

# Digital Transistors (BRT)

## R1 = 100 kΩ, R2 = ∞ kΩ

### NPN Transistors with Monolithic Bias Resistor Network

# MUN2241, MMUN2241L, MUN5241, DTC115TE, DTC115TM3, NSBC115TF3

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

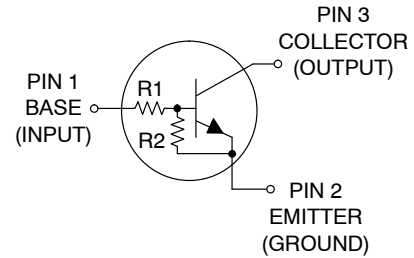
- Simplifies Circuit Design
- Reduces Board Space
- Reduces Component Count
- S and NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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

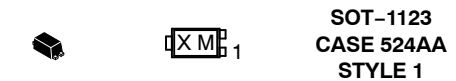
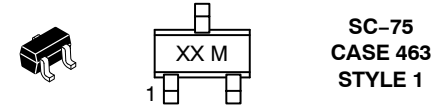
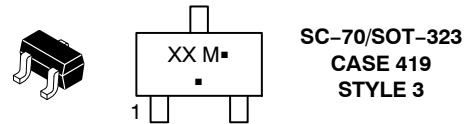
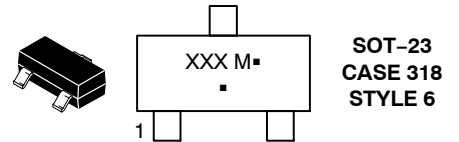
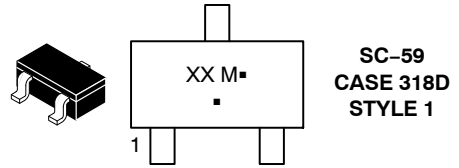
| Rating                         | Symbol               | Max | Unit |
|--------------------------------|----------------------|-----|------|
| Collector-Base Voltage         | V <sub>CBO</sub>     | 50  | Vdc  |
| Collector-Emitter Voltage      | V <sub>CEO</sub>     | 50  | Vdc  |
| Collector Current - 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> | 6   | 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.

# MUN2241, MMUN2241L, MUN5241, DTC115TE, DTC115TM3, NSBC115TF3

**Table 1. ORDERING INFORMATION**

| Device       | Part Marking | Package                    | Shipping†          |
|--------------|--------------|----------------------------|--------------------|
| MUN2241T1G   | 8U           | SC-59<br>(Pb-Free)         | 3000 / Tape & Reel |
| MMUN2241LT1G | A8U          | SOT-23<br>(Pb-Free)        | 3000 / Tape & Reel |
| MUN5241T1G   | AW           | SC-70/SOT-323<br>(Pb-Free) | 3000 / Tape & Reel |
| DTC115TET1G  | 7V           | SC-75<br>(Pb-Free)         | 3000 / Tape & Reel |
| DTC115TM3T5G | 7D           | SOT-723<br>(Pb-Free)       | 8000 / Tape & Reel |

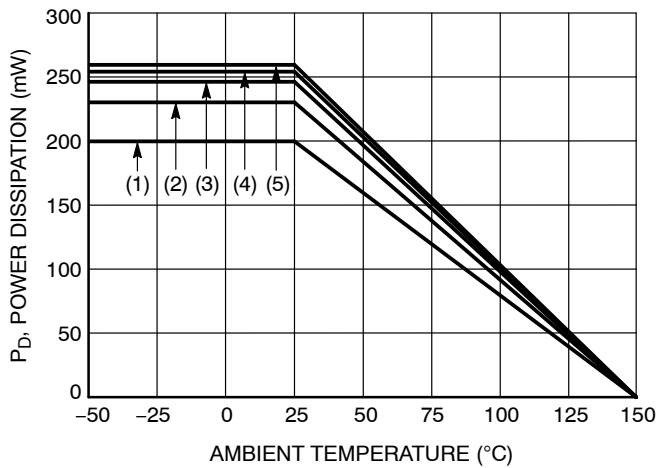
**DISCONTINUED** (Note 1)

|               |          |                       |                    |
|---------------|----------|-----------------------|--------------------|
| NSBC115TF3T5G | P (90°)* | SOT-1123<br>(Pb-Free) | 8000 / 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.

