

# Digital Transistors (BRT)

## R1 = 47 kΩ, R2 = 47 kΩ

### NPN Transistors with Monolithic Bias Resistor Network

## MUN2213, MMUN2213L, MUN5213, DTC144EE, DTC144EM3, NSBC144EF3

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

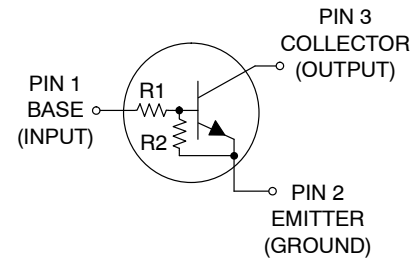
- Simplifies Circuit Design
- Reduces Board Space
- Reduces Component Count
- S and NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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

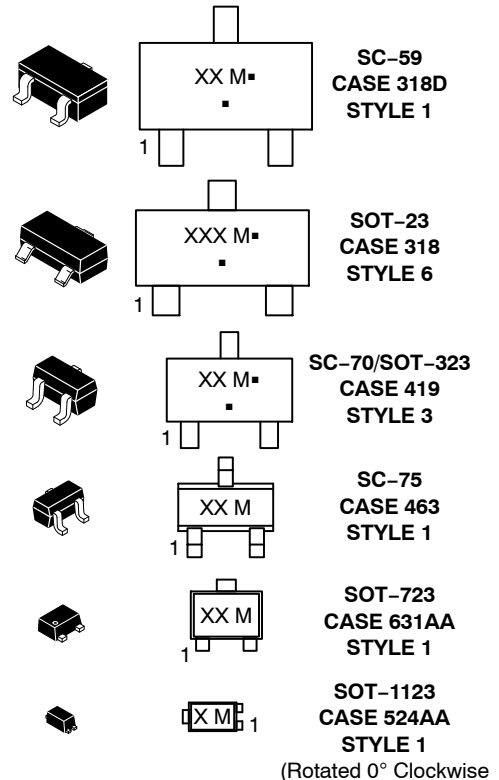
Rating	Symbol	Max	Unit
Collector-Base Voltage	V <sub>CBO</sub>	50	Vdc
Collector-Emitter Voltage	V <sub>CEO</sub>	50	Vdc
Collector Current - Continuous	I <sub>C</sub>	100	mAdc
Input Forward Voltage	V <sub>IN(fwd)</sub>	40	Vdc
Input Reverse Voltage	V <sub>IN(rev)</sub>	10	Vdc

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



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

(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 on page 2 of this data sheet.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 2.

# MUN2213, MMUN2213L, MUN5213, DTC144EE, DTC144EM3, NSBC144EF3

**Table 1. ORDERING INFORMATION**

Device	Part Marking	Package	Shipping†
MUN2213T1G, SMUN2213T1G*	8C	SC-59 (Pb-Free)	3000 / Tape & Reel
MMUN2213LT1G, SMMUN2213LT1G*	A8C	SOT-23 (Pb-Free)	3000 / Tape & Reel
SMMUN2213LT3G	A8C	SOT-23 (Pb-Free)	10000 / Tape & Reel
MUN5213T1G, SMUN5213T1G*	8C	SC-70/SOT-323 (Pb-Free)	3000 / Tape & Reel
DTC144EET1G, SDTC144EET1G*	8C	SC-75 (Pb-Free)	3000 / Tape & Reel
DTC144EM3T5G, NSVDTC144EM3T5G*	8C	SOT-723 (Pb-Free)	8000 / Tape & Reel

