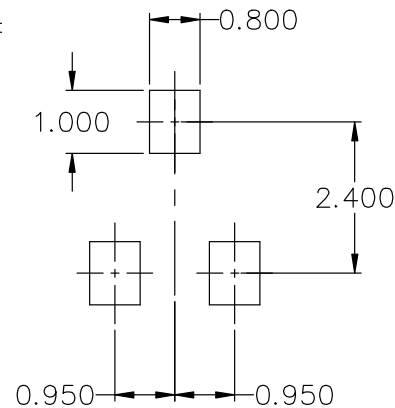
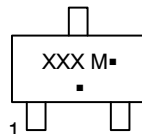
DATE 15 FEB 2024



NOTES:

- DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
- ALL DIMENSIONS ARE IN MILLIMETERS.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	1.00	1.15	1.30
A1	0.01	0.06	0.10
b	0.35	0.43	0.50
c	0.09	0.14	0.18
D	2.70	2.90	3.10
E	2.50	2.80	3.00
E1	1.30	1.50	1.70
e	1.90 BSC		
L	0.20	0.40	0.60


GENERIC
MARKING DIAGRAM*


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. Some products may not follow the Generic Marking.

* FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

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-59-3 2.90x1.50x1.15, 1.90P	PAGE 1 OF 1

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