\* (xx°) = Degree rotation in the clockwise direction.

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**

**MUN2241, MMUN2241L, MUN5241, DTC115TE, DTC115TM3, NSBC115TF3**

**Table 2. THERMAL CHARACTERISTICS**

| Characteristic  | Symbol          | Max         | Unit  |
|---|-----------------|-------------|-------|
| <b>THERMAL CHARACTERISTICS (SC-59) (MUN2241)</b>              |                 |             |       |
| Total Device Dissipation<br>$T_A = 25^\circ\text{C}$ (Note 2) | $P_D$           | 230         | mW    |
| Derate above $25^\circ\text{C}$ (Note 3)                      |                 | 338         | mW/°C |
|   |                 | 1.8         |       |
|   |                 | 2.7         |       |
| Thermal Resistance,<br>Junction to Ambient (Note 2)           | $R_{\theta JA}$ | 540         | °C/W  |
| (Note 3)  |                 | 370         |       |
| Thermal Resistance,<br>Junction to Lead (Note 2)              | $R_{\theta JL}$ | 264         | °C/W  |
| (Note 3)  |                 | 287         |       |
| Junction and Storage Temperature Range                        | $T_J, T_{stg}$  | -55 to +150 | °C    |
| <b>THERMAL CHARACTERISTICS (SOT-23) (MMUN2241L)</b>           |                 |             |       |
| Total Device Dissipation<br>$T_A = 25^\circ\text{C}$ (Note 2) | $P_D$           | 246         | mW    |
| Derate above $25^\circ\text{C}$ (Note 3)                      |                 | 400         | mW/°C |
|   |                 | 2.0         |       |
|   |                 | 3.2         |       |
| Thermal Resistance,<br>Junction to Ambient (Note 1)           | $R_{\theta JA}$ | 508         | °C/W  |
| (Note 3)  |                 | 311         |       |
| Thermal Resistance,<br>Junction to Lead (Note 2)              | $R_{\theta JL}$ | 174         | °C/W  |
| (Note 3)  |                 | 208         |       |
| Junction and Storage Temperature Range                        | $T_J, T_{stg}$  | -55 to +150 | °C    |
| <b>THERMAL CHARACTERISTICS (SC-70/SOT-323) (MUN5241)</b>      |                 |             |       |
| Total Device Dissipation<br>$T_A = 25^\circ\text{C}$ (Note 2) | $P_D$           | 202         | mW    |
| Derate above $25^\circ\text{C}$ (Note 3)                      |                 | 310         | mW/°C |
|   |                 | 1.6         |       |
|   |                 | 2.5         |       |
| Thermal Resistance,<br>Junction to Ambient (Note 2)           | $R_{\theta JA}$ | 618         | °C/W  |
| (Note 3)  |                 | 403         |       |
| Thermal Resistance,<br>Junction to Lead (Note 2)              | $R_{\theta JL}$ | 280         | °C/W  |
| (Note 3)  |                 | 332         |       |
| Junction and Storage Temperature Range                        | $T_J, T_{stg}$  | -55 to +150 | °C    |
| <b>THERMAL CHARACTERISTICS (SC-75) (DTC115TE)</b>             |                 |             |       |
| Total Device Dissipation<br>$T_A = 25^\circ\text{C}$ (Note 2) | $P_D$           | 200         | mW    |
| Derate above $25^\circ\text{C}$ (Note 3)                      |                 | 300         | mW/°C |
|   |                 | 1.6         |       |
|   |                 | 2.4         |       |
| Thermal Resistance,<br>Junction to Ambient (Note 2)           | $R_{\theta JA}$ | 600         | °C/W  |
| (Note 3)  |                 | 400         |       |
| Junction and Storage Temperature Range                        | $T_J, T_{stg}$  | -55 to +150 | °C    |
| <b>THERMAL CHARACTERISTICS (SOT-723) (DTC115TM3)</b>          |                 |             |       |
| Total Device Dissipation<br>$T_A = 25^\circ\text{C}$ (Note 2) | $P_D$           | 260         | mW    |
| Derate above $25^\circ\text{C}$ (Note 3)                      |                 | 600         | mW/°C |
|   |                 | 2.0         |       |
|   |                 | 4.8         |       |
| Thermal Resistance,<br>Junction to Ambient (Note 2)           | $R_{\theta JA}$ | 480         | °C/W  |
| (Note 3)  |                 | 205         |       |
| Junction and Storage Temperature Range                        | $T_J, T_{stg}$  | -55 to +150 | °C    |

