

# Digital Transistors (BRT)

## R1 = 10 kΩ, R2 = 10 kΩ

### NPN Transistors with Monolithic Bias Resistor Network

## MUN2211, MMUN2211L, MUN5211, DTC114EE, DTC114EM3, NSBC114EF3

This series of digital transistors is designed to replace a single device and its external resistor bias network. The Bias Resistor Transistor (BRT) contains a single transistor with a monolithic bias network consisting of two resistors; a series base resistor and a base-emitter resistor. The BRT eliminates these individual components by integrating them into a single device. The use of a BRT can reduce both system cost and board space.

#### Features

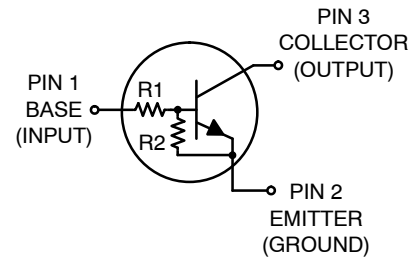
- Simplifies Circuit Design
- Reduces Board Space
- Reduces Component Count
- S and NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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

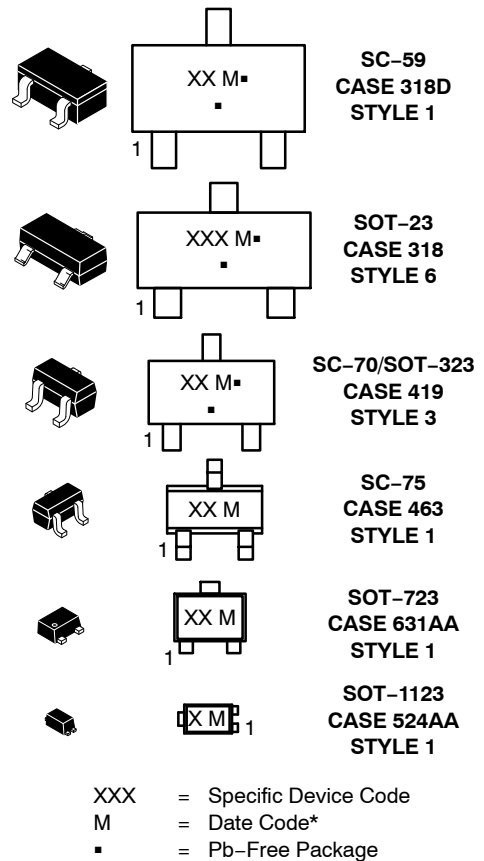
Rating	Symbol	Max	Unit
Collector-Base Voltage	V <sub>CBO</sub>	50	Vdc
Collector-Emitter Voltage	V <sub>CEO</sub>	50	Vdc
Collector Current – Continuous	I <sub>C</sub>	100	mAdc
Input Forward Voltage	V <sub>IN(fwd)</sub>	40	Vdc
Input Reverse Voltage	V <sub>IN(rev)</sub>	10	Vdc

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.

#### PIN CONNECTIONS



#### MARKING DIAGRAMS



(Note: Microdot may be in either location)

\*Date Code orientation may vary depending upon manufacturing location.

#### ORDERING INFORMATION

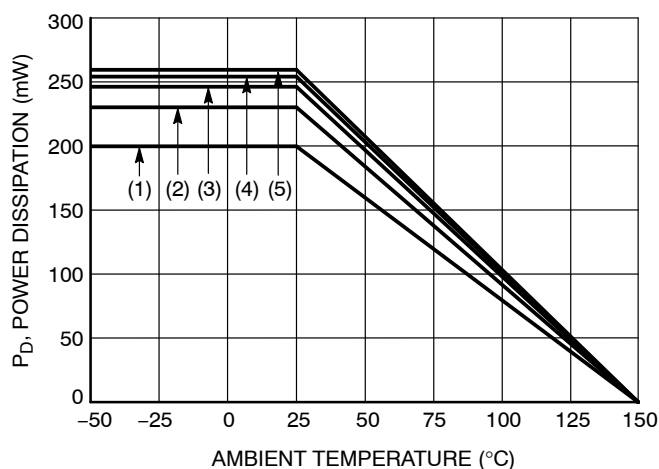
See detailed ordering, marking, and shipping information in the package dimensions section on page 2 of this data sheet.

