

# ESD Protection Diode

## Low Clamping Voltage

### PACDN042

#### Product Description

The PACDN042/43/44/45/46 family of surge protection arrays provide a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). The PACDN042/43/44/45/46 devices safely dissipate ESD strikes, exceeding the IEC 61000-4-2 International Standard, Level 4 ( $\pm 8$  kV contact discharge). All pins are rated to withstand  $\pm 20$  kV ESD pulses using the IEC 61000-4-2 contact discharge method. Using the MIL-STD-883D (Method 3015) specification for Human Body Model (HBM) ESD, all pins are protected from contact discharges of greater than  $\pm 30$  kV.

#### Features

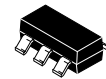
- Two, Three, Four, Five, or Six Surge Protection
- Compact SMT Package Saves Board Space and Facilitates Layout in Space-Critical Applications
- In-System ESD Protection to  $\pm 20$  kV Contact Discharge, per the IEC 61000-4-2 International Standard
- These Devices are Pb-Free and are RoHS Compliant

#### Applications

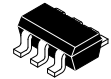
- ESD Protection of PC Ports, Including USB Ports, Serial Ports, Parallel Ports, IEEE1394 Ports, Docking Ports, Proprietary Ports, etc.
- Protection of Interface Ports or IC Pins which are Exposed to High ESD Levels



SOT-23-3  
CASE 318



SOT-23-5  
CASE 527AH



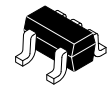
SOT-23-6  
CASE 527AJ



SOT-143  
CASE 527AF



SC70-3  
CASE 419AB



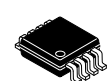
CS70-5  
CASE 419AC



SC70-6  
CASE 419AD

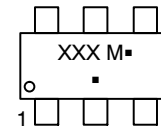


TSSOP8  
CASE 948AL



MSOP8  
CASE 846AB

#### MARKING DIAGRAM



XXX = Specific Device Code

M = Date Code

■ = Pb-Free Package

(Note: Microdot may be in either location)

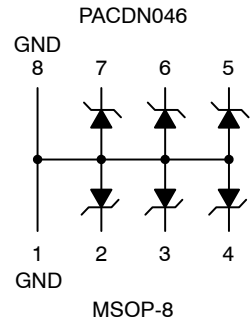
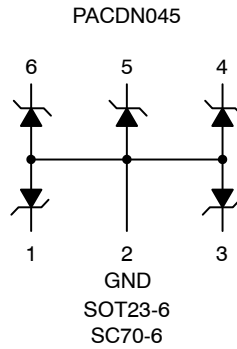
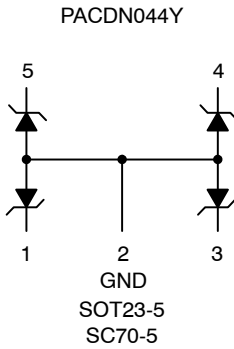
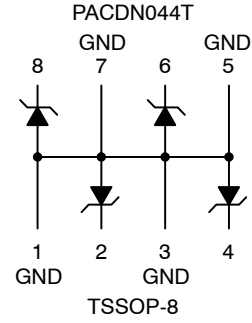
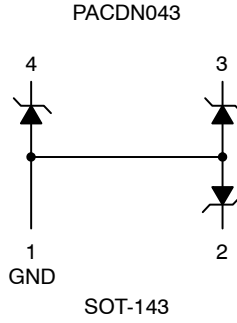
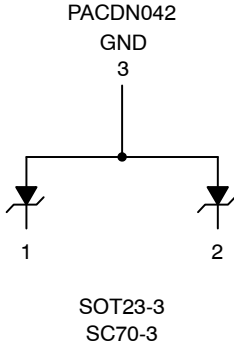
#### ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