# MUN2241, MMUN2241L, MUN5241, DTC115TE, DTC115TM3, NSBC115TF3

**Table 2. THERMAL CHARACTERISTICS**

| Characteristic  | Symbol          | Max         | Unit  |
|---|-----------------|-------------|-------|
| <b>THERMAL CHARACTERISTICS (SOT-1123) (NSBC115TF3)</b>        |                 |             |       |
| Total Device Dissipation<br>$T_A = 25^\circ\text{C}$ (Note 4) | $P_D$           | 254         | mW    |
| Derate above $25^\circ\text{C}$ (Note 5)                      |                 | 297         | mW/°C |
| (Note 4)  |                 | 2.0         |       |
| (Note 5)  |                 | 2.4         |       |
| Thermal Resistance,<br>Junction to Ambient (Note 4)           | $R_{\theta JA}$ | 493         | °C/W  |
| (Note 5)  |                 | 421         |       |
| Thermal Resistance,<br>Junction to Lead (Note 4)              | $R_{\theta JL}$ | 193         | °C/W  |
| Junction and Storage Temperature Range                        | $T_J, T_{stg}$  | -55 to +150 | °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.

**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<br>( $V_{CB} = 50\text{ V}, I_E = 0$ )                               | $I_{CBO}$     | -   | -   | 100  | nAdc       |
| Collector-Emitter Cutoff Current<br>( $V_{CE} = 50\text{ V}, I_B = 0$ )                            | $I_{CEO}$     | -   | -   | 500  | nAdc       |
| Emitter-Base Cutoff Current<br>( $V_{EB} = 6.0\text{ V}, I_C = 0$ )                                | $I_{EBO}$     | -   | -   | 0.1  | mAdc       |
| Collector-Base Breakdown Voltage<br>( $I_C = 10\ \mu\text{A}, I_E = 0$ )                           | $V_{(BR)CBO}$ | 50  | -   | -    | Vdc        |
| Collector-Emitter Breakdown Voltage (Note 6)<br>( $I_C = 2.0\text{ mA}, I_B = 0$ )                 | $V_{(BR)CEO}$ | 50  | -   | -    | Vdc        |
| <b>ON CHARACTERISTICS</b>  |               |     |     |      |            |
| DC Current Gain (Note 6)<br>( $I_C = 5.0\text{ mA}, V_{CE} = 10\text{ V}$ )                        | $h_{FE}$      | 160 | 350 | -    |            |
| Collector-Emitter Saturation Voltage (Note 6)<br>( $I_C = 10\text{ mA}, I_B = 5.0\text{ mA}$ )     | $V_{CE(sat)}$ | -   | -   | 0.25 | Vdc        |
| Input Voltage (off)<br>( $V_{CE} = 5.0\text{ V}, I_C = 100\ \mu\text{A}$ )                         | $V_{i(off)}$  | -   | 0.6 | 0.5  | Vdc        |
| Input Voltage (on)<br>( $V_{CE} = 0.3\text{ V}, I_C = 1.0\text{ mA}$ )                             | $V_{i(on)}$   | 1.5 | 1.0 | -    | Vdc        |
| Output Voltage (on)<br>( $V_{CC} = 5.0\text{ V}, V_B = 5.0\text{ V}, R_L = 1.0\text{ k}\Omega$ )   | $V_{OL}$      | -   | -   | 0.2  | Vdc        |
| Output Voltage (off)<br>( $V_{CC} = 5.0\text{ V}, V_B = 0.25\text{ V}, R_L = 1.0\text{ k}\Omega$ ) | $V_{OH}$      | 4.9 | -   | -    | Vdc        |
| Input Resistor   | R1            | 70  | 100 | 130  | k $\Omega$ |
| Resistor Ratio   | $R_1/R_2$     | -   | -   | -    |            |