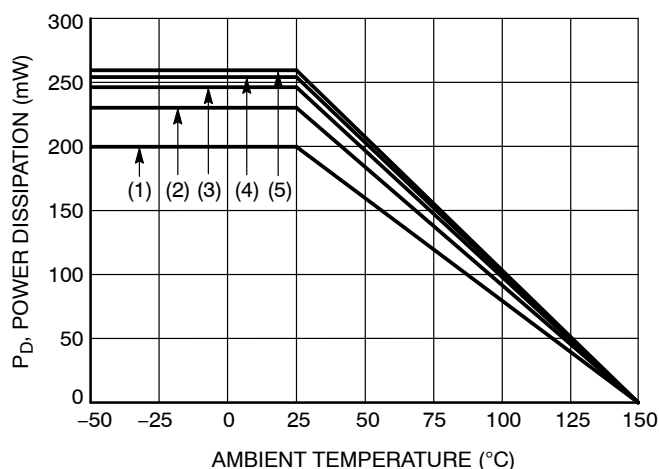
**DISCONTINUED** (Note 1)

NSBC144EF3T5G	D	SOT-1123 (Pb-Free)	8000 / 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.

\*S and NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

1. **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](http://www.onsemi.com).



- (1) SC-75 and SC-70/SOT323; Minimum Pad
- (2) SC-59; Minimum Pad
- (3) SOT-23; Minimum Pad
- (4) SOT-1123; 100 mm<sup>2</sup>, 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) (MUN2213)</b>			
Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 2)	$P_D$	230	mW
Derate above $25^\circ\text{C}$ (Note 3)		338	
		1.8	mW/°C
		2.7	
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$	540	°C/W
		370	
Thermal Resistance Junction to Lead (Note 3)	$R_{\theta JL}$	264	°C/W
		287	
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	°C

Table 2. THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
<b>THERMAL CHARACTERISTICS (SOT-23) (MMUN2213L)</b>			
Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 2)	$P_D$	246	mW
(Note 3)		400	
Derate above $25^\circ\text{C}$ (Note 2)		2.0	mW/ $^\circ\text{C}$
(Note 3)		3.2	
Thermal Resistance, Junction to Ambient (Note 1) (Note 3)	$R_{\theta JA}$	508 311	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 2) (Note 3)	$R_{\theta JL}$	174 208	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

**THERMAL CHARACTERISTICS (SC-70/SOT-323) (MUN5213)**

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 2)	$P_D$	202	mW
(Note 3)		310	
Derate above $25^\circ\text{C}$ (Note 2)		1.6	mW/ $^\circ\text{C}$
(Note 3)		2.5	
Thermal Resistance, Junction to Ambient (Note 2) (Note 3)	$R_{\theta JA}$	618 403	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 2) (Note 3)	$R_{\theta JL}$	280 332	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

**THERMAL CHARACTERISTICS (SC-75) (DTC144EE, SDTC144EE)**

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 2)	$P_D$	200	mW
(Note 3)		300	
Derate above $25^\circ\text{C}$ (Note 2)		1.6	mW/ $^\circ\text{C}$
(Note 3)		2.4	
Thermal Resistance, Junction to Ambient (Note 2) (Note 3)	$R_{\theta JA}$	600 400	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

**THERMAL CHARACTERISTICS (SOT-723) (DTC144EM3)**

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 2)	$P_D$	260	mW
(Note 3)		600	
Derate above $25^\circ\text{C}$ (Note 2)		2.0	mW/ $^\circ\text{C}$
(Note 3)		4.8	
Thermal Resistance, Junction to Ambient (Note 2) (Note 3)	$R_{\theta JA}$	480 205	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

**THERMAL CHARACTERISTICS (SOT-1123) (NSBC144EF3)**

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 4)	$P_D$	254	mW
(Note 5)		297	
Derate above $25^\circ\text{C}$ (Note 4)		2.0	mW/ $^\circ\text{C}$
(Note 5)		2.4	
Thermal Resistance, Junction to Ambient (Note 4) (Note 5)	$R_{\theta JA}$	493 421	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 4)	$R_{\theta JL}$	193	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