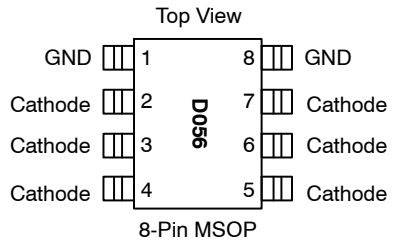
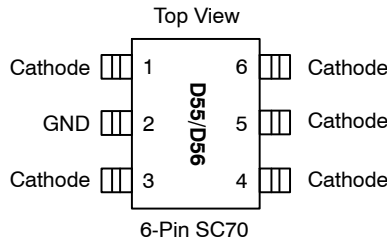
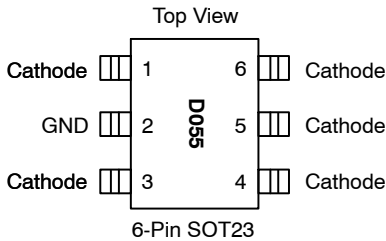
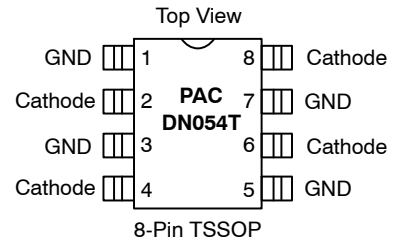
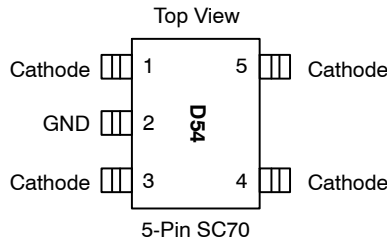
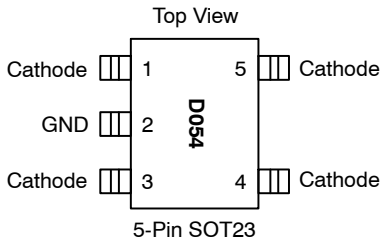
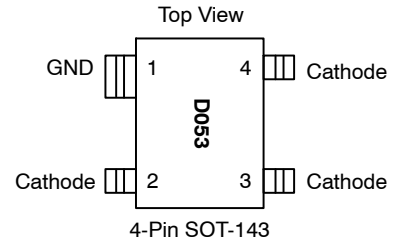
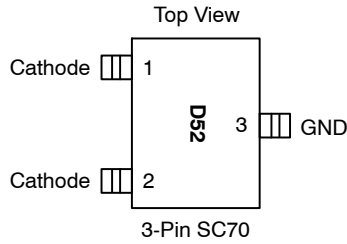
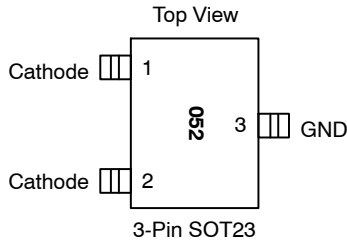
NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 5.

# PACDN042

## ELECTRICAL SCHEMATIC



## PACKAGE / PINOUT DIAGRAMS



Note: SOT23, SC70, SOT-143, TSSOP, and MSOP Packages may differ in size. These drawings are not to scale.



**Table 1. PIN DESCRIPTIONS**

| Pins                                | Name    | Description                                                                                                                         |
|-------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------|
| (Refer to Package Outline Drawings) | Cathode | The cathode of the respective surge protection diode, which should be connected to the node requiring transient voltage protection. |
| (Refer to Package Outline Drawings) | GND     | The anode of the surge protection diodes.                                                                                           |

## SPECIFICATIONS

**Table 2. ABSOLUTE MAXIMUM RATINGS**

| Parameter                                                                              | Rating              | Unit |
|----------------------------------------------------------------------------------------|---------------------|------|
| Storage Temperature Range                                                              | -65 to +150         | °C   |
| Package Power Dissipation<br>SC70<br>SOT23-3, SOT23-5, SOT23-6, SOT-143<br>TSSOP, MSOP | 0.2<br>0.225<br>0.5 | W    |

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.