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 – NSBC115TF3

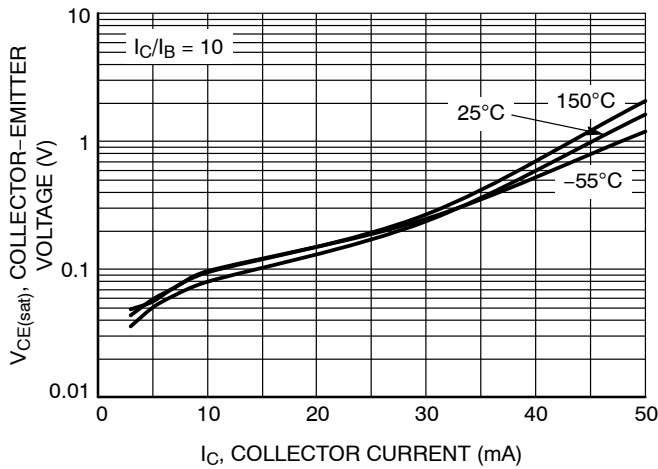


Figure 2.  $V_{CE(sat)}$  vs.  $I_C$

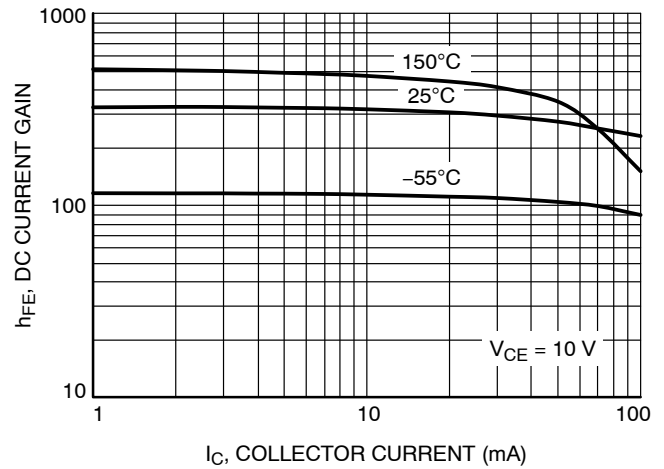


Figure 3. DC Current Gain

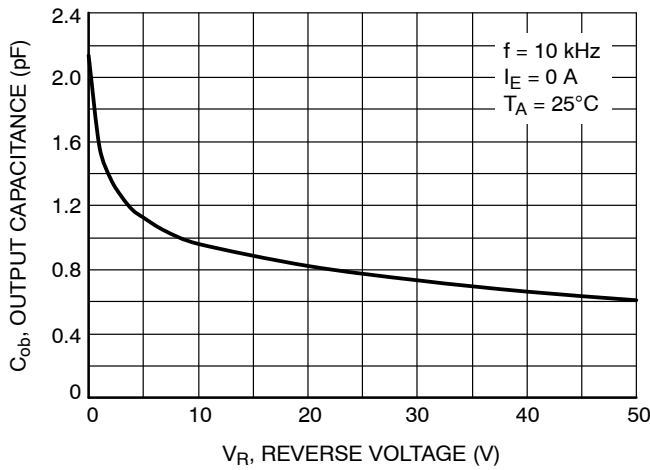


Figure 4. Output Capacitance

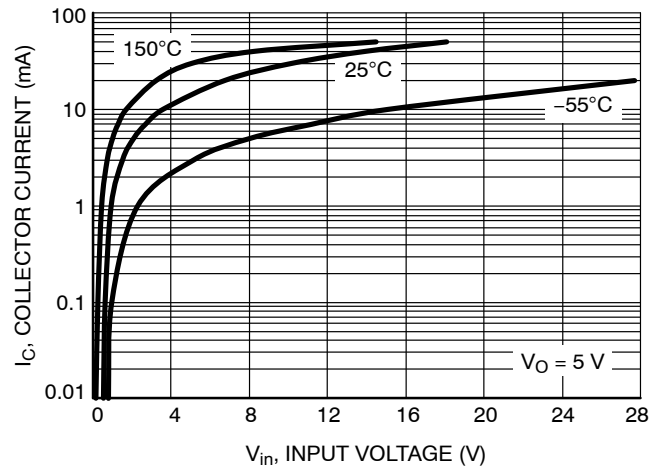


Figure 5. Output Current vs. Input Voltage

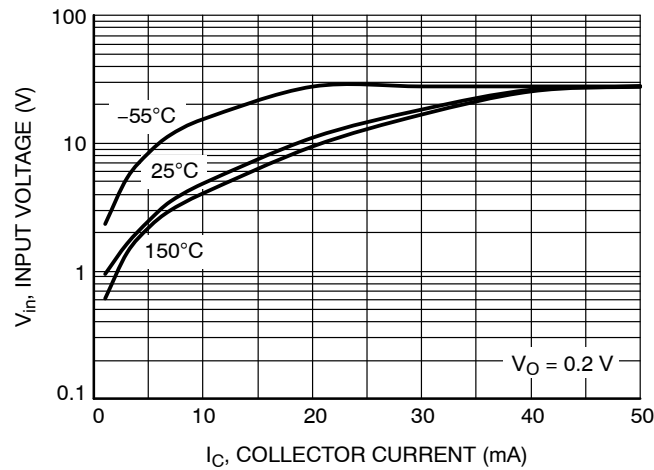
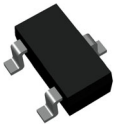


Figure 6. Input Voltage vs. Output Current

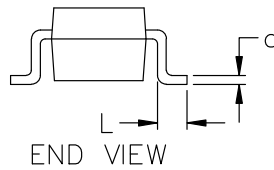
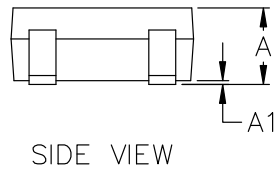
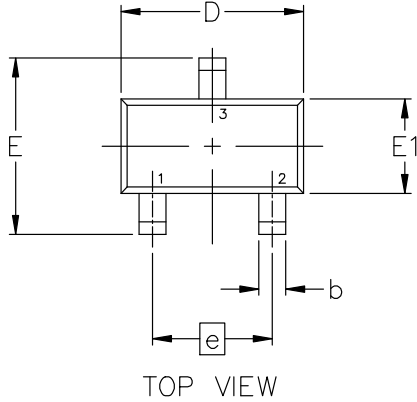
# MUN2241, MMUN2241L, MUN5241, DTC115TE, DTC115TM3, NSBC115TF3

## PACKAGE DIMENSIONS



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