# MUN2211, MMUN2211L, MUN5211, DTC114EE, DTC114EM3, NSBC114EF3

**Table 1. ORDERING INFORMATION**

Device	Part Marking	Package	Shipping <sup>†</sup>
MUN2211T1G, SMUN2211T1G	8A	SC-59 (Pb-Free)	3000 / Tape & Reel
MUN2211T3G, SMUN2211T3G	8A	SC-59 (Pb-Free)	10000 / Tape & Reel
MMUN2211LT1G, SMMUN2211LT1G	A8A	SOT-23 (Pb-Free)	3000 / Tape & Reel
MMUN2211LT3G, SMMUN2211LT3G	A8A	SOT-23 (Pb-Free)	10000 / Tape & Reel
MUN5211T1G, SMUN5211T1G	8A	SC-70/SOT-323 (Pb-Free)	3000 / Tape & Reel
SMUN5211T3G	8A	SC-70/SOT-323 (Pb-Free)	10000 / Tape & Reel
DTC114EET1G, SDTC114EET1G	8A	SC-75 (Pb-Free)	3000 / Tape & Reel
DTC114EM3T5G	8A	SOT-723 (Pb-Free)	8000 / Tape & Reel
NSBC114EF3T5G	A	SOT-1123 (Pb-Free)	8000 / Tape & Reel

<sup>†</sup>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.



- (1) SC-75 and SC-70/SOT323; Minimum Pad
- (2) SC-59; Minimum Pad
- (3) SOT-23; Minimum Pad
- (4) SOT-1123; 100 mm², 1 oz. copper trace
- (5) SOT-723; Minimum Pad

**Figure 1. Derating Curve**

Table 2. THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
<b>THERMAL CHARACTERISTICS (SC-59) (MUN2211)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)	P <sub>D</sub>	230 338 1.8 2.7	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 1) (Note 2)	R <sub>θJA</sub>	540 370	°C/W
Thermal Resistance, Junction to Lead (Note 1) (Note 2)	R <sub>θJL</sub>	264 287	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C
<b>THERMAL CHARACTERISTICS (SOT-23) (MMUN2211L)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)	P <sub>D</sub>	246 400 2.0 3.2	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 1) (Note 2)	R <sub>θJA</sub>	508 311	°C/W
Thermal Resistance, Junction to Lead (Note 1) (Note 2)	R <sub>θJL</sub>	174 208	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C
<b>THERMAL CHARACTERISTICS (SC-70/SOT-323) (MUN5211)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)	P <sub>D</sub>	202 310 1.6 2.5	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 1) (Note 2)	R <sub>θJA</sub>	618 403	°C/W
Thermal Resistance, Junction to Lead (Note 1) (Note 2)	R <sub>θJL</sub>	280 332	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C
<b>THERMAL CHARACTERISTICS (SC-75) (DTC114EE)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)	P <sub>D</sub>	200 300 1.6 2.4	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 1) (Note 2)	R <sub>θJA</sub>	600 400	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C
<b>THERMAL CHARACTERISTICS (SOT-723) (DTC114EM3)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)	P <sub>D</sub>	260 600 2.0 4.8	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 1) (Note 2)	R <sub>θJA</sub>	480 205	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C

1. FR-4 @ Minimum Pad.
2. FR-4 @ 1.0 x 1.0 Inch Pad.
3. FR-4 @ 100 mm<sup>2</sup>, 1 oz. copper traces, still air.
4. FR-4 @ 500 mm<sup>2</sup>, 1 oz. copper traces, still air.

**Table 2. THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
<b>THERMAL CHARACTERISTICS (SOT-1123) (NSBC114EF3)</b>			
Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 3) (Note 4) Derate above $25^\circ\text{C}$ (Note 3) (Note 4)	$P_D$	254 297 2.0 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient (Note 3) (Note 4)	$R_{\theta JA}$	493 421	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 3)	$R_{\theta JL}$	193	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

1. FR-4 @ Minimum Pad.
2. FR-4 @ 1.0 x 1.0 Inch Pad.
3. FR-4 @ 100 mm<sup>2</sup>, 1 oz. copper traces, still air.
4. FR-4 @ 500 mm<sup>2</sup>, 1 oz. copper traces, still air.