2. FR-4 @ Minimum Pad.

3. FR-4 @ 1.0 x 1.0 Inch Pad.

4. FR-4 @ 100 mm<sup>2</sup>, 1 oz. copper traces, still air.

5. FR-4 @ 500 mm<sup>2</sup>, 1 oz. copper traces, still air.

# MUN2213, MMUN2213L, MUN5213, DTC144EE, DTC144EM3, NSBC144EF3

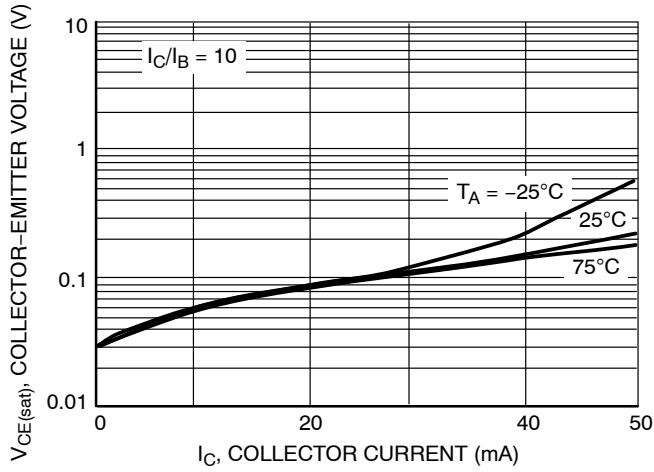
**Table 3. ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ , unless otherwise noted)

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 ( $V_{EB} = 6.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$	–	–	0.1	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 6) ( $I_C = 2.0\text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	50	–	–	Vdc
<b>ON CHARACTERISTICS</b>					
DC Current Gain (Note 6) ( $I_C = 5.0\text{ mA}$ , $V_{CE} = 10\text{ V}$ )	$h_{FE}$	80	140	–	
Collector–Emitter Saturation Voltage (Note 6) ( $I_C = 10\text{ mA}$ , $I_B = 0.3\text{ mA}$ )	$V_{CE(sat)}$	–	–	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) ( $V_{CE} = 0.3\text{ V}$ , $I_C = 2.0\text{ mA}$ )	$V_{i(on)}$	3.0	1.6	–	Vdc
Output Voltage (on) ( $V_{CC} = 5.0\text{ V}$ , $V_B = 3.5\text{ V}$ , $R_L = 1.0\text{ k}\Omega$ )	$V_{OL}$	–	–	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	$R_1$	32.9	47	61.1	$\text{k}\Omega$
Resistor Ratio	$R_1/R_2$	0.8	1.0	1.2	

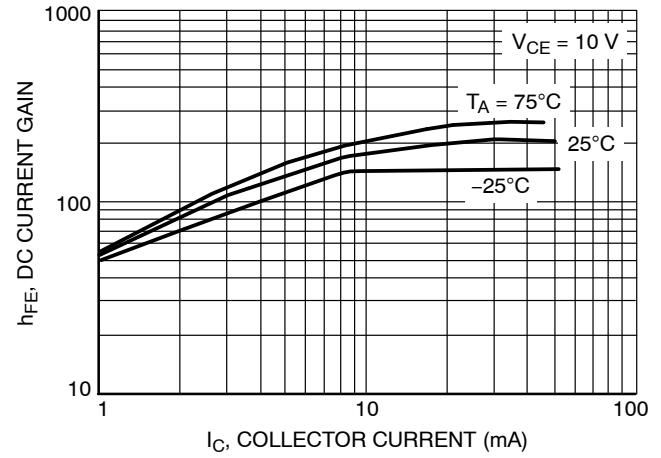
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

6. Pulsed Condition: Pulse Width = 300 msec, Duty Cycle  $\leq 2\%$ .

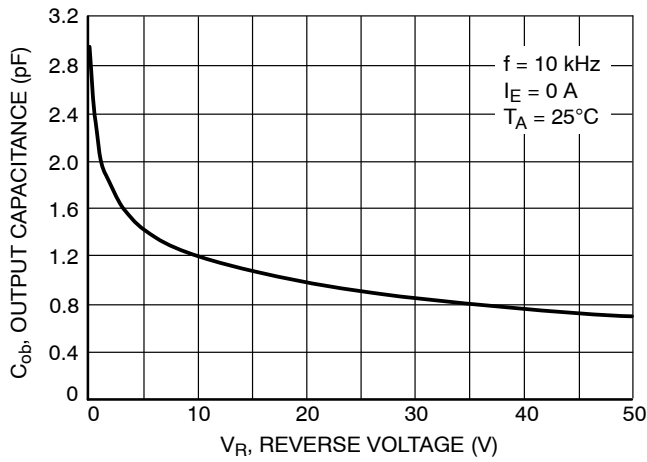
**TYPICAL CHARACTERISTICS**  
**MUN2213, MMUN2213L, MUN5213, DTC144EE, SDTC144EE, DTC144EM3**