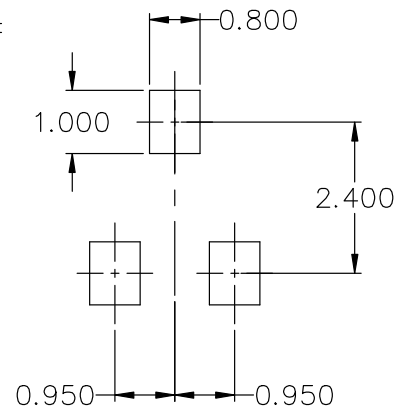
DATE 15 FEB 2024



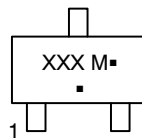
NOTES:

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 |



### 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.

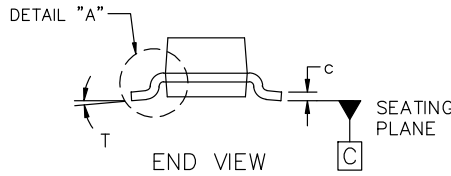
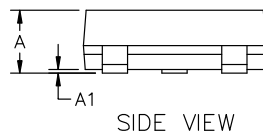
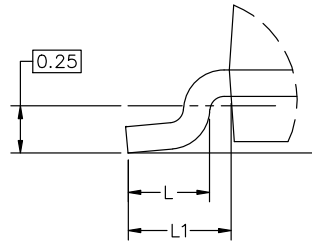
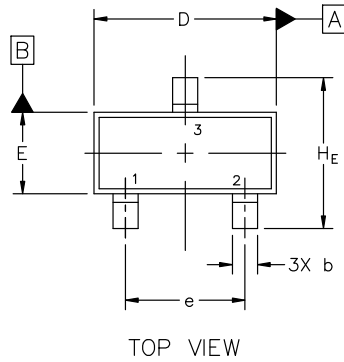
- STYLE 1:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR
- STYLE 2:  
PIN 1. ANODE  
2. N.C.  
3. CATHODE
- STYLE 3:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE
- STYLE 4:  
PIN 1. CATHODE  
2. N.C.  
3. ANODE
- STYLE 5:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE
- STYLE 6:  
PIN 1. ANODE  
2. CATHODE  
3. ANODE/CATHODE