**Table 3. ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ , unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Base Cutoff Current ( $V_{CB} = 50\text{ V}$ , $I_E = 0$ )	$I_{CBO}$	–	–	100	nAdc
Collector-Emitter Cutoff Current ( $V_{CE} = 50\text{ V}$ , $I_B = 0$ )	$I_{CEO}$	–	–	500	nAdc
Emitter-Base Cutoff Current ( $V_{EB} = 6.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$	–	–	0.5	mAdc
Collector-Base Breakdown Voltage ( $I_C = 10\text{ }\mu\text{A}$ , $I_E = 0$ )	$V_{(BR)CBO}$	50	–	–	Vdc
Collector-Emitter Breakdown Voltage (Note 5) ( $I_C = 2.0\text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	50	–	–	Vdc
<b>ON CHARACTERISTICS</b>					
DC Current Gain (Note 5) ( $I_C = 5.0\text{ mA}$ , $V_{CE} = 10\text{ V}$ )	$h_{FE}$	35	60	–	
Collector-Emitter Saturation Voltage (Note 5) ( $I_C = 10\text{ mA}$ , $I_B = 0.3\text{ mA}$ )	$V_{CE(sat)}$	–	–	0.25	Vdc
Input Voltage (off) ( $V_{CE} = 5.0\text{ V}$ , $I_C = 100\text{ }\mu\text{A}$ )	$V_{i(off)}$	–	1.2	0.8	Vdc
Input Voltage (on) ( $V_{CE} = 0.3\text{ V}$ , $I_C = 10\text{ mA}$ )	$V_{i(on)}$	2.5	1.8	–	Vdc
Output Voltage (on) ( $V_{CC} = 5.0\text{ V}$ , $V_B = 2.5\text{ V}$ , $R_L = 1.0\text{ k}\Omega$ )	$V_{OL}$	–	–	0.2	Vdc
Output Voltage (off) ( $V_{CC} = 5.0\text{ V}$ , $V_B = 0.5\text{ V}$ , $R_L = 1.0\text{ k}\Omega$ )	$V_{OH}$	4.9	–	–	Vdc
Input Resistor	$R_1$	7.0	10	13	k $\Omega$
Resistor Ratio	$R_1/R_2$	0.8	1.0	1.2	

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.