**Table 3. STANDARD OPERATING CONDITIONS**

| Parameter             | Rating     | Unit |
|-----------------------|------------|------|
| Operating Temperature | -40 to +85 | °C   |

**Table 4. ELECTRICAL OPERATING CHARACTERISTICS**

| Symbol     | Parameter                                                                                                                 | Conditions                                                                              | Min                  | Typ         | Max       | Unit     |
|------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------|-------------|-----------|----------|
| C          | Capacitance                                                                                                               | $T_A = 25\text{ °C}$ , 2.5 VDC, 1 MHz                                                   |                      | 30          |           | pF       |
| $V_{RSO}$  | Reverse Stand-off Voltage                                                                                                 | $I_R = 10\text{ }\mu\text{A}$ , $T_A = 25\text{ °C}$                                    | 5.5                  |             |           | V        |
|            |                                                                                                                           | $I_R = 1\text{ mA}$ , $T_A = 25\text{ °C}$                                              | 6.1                  |             |           | V        |
| $I_{LEAK}$ | Leakage Current                                                                                                           | $V_{IN} = 5.0\text{ VDC}$ , $T_A = 25\text{ °C}$                                        |                      | 1           | 100       | nA       |
| $V_{SIG}$  | Small Signal Clamp Voltage<br>Positive Clamp<br>Negative Clamp                                                            | $I = 10\text{ mA}$ , $T_A = 25\text{ °C}$<br>$I = -10\text{ mA}$ , $T_A = 25\text{ °C}$ | 6.2<br>-0.4          | 6.8<br>-0.8 | 8<br>-1.2 | V        |
| $V_{ESD}$  | ESD Withstand Voltage<br>Human Body Model, MIL-STD-883,<br>Method 3015<br>Contact Discharge per IEC 61000-4-2<br>Standard | (Note 1)<br>(Note 1)                                                                    | $\pm 30$<br>$\pm 20$ |             |           | kV       |
| $R_D$      | Diode Dynamic Resistance<br>Forward Conduction<br>Reverse Conduction                                                      |                                                                                         |                      | 1.0<br>1.4  |           | $\Omega$ |

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

1. ESD voltage applied between channel pins & ground, one pin at a time; all other channel pins open; all GND pins grounded.

## PERFORMANCE INFORMATION

### Diode Capacitance

Typical diode capacitance with respect to positive cathode voltage (reverse voltage across the diode) is given in Diode Capacitance vs. Reverse Voltage.

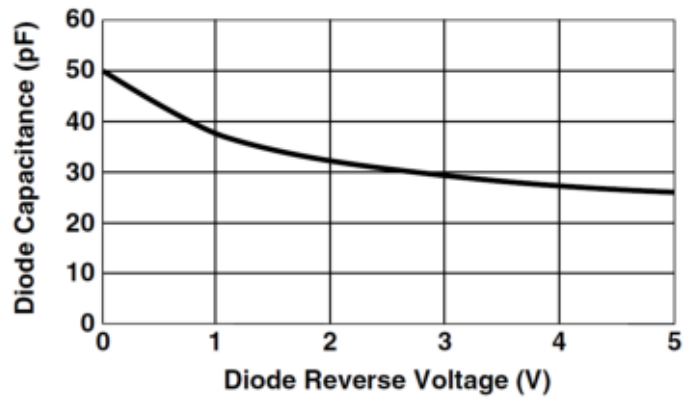


Figure 1. Diode Capacitance vs. Reverse Voltage

### Typical High Current Diode Characteristics

Measurements are made in pulse mode with a nominal pulse width of 0.7 mS.

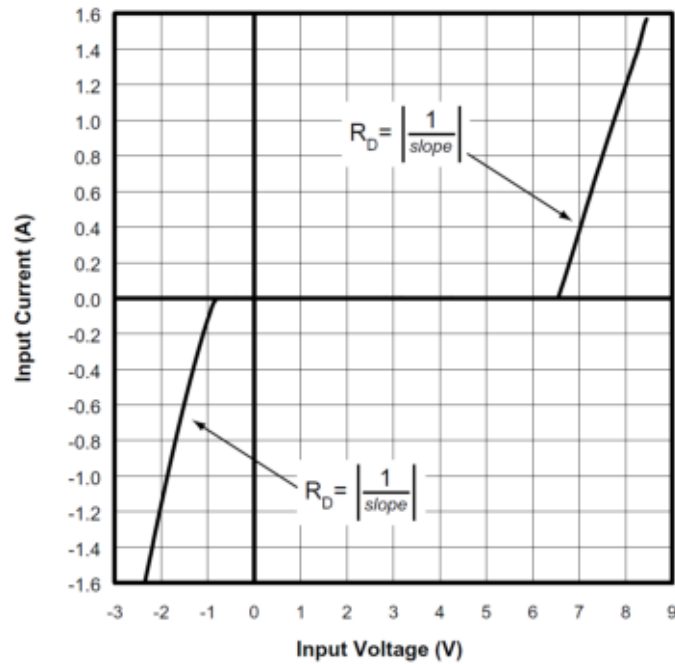


Figure 2. Typical Input VI Characteristics  
(Pulse-mode measurements, pulse width = 0.7 mS nominal)