SCALE 4:1

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

DATE 14 AUG 2024

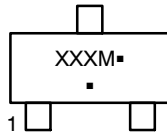


| MILLIMETERS |      |      |      |
|-------------|------|------|------|
| DIM         | MIN  | NOM  | MAX  |
| A           | 0.89 | 1.00 | 1.11 |
| A1          | 0.01 | 0.06 | 0.10 |
| b           | 0.37 | 0.44 | 0.50 |
| c           | 0.08 | 0.14 | 0.20 |
| D           | 2.80 | 2.90 | 3.04 |
| E           | 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:

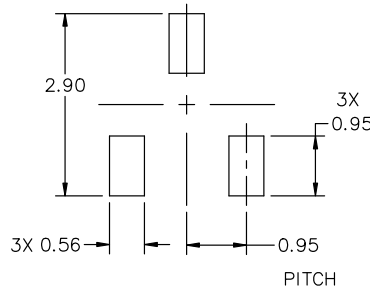
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

**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.



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

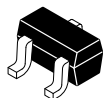
STYLE 27:  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE

STYLE 28:  
PIN 1. ANODE  
2. ANODE  
3. ANODE

|                         |   |   |
|-------------------------|---|---|
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| <b>DESCRIPTION:</b>     | <b>SOT-23 (TO-236) 2.90x1.30x1.00 1.90P</b> | <b>PAGE 2 OF 2</b>  |

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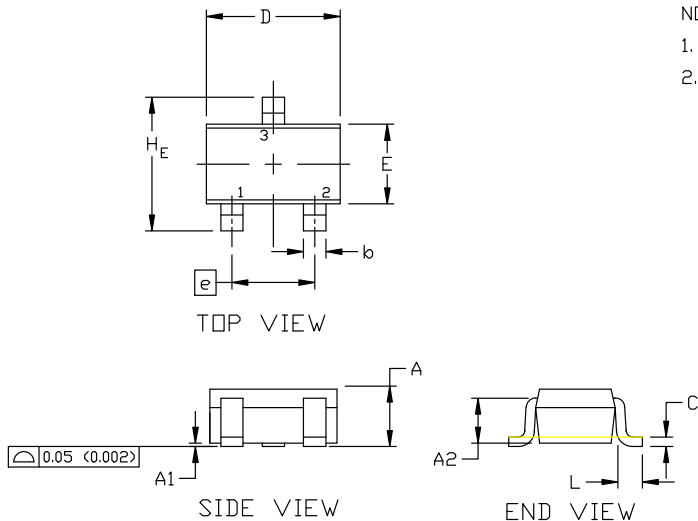




SCALE 4:1

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

DATE 11 OCT 2022

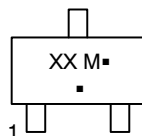


NOTES:

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

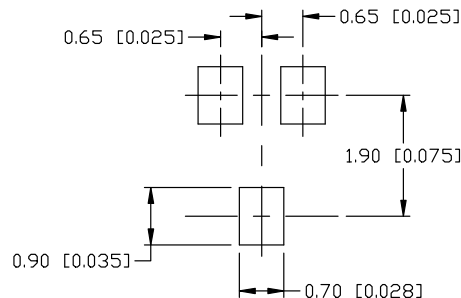
| DIM            | MILLIMETERS |      |      | INCHES    |       |       |
|----------------|-------------|------|------|-----------|-------|-------|
|                | MIN.        | NOM. | MAX. | MIN.      | NOM.  | MAX.  |
| A              | 0.80        | 0.90 | 1.00 | 0.032     | 0.035 | 0.040 |
| 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 <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 DN Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