5. Pulsed Condition: Pulse Width = 300  $\mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

TYPICAL CHARACTERISTICS  
MUN2211, MMUN2211L, MUN5211, DTC114EE, DTC114EM3

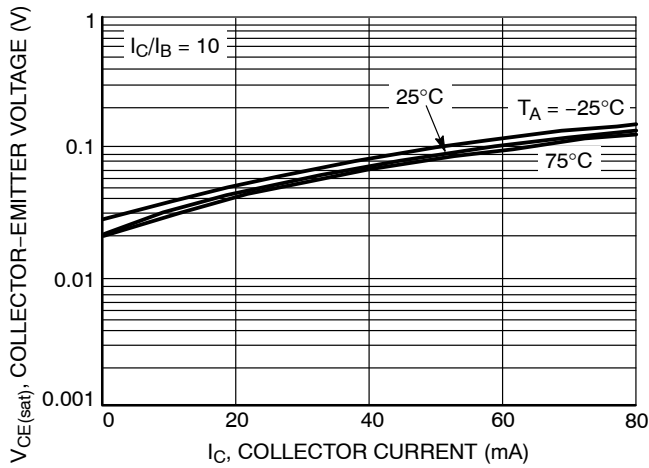


Figure 2.  $V_{CE(sat)}$  vs.  $I_C$

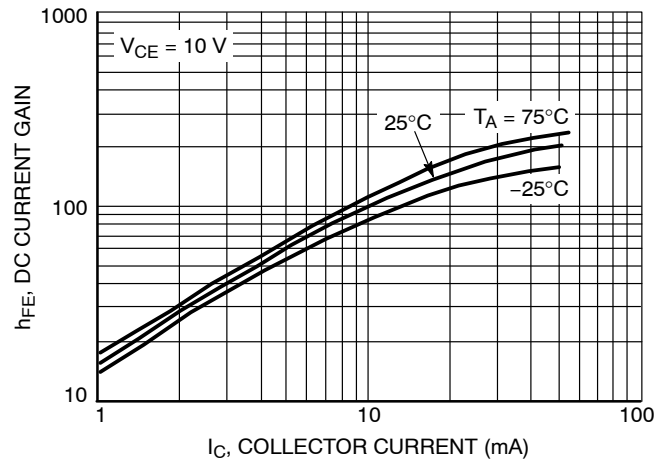


Figure 3. DC Current Gain

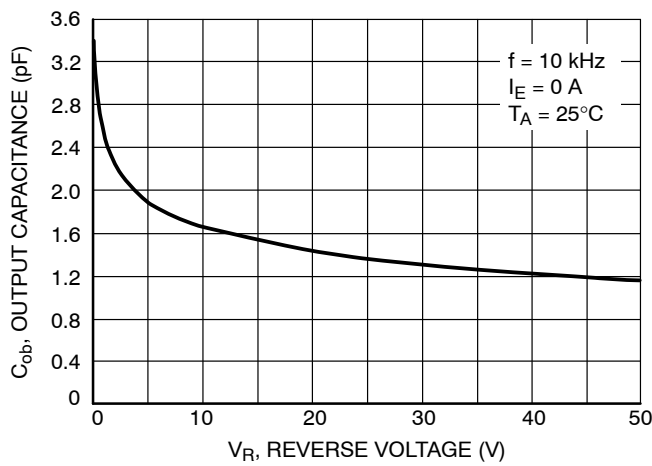


Figure 4. Output Capacitance

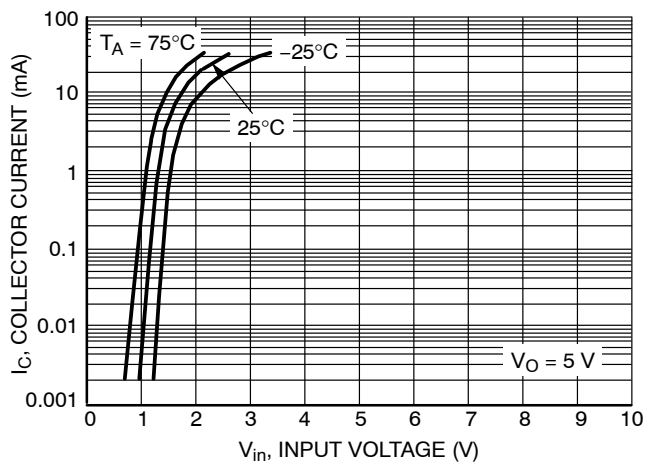


Figure 5. Output Current vs. Input Voltage

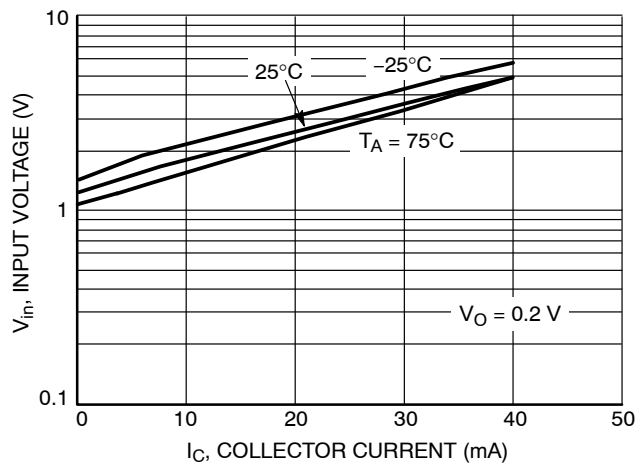


Figure 6. Input Voltage vs. Output Current

TYPICAL CHARACTERISTICS – NSBC114EF3

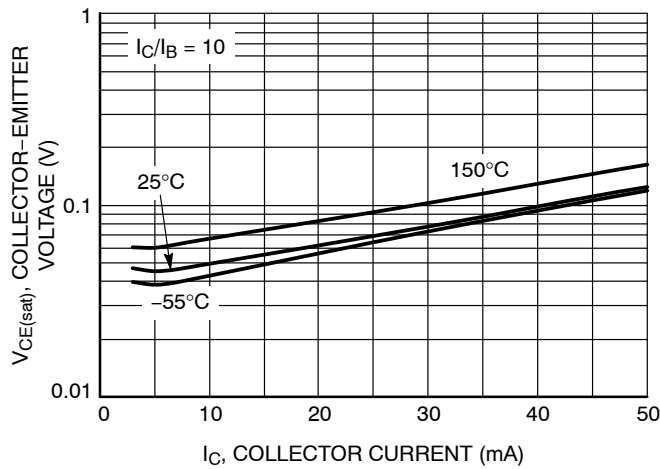


Figure 7.  $V_{CE(sat)}$  vs.  $I_C$

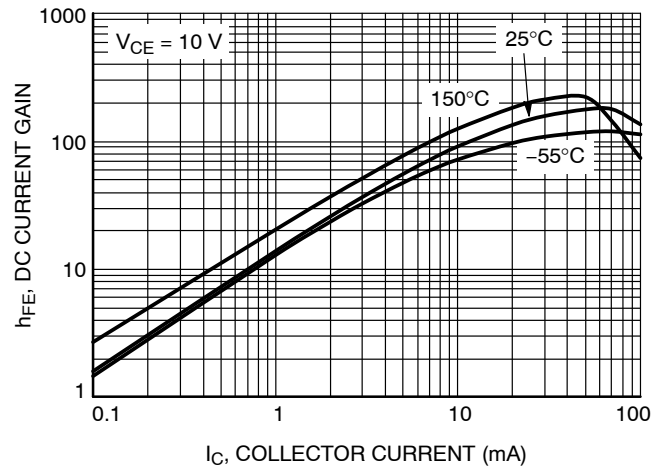


Figure 8. DC Current Gain

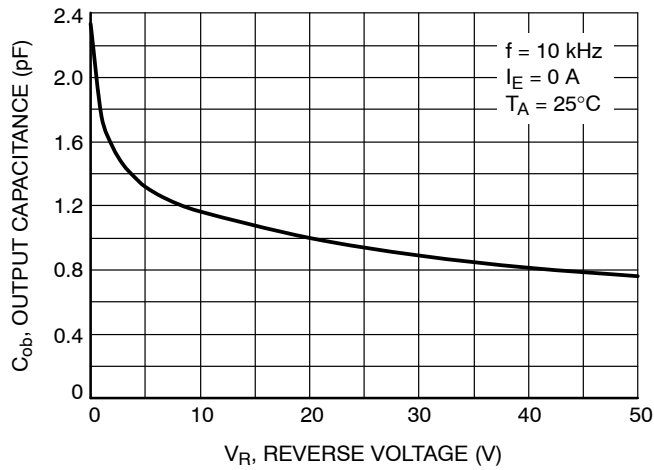


Figure 9. Output Capacitance