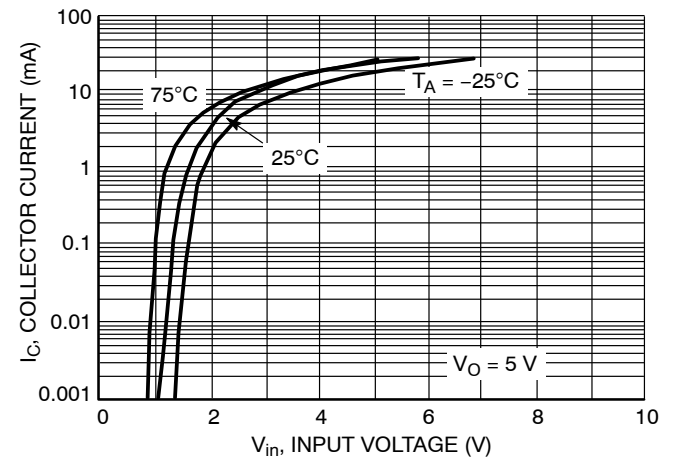
**Figure 2.  $V_{CE(sat)}$  vs.  $I_C$**



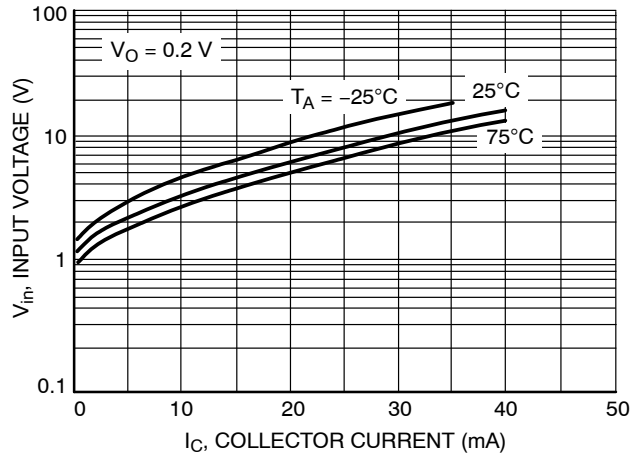
**Figure 3. DC Current Gain**



**Figure 4. Output Capacitance**



**Figure 5. Output Current vs. Input Voltage**



**Figure 6. Input Voltage vs. Output Current**

TYPICAL CHARACTERISTICS – NSBC144EF3

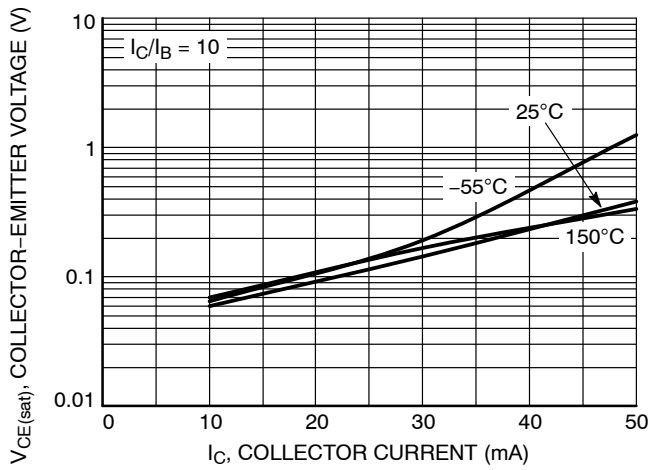