SOLDERING FOOTPRINT

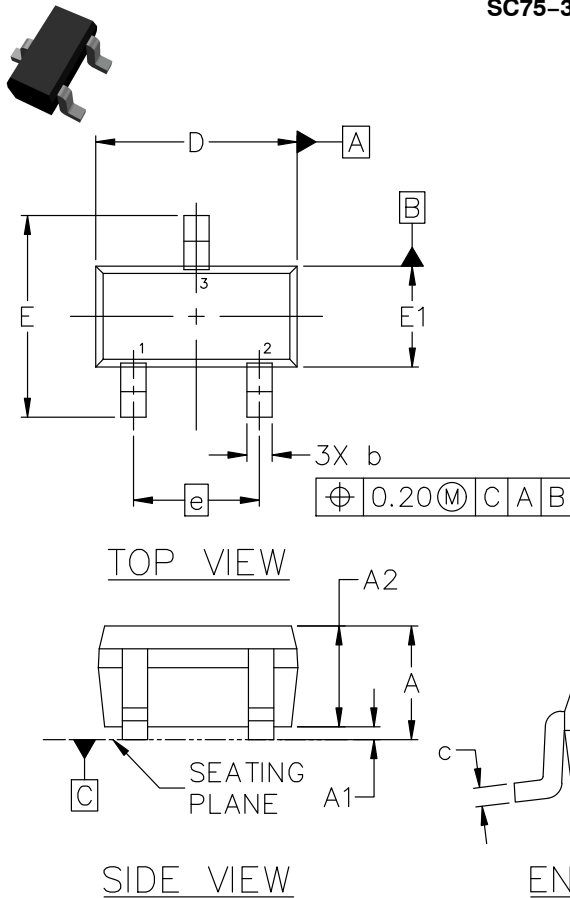
- |   |   |   |  |   |   |
|---|---|---|--|---|---|
| STYLE 1:<br>CANCELLED                                 | STYLE 2:<br>PIN 1. ANODE<br>2. N.C.<br>3. CATHODE     | STYLE 3:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 4:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. ANODE       | STYLE 5:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE          |   |
| STYLE 6:<br>PIN 1. EMITTER<br>2. BASE<br>3. COLLECTOR | STYLE 7:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 8:<br>PIN 1. GATE<br>2. SOURCE<br>3. DRAIN      | STYLE 9:<br>PIN 1. ANODE<br>2. CATHODE<br>3. CATHODE-ANODE | STYLE 10:<br>PIN 1. CATHODE<br>2. ANODE<br>3. ANODE-CATHODE | STYLE 11:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. CATHODE |

|                  |                 |   |
|------------------|-----------------|---|
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| DESCRIPTION:     | SC-70 (SOT-323) | PAGE 1 OF 1   |

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

DATE 01 FEB 2024

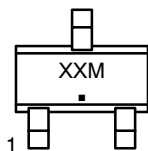


NOTES:

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

| 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 |

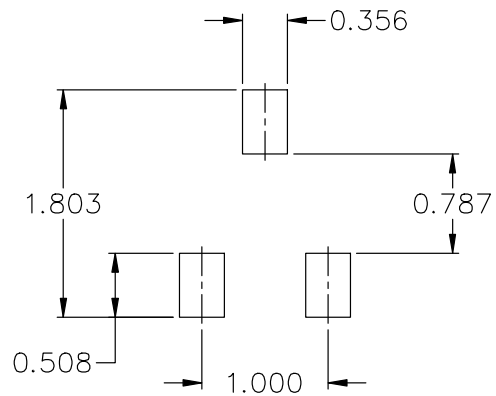
**GENERIC MARKING DIAGRAM\***



- 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

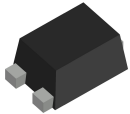


RECOMMENDED MOUNTING FOOTPRINT\*

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

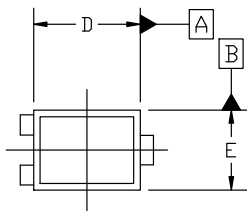
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| <b>DESCRIPTION:</b>     | <b>SC75-3 1.60x0.80x0.80, 1.00P</b> | <b>PAGE 1 OF 1</b>   |

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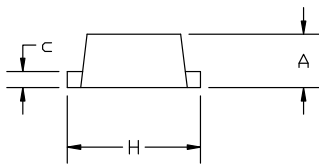