## PACDN042

### ORDERING INFORMATION

| Device         | Package              | Shipping <sup>†</sup> |
|----------------|----------------------|-----------------------|
| PACDN042Y3R    | SOT23-3<br>(Pb-Free) | 3000 / Tape & Reel    |
| PACDN045YB6R-R | SC70-6<br>(Pb-Free)  | 3000 / Tape & Reel    |

### DISCONTINUED (Note 2)

|              |                      |                    |
|--------------|----------------------|--------------------|
| PACDN044Y5R  | SOT23-5<br>(Pb-Free) | 3000 / Tape & Reel |
| PACDN045Y6R  | SOT23-6<br>(Pb-Free) | 3000 / Tape & Reel |
| PACDN043Y4R  | SOT-143<br>(Pb-Free) | 3000 / Tape & Reel |
| PACDN042YB3R | SC70-3<br>(Pb-Free)  | 3000 / Tape & Reel |
| PACDN044YB5R | SC70-5<br>(Pb-Free)  | 3000 / Tape & Reel |
| PACDN045YB6R | SC70-6<br>(Pb-Free)  | 3000 / Tape & Reel |
| PACDN044TR   | TSSOP8<br>(Pb-Free)  | 2500 / Tape & Reel |
| PACDN046MR   | MSOP8<br>(Pb-Free)   | 4000 / 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](#).

2. **DISCONTINUED:** These devices are not available. Please contact your **onsemi** representative for information. The most current information on these devices may be available on [www.onsemi.com](http://www.onsemi.com).



## PACDN042

### REVISION HISTORY

| Revision | Description of Changes                                                                                                                                                                       | Date       |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 9        | Rebranded the Data Sheet to <b>onsemi</b> format.<br>PACDN044Y5R, PACDN045Y6R, PACDN043Y4R, PACDN042YB3R, PACDN044YB5R,<br>PACDN045YB6R, PACDN044TR, PACDN046MR OPNs Marked as Discontinued. | 09/10/2025 |

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

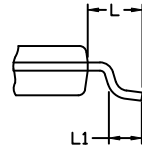
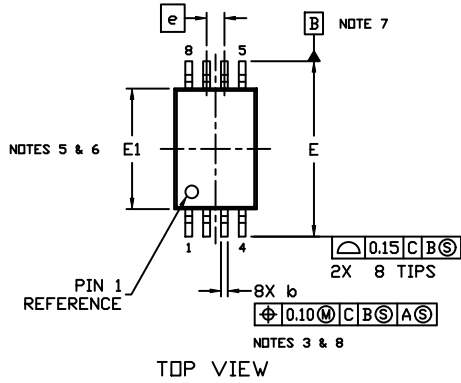


PACKAGE DIMENSIONS



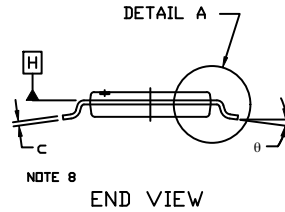
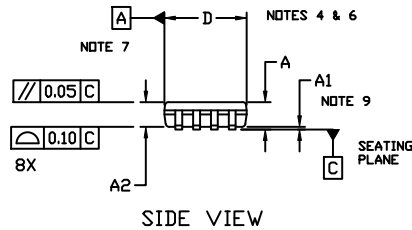
TSSOP8, 4.4x3.0, 0.65P  
CASE 948AL  
ISSUE A

DATE 20 MAY 2022



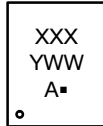
NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL NOT BE 0.15 IN EXCESS OF MAXIMUM MATERIAL CONDITION.
4. DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE.
5. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 PER SIDE.
6. THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM. DIMENSIONS D AND E1 ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY AT DATUM PLANE H.
7. DATUMS A AND B ARE TO BE DETERMINED AT DATUM H.
8. DIMENSIONS b AND c APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10 AND 0.25 FROM THE LEAD TIP..
9. A1 IS DEFINED AS THE LOWEST VERTICAL DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT ON THE PACKAGE BODY..