Figure 7.  $V_{CE(sat)}$  vs.  $I_C$

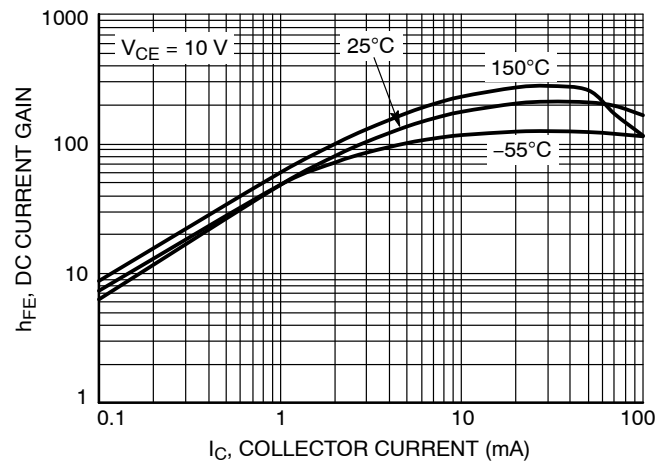


Figure 8. DC Current Gain

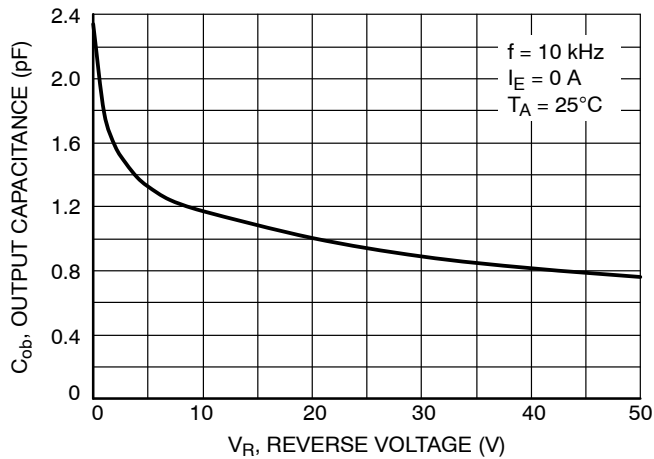


Figure 9. Output Capacitance

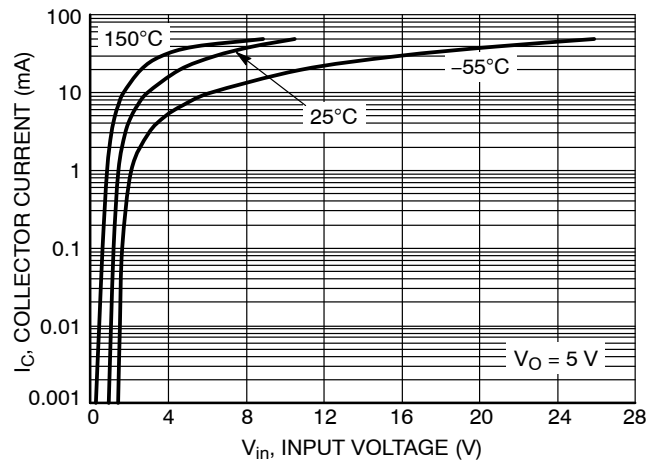


Figure 10. Output Current vs. Input Voltage

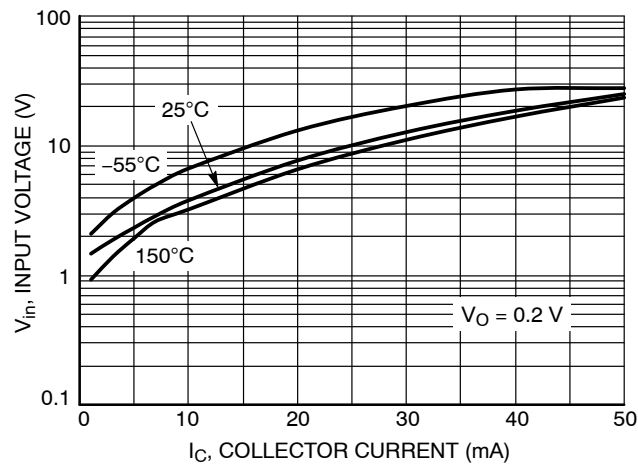
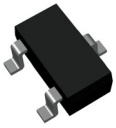