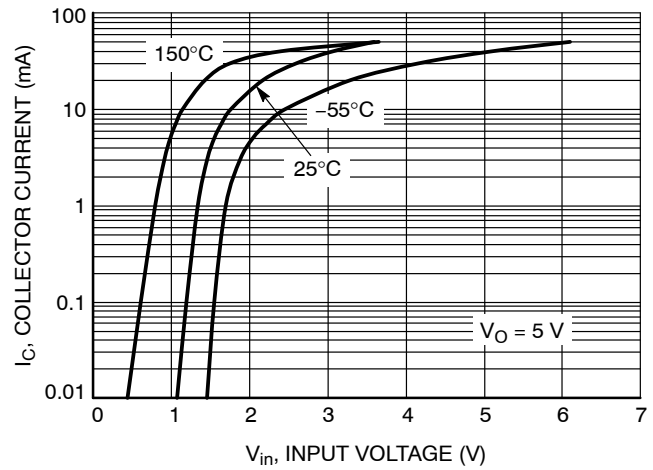


Figure 10. Output Current vs. Input Voltage

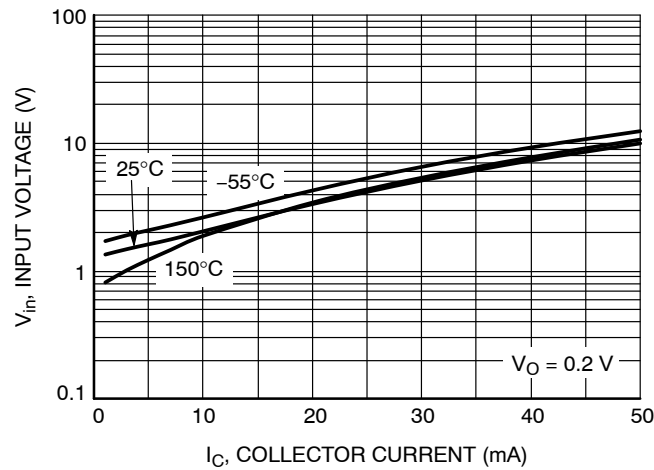
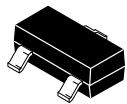


Figure 11. Input Voltage vs. Output Current

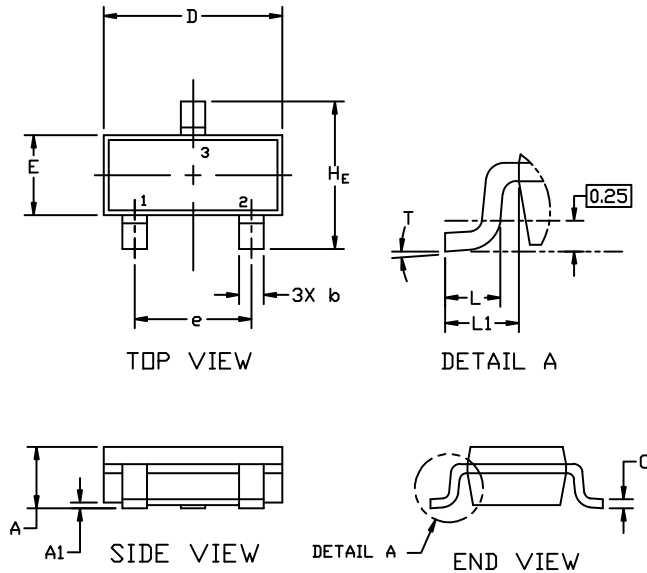
# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SCALE 4:1

**SOT-23 (TO-236)**  
**CASE 318**  
**ISSUE AT**

DATE 01 MAR 2023

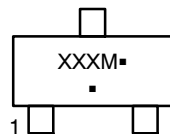


## NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

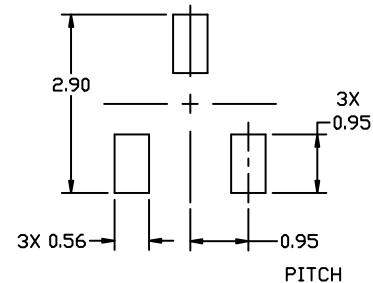
DIM	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
H <sub>E</sub>	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	---	10°	0°	---	10°

## GENERIC MARKING DIAGRAM\*



XXX = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package

\*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.