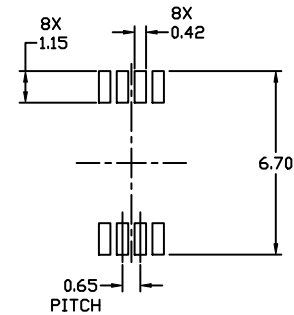
| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | ---         | ---  | 1.20 |
| A1  | 0.05        | ---  | 0.15 |
| A2  | 0.80        | 0.90 | 1.05 |
| b   | 0.19        | ---  | 0.30 |
| c   | 0.09        | ---  | 0.20 |
| D   | 2.90        | 3.00 | 3.10 |
| E   | 6.30        | 6.40 | 6.50 |
| E1  | 4.30        | 4.40 | 4.50 |
| e   | 0.65 BSC    |      |      |
| L   | 1.00 REF    |      |      |
| L1  | 0.50        | 0.60 | 0.70 |
| θ   | 0°          | ---  | 8°   |

GENERIC MARKING DIAGRAM\*



XXX = Specific Device Code  
Y = Year  
WW = Work Week  
A = Assembly Location  
▪ = Pb-Free Package

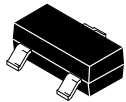
\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



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, SOLDERM/D.

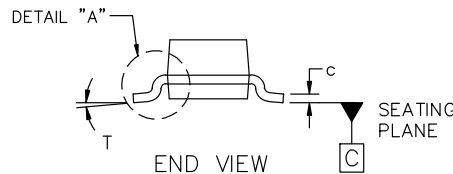
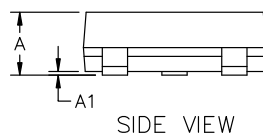
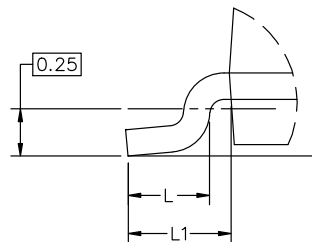
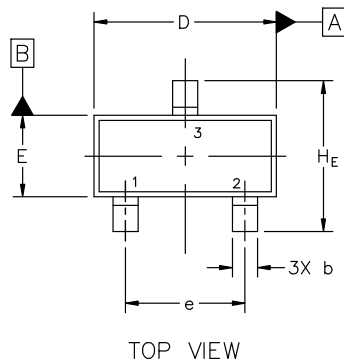




SCALE 4:1

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

DATE 14 AUG 2024

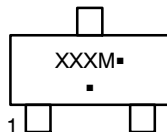


| MILLIMETERS |      |      |      |
|-------------|------|------|------|
| DIM         | MIN  | NOM  | MAX  |
| A           | 0.89 | 1.00 | 1.11 |
| A1          | 0.01 | 0.06 | 0.10 |
| b           | 0.37 | 0.44 | 0.50 |
| c           | 0.08 | 0.14 | 0.20 |
| D           | 2.80 | 2.90 | 3.04 |
| E 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

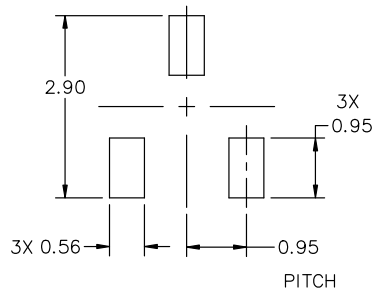
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

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

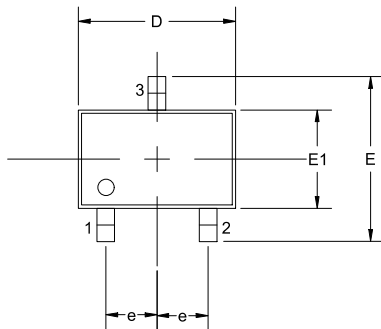
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| DOCUMENT NUMBER: | 98ASB42226B                          | Electronic versions are uncontrolled except when accessed directly from the Document Repository.<br>Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. |
| DESCRIPTION: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