**SOT-1123 0.80x0.60x0.37, 0.35P**  
**CASE 524AA**  
**ISSUE D**

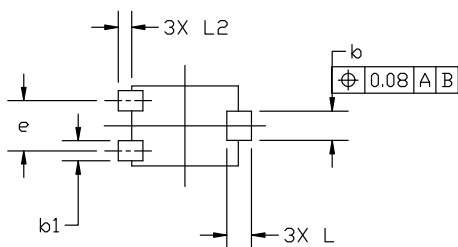
DATE 18 JAN 2024



TOP VIEW

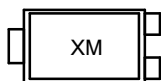


SIDE VIEW



BOTTOM VIEW

**GENERIC MARKING DIAGRAM\***



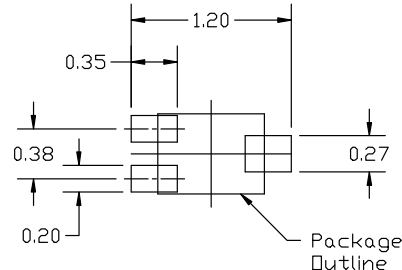
X = Specific Device Code  
M = Date Code

\*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  |



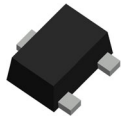
**RECOMMENDED MOUNTING FOOTPRINT**

\*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:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 2:<br>PIN 1. ANODE<br>2. N/C<br>3. CATHODE | STYLE 3:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE | STYLE 4:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. ANODE | STYLE 5:<br>PIN 1. GATE<br>2. SOURCE<br>3. DRAIN |
|---|--|--|--|--|

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| <b>DESCRIPTION:</b>     | <b>SOT-1123 0.80x0.60x0.37, 0.35P</b> | <b>PAGE 1 OF 1</b>   |

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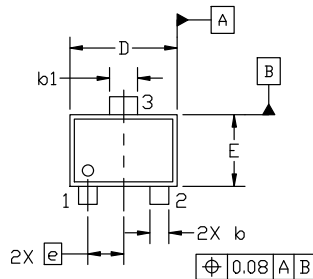
**SOT-723 1.20x0.80x0.50, 0.40P**  
**CASE 631AA**  
**ISSUE E**

DATE 24 JAN 2024

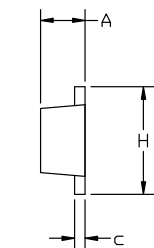
NOTES:

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.

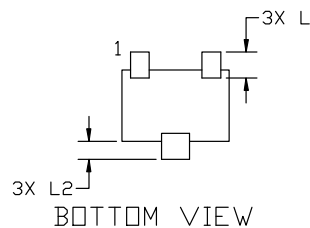
| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 0.45        | 0.50 | 0.55 |
| b   | 0.15        | 0.21 | 0.27 |
| b1  | 0.25        | 0.31 | 0.37 |
| c   | 0.07        | 0.12 | 0.17 |
| D   | 1.15        | 1.20 | 1.25 |
| E   | 0.75        | 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 |



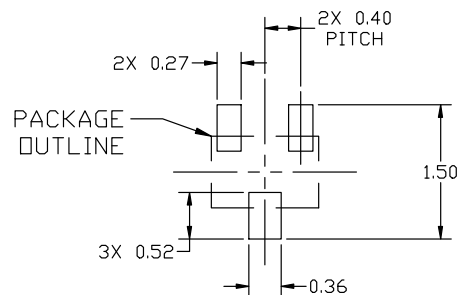
TOP VIEW



SIDE VIEW

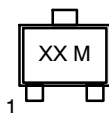


BOTTOM VIEW



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:     | STYLE 2:     | STYLE 3:     | STYLE 4:       | STYLE 5:    |
|--------------|--------------|--------------|----------------|-------------|
| PIN 1. BASE  | PIN 1. ANODE | PIN 1. ANODE | PIN 1. CATHODE | PIN 1. GATE |
| 2. EMITTER   | 2. N/C       | 2. ANODE     | 2. CATHODE     | 2. SOURCE   |
| 3. COLLECTOR | 3. CATHODE   | 3. CATHODE   | 3. ANODE       | 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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