## RECOMMENDED MOUNTING 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.

## STYLES ON PAGE 2

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<b>DESCRIPTION:</b>	<b>SOT-23 (TO-236)</b>	<b>PAGE 1 OF 2</b>

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# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS



### SOT-23 (TO-236) CASE 318 ISSUE AT

DATE 01 MAR 2023

STYLE 1 THRU 5: CANCELLED	STYLE 6: PIN 1. BASE 2. EMITTER 3. COLLECTOR	STYLE 7: PIN 1. EMITTER 2. BASE 3. COLLECTOR	STYLE 8: PIN 1. ANODE 2. NO CONNECTION 3. CATHODE		
STYLE 9: PIN 1. ANODE 2. ANODE 3. CATHODE	STYLE 10: PIN 1. DRAIN 2. SOURCE 3. GATE	STYLE 11: PIN 1. ANODE 2. CATHODE 3. CATHODE-ANODE	STYLE 12: PIN 1. CATHODE 2. CATHODE 3. ANODE	STYLE 13: PIN 1. SOURCE 2. DRAIN 3. GATE	STYLE 14: PIN 1. CATHODE 2. GATE 3. ANODE
STYLE 15: PIN 1. GATE 2. CATHODE 3. ANODE	STYLE 16: PIN 1. ANODE 2. CATHODE 3. CATHODE	STYLE 17: PIN 1. NO CONNECTION 2. ANODE 3. CATHODE	STYLE 18: PIN 1. NO CONNECTION 2. CATHODE 3. ANODE	STYLE 19: PIN 1. CATHODE 2. ANODE 3. CATHODE-ANODE	STYLE 20: PIN 1. CATHODE 2. ANODE 3. GATE
STYLE 21: PIN 1. GATE 2. SOURCE 3. DRAIN	STYLE 22: PIN 1. RETURN 2. OUTPUT 3. INPUT	STYLE 23: PIN 1. ANODE 2. ANODE 3. CATHODE	STYLE 24: PIN 1. GATE 2. DRAIN 3. SOURCE	STYLE 25: PIN 1. ANODE 2. CATHODE 3. GATE	STYLE 26: PIN 1. CATHODE 2. ANODE 3. NO CONNECTION
STYLE 27: PIN 1. CATHODE 2. CATHODE 3. CATHODE	STYLE 28: PIN 1. ANODE 2. ANODE 3. ANODE				

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DESCRIPTION:	SOT-23 (TO-236)	PAGE 2 OF 2

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# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

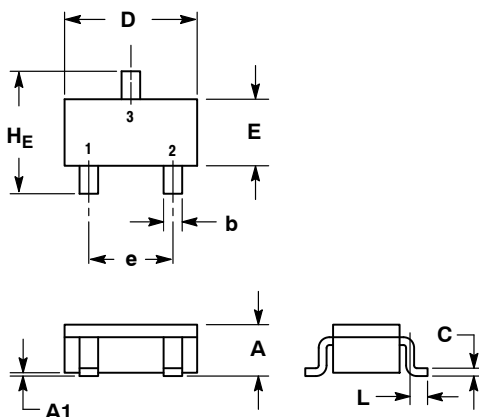
ON Semiconductor®



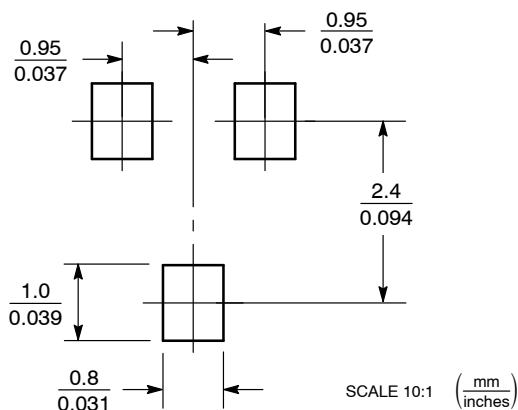
SCALE 2:1

SC-59  
CASE 318D-04  
ISSUE H

DATE 28 JUN 2012



### SOLDERING FOOTPRINT\*

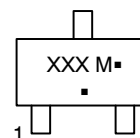


\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

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

### 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.

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

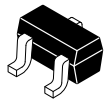
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DESCRIPTION: SC-59