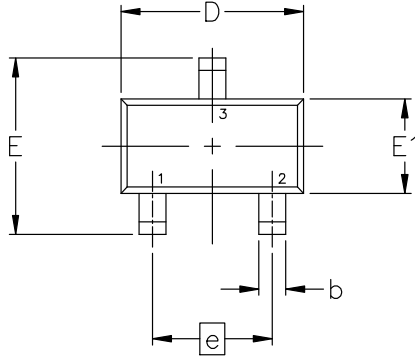
Figure 11. Input Voltage vs. Output Current

PACKAGE DIMENSIONS

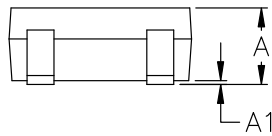


SC-59-3 2.90x1.50x1.15, 1.90P  
CASE 318D  
ISSUE J

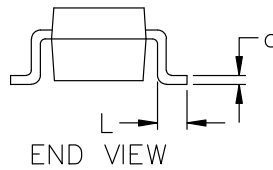
DATE 15 FEB 2024



TOP VIEW



SIDE VIEW

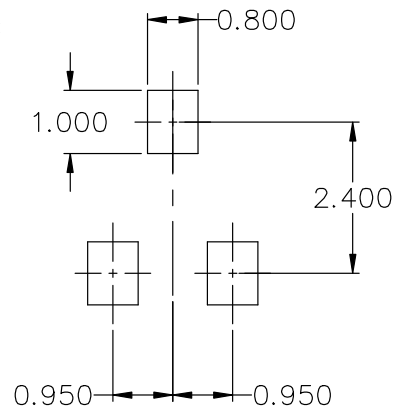


END VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
2. ALL DIMENSION ARE IN MILLIMETERS.

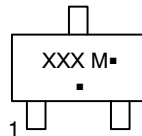
DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	1.00	1.15	1.30
A1	0.01	0.06	0.10
b	0.35	0.43	0.50
c	0.09	0.14	0.18
D	2.70	2.90	3.10
E	2.50	2.80	3.00
E1	1.30	1.50	1.70
e	1.90 BSC		
L	0.20	0.40	0.60



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, SOLDERM/D.

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.

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

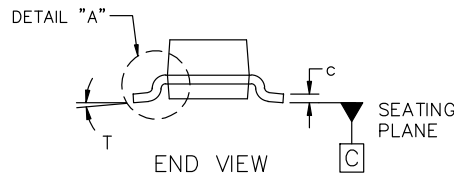
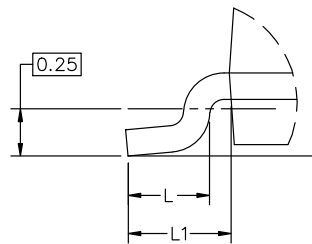
STYLE 6:  
PIN 1. ANODE  
2. CATHODE  
3. ANODE/CATHODE



SCALE 4:1

**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**  
CASE 318  
ISSUE AU

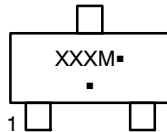
DATE 14 AUG 2024



MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.89	1.00	1.11
A1	0.01	0.06	0.10
b	0.37	0.44	0.50
c	0.08	0.14	0.20
D	2.80	2.90	3.04
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.43	0.55
L1	0.35	0.54	0.69
HE	2.10	2.40	2.64
T	0°	---	10°

## NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: 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.

**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 onsemi Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

**STYLES ON PAGE 2**

<b>DOCUMENT NUMBER:</b>	<b>98ASB42226B</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
<b>DESCRIPTION:</b>	<b>SOT-23 (TO-236) 2.90x1.30x1.00 1.90P</b>	<b>PAGE 1 OF 2</b>

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**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**  
**CASE 318**  
**ISSUE AU**