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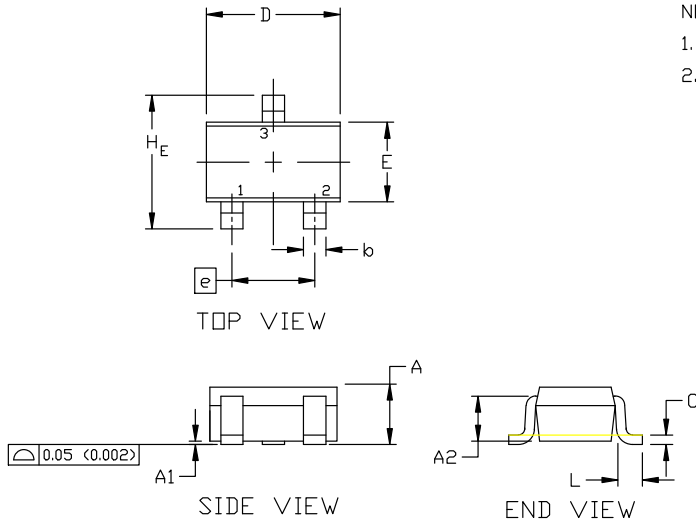
SCALE 4:1

### SC-70 (SOT-323)

#### CASE 419

#### ISSUE R

DATE 11 OCT 2022



#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH

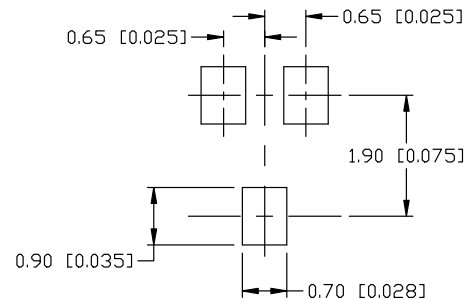
DIM	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.70 REF			0.028 BSC		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.00	2.20	0.071	0.080	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.20	0.38	0.56	0.008	0.015	0.022
H_E	2.00	2.10	2.40	0.079	0.083	0.095

#### GENERIC MARKING DIAGRAM



XX = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package

\*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.

#### SOLDERING FOOTPRINT

STYLE 1:  
CANCELLED

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

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

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

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

STYLE 6:  
PIN 1. EMITTER  
2. BASE  
3. COLLECTOR

STYLE 7:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 8:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

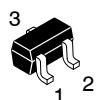
STYLE 9:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE-ANODE

STYLE 10:  
PIN 1. CATHODE  
2. ANODE  
3. ANODE-CATHODE

STYLE 11:  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE

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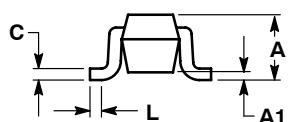
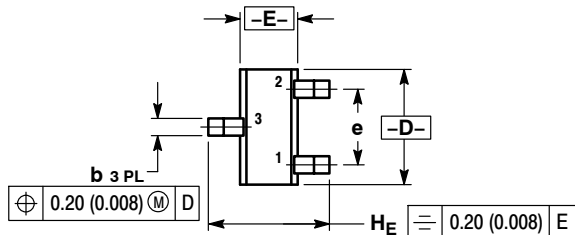
SCALE 4:1

### SC-75/SOT-416

#### CASE 463-01

#### ISSUE G

DATE 07 AUG 2015



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

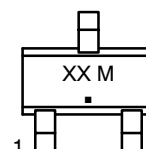
STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

STYLE 5:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

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

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.80	0.90	0.027	0.031	0.035
A1	0.00	0.05	0.10	0.000	0.002	0.004
b	0.15	0.20	0.30	0.006	0.008	0.012
C	0.10	0.15	0.25	0.004	0.006	0.010
D	1.55	1.60	1.65	0.061	0.063	0.065
E	0.70	0.80	0.90	0.027	0.031	0.035
e	1.00 BSC			0.04 BSC		
L	0.10	0.15	0.20	0.004	0.006	0.008
H <sub>E</sub>	1.50	1.60	1.70	0.060	0.063	0.067

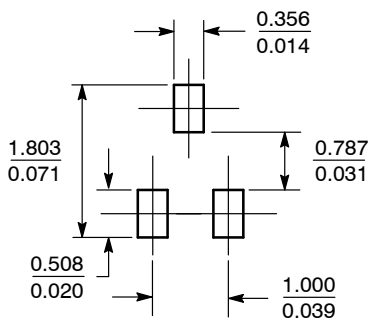
### GENERIC MARKING DIAGRAM\*



XX = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package

\*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.

### SOLDERING FOOTPRINT\*



SCALE 10:1 (mm/inches)

\*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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DESCRIPTION:	SC-75/SOT-416	PAGE 1 OF 1

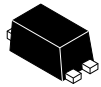
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# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

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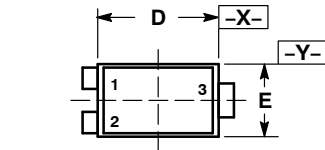
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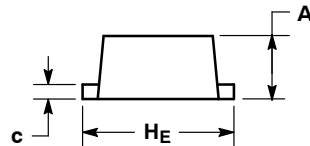
SCALE 8:1

SOT-1123  
CASE 524AA  
ISSUE C

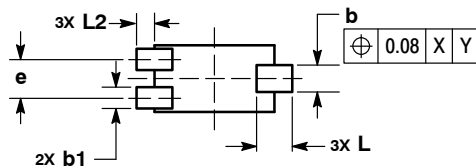
DATE 29 NOV 2011



TOP VIEW

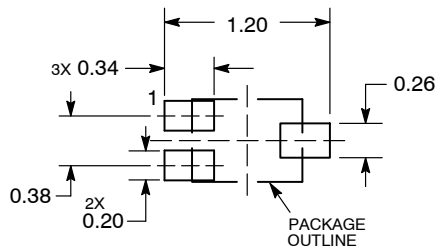


SIDE VIEW



BOTTOM VIEW

### SOLDERING FOOTPRINT\*



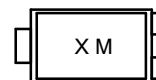
DIMENSIONS: MILLIMETERS

### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS	
	MIN	MAX
A	0.34	0.40
b	0.15	0.28
b1	0.10	0.20
c	0.07	0.17
D	0.75	0.85
E	0.55	0.65
e	0.35	0.40
H_E	0.95	1.05
L	0.185	REF
L2	0.05	0.15

### GENERIC MARKING DIAGRAM\*



X = Specific Device Code  
M = Date Code

\*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.

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERM/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. CATHODE  
3. ANODE

#### STYLE 5:


PIN 1. GATE  
2. SOURCE  
3. DRAIN

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DESCRIPTION: SOT-1123, 3-LEAD, 1.0X0.6X0.37, 0.35P

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# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

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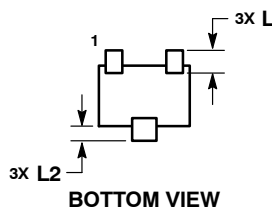
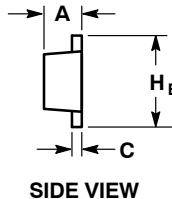
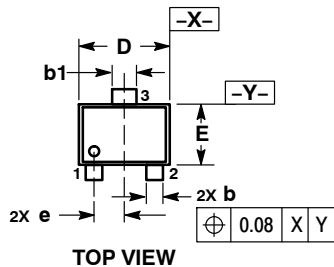
ON



SCALE 4:1

## SOT-723 CASE 631AA-01 ISSUE D

DATE 10 AUG 2009



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

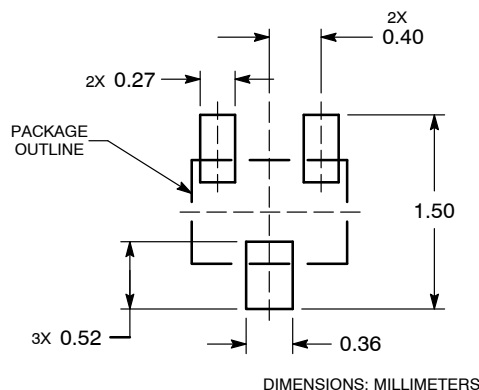
STYLE 2:  
PIN 1. ANODE  
2. N/C  
3. CATHODE

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

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

STYLE 5:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

### RECOMMENDED SOLDERING FOOTPRINT\*



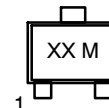
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.45	0.50	0.55
b	0.15	0.21	0.27
b1	0.25	0.31	0.37
C	0.07	0.12	0.17
D	1.15	1.20	1.25
E	0.75	0.80	0.85
e	0.40 BSC		
H E	1.15	1.20	1.25
L	0.29 REF		
L2	0.15	0.20	0.25

### GENERIC MARKING DIAGRAM\*



XX = Specific Device Code  
M = Date Code

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

DOCUMENT NUMBER: 98AON12989D

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DESCRIPTION: SOT-723

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