DATE 14 AUG 2024

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				

DOCUMENT NUMBER:	98ASB42226B	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	SOT-23 (TO-236) 2.90x1.30x1.00 1.90P	PAGE 2 OF 2

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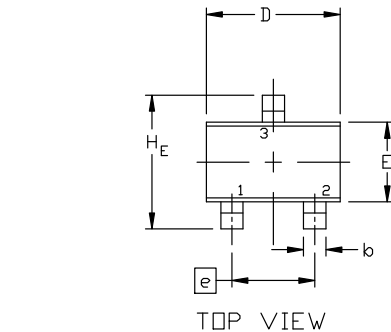
SCALE 4:1

**SC-70 (SOT-323)**  
**CASE 419**  
**ISSUE R**

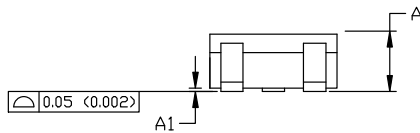
DATE 11 OCT 2022

## NOTES:

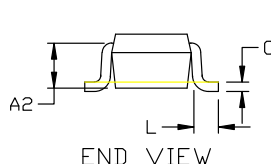
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH



TOP VIEW

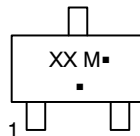


SIDE VIEW



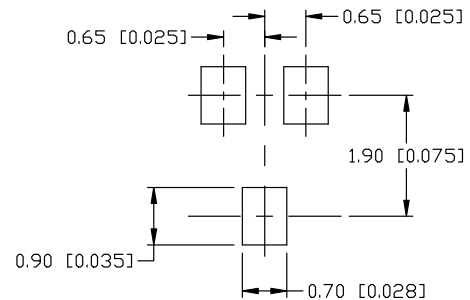
END VIEW

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 <sub>E</sub>	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

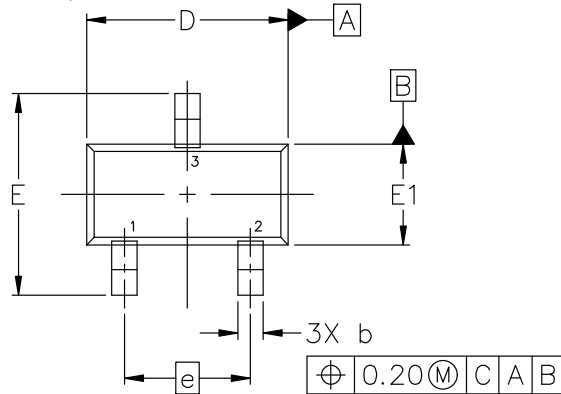
STYLE 11:  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE

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<b>DESCRIPTION:</b>	<b>SC-70 (SOT-323)</b>	<b>PAGE 1 OF 1</b>

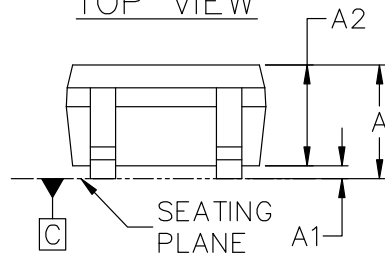
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**SC75-3 1.60x0.80x0.80, 1.00P**  
**CASE 463**  
**ISSUE H**

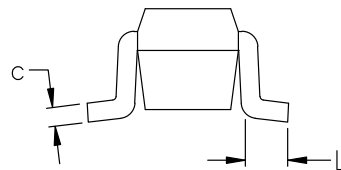
DATE 01 FEB 2024



TOP VIEW

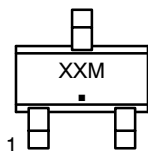


SIDE VIEW



END VIEW

**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.

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

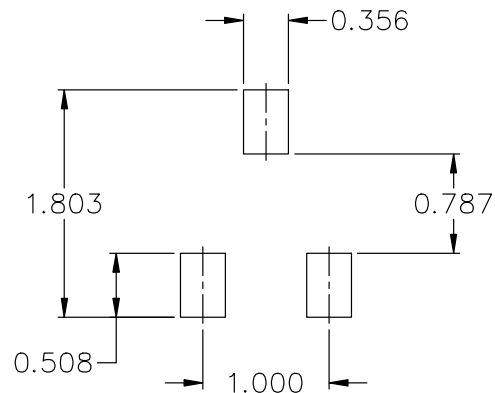
STYLE 2:  
PIN 1. ANODE  
2. N/C  
3. CATHODE

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

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.70	0.80	0.90
A1	0.00	0.05	0.10
A2	0.80 REF.		
b	0.15	0.20	0.30
c	0.10	0.15	0.25
D	1.55	1.60	1.65
E	1.50	1.60	1.70
E1	0.70	0.80	0.90
e	1.00 BSC		
L	0.10	0.15	0.20

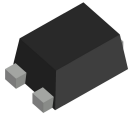


**RECOMMENDED MOUNTING FOOTPRINT\***

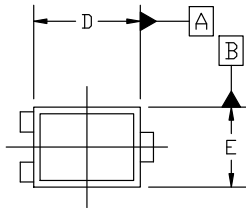
\* FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

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<b>DESCRIPTION:</b>	<b>SC75-3 1.60x0.80x0.80, 1.00P</b>	<b>PAGE 1 OF 1</b>

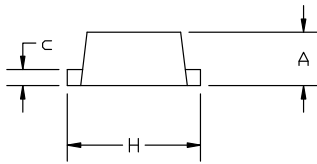
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**SOT-1123 0.80x0.60x0.37, 0.35P**  
**CASE 524AA**  
**ISSUE D**

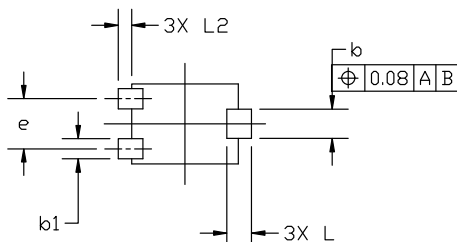
DATE 18 JAN 2024



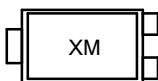
TOP VIEW



SIDE VIEW



BOTTOM VIEW

**GENERIC**  
**MARKING DIAGRAM\***

X = Specific Device Code  
M = Date Code

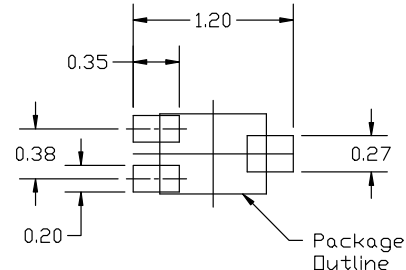
\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

## NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
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.

## MILLIMETERS

DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
b	0.15	0.22	0.28
b1	0.10	0.15	0.20
c	0.07	0.12	0.17
D	0.75	0.80	0.85
E	0.55	0.60	0.65
e	0.35	0.38	0.40
H	0.950	1.000	1.050
L	0.185 REF		
L2	0.05	0.10	0.15


**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, 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

**DOCUMENT NUMBER:** 98AON23134D

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**DESCRIPTION:** SOT-1123 0.80x0.60x0.37, 0.35P

**PAGE 1 OF 1**

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**SOT-723 1.20x0.80x0.50, 0.40P**  
**CASE 631AA**  
**ISSUE E**

DATE 24 JAN 2024

NOTES:

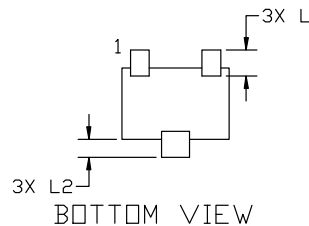
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



TOP VIEW



SIDE VIEW



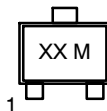
BOTTOM VIEW

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	1.15	1.20	1.25
L	0.29 REF		
L2	0.15	0.20	0.25



RECOMMENDED MOUNTING  
FOOTPRINT

**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" 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, 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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<b>DESCRIPTION:</b>	<b>SOT-723 1.20x0.80x0.50, 0.40P</b>	<b>PAGE 1 OF 1</b>

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