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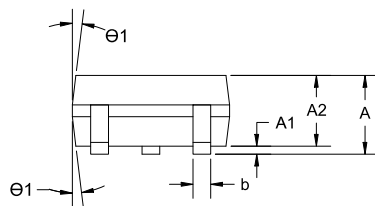


**SC-70, 3 Lead, 1.25x2**  
**CASE 419AB**  
**ISSUE A**

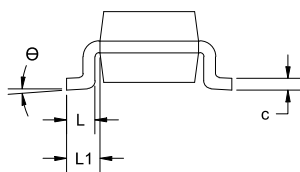
DATE 13 FEB 2023



**TOP VIEW**



**SIDE VIEW**

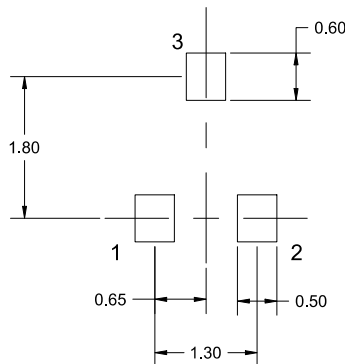


**END VIEW**

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS. ANGLES IN DEGREES.
2. COMPLIES WITH JEDEC MO-203

| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 0.80        |      | 1.10 |
| A1  | 0.00        |      | 0.10 |
| A2  | 0.80        | 0.90 | 1.00 |
| b   | 0.15        |      | 0.30 |
| c   | 0.08        |      | 0.22 |
| D   | 1.80        | 2.00 | 2.20 |
| E   | 1.80        | 2.10 | 2.40 |
| E1  | 1.15        | 1.25 | 1.35 |
| e   | 0.65 BSC    |      |      |
| L   | 0.26        | 0.36 | 0.46 |
| L1  | 0.42 REF    |      |      |
| Θ   | 0°          |      | 8°   |
| Θ1  | 4°          |      | 10°  |



**SOLDERING FOOTPRINT**

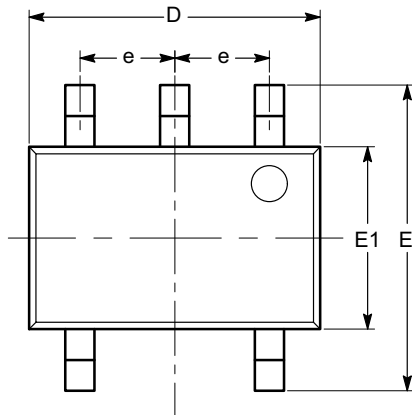
\* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

|                         |                              |                                                                                                                                                                                     |
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| <b>DESCRIPTION:</b>     | <b>SC-70, 3 LEAD, 1.25X2</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                                  |

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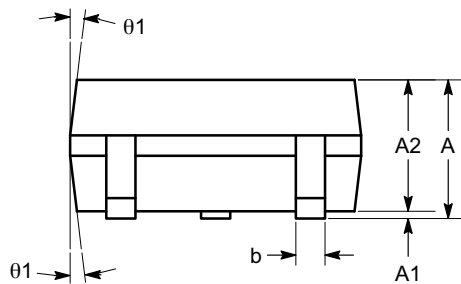
**SC-88A (SC-70 5 Lead), 1.25x2**  
CASE 419AC-01  
ISSUE A

DATE 29 JUN 2010

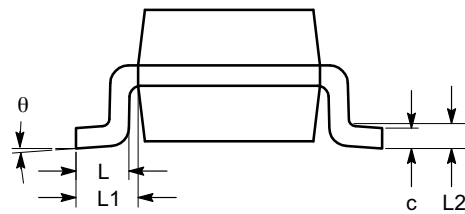


**TOP VIEW**

| SYMBOL | MIN      | NOM  | MAX  |
|--------|----------|------|------|
| A      | 0.80     |      | 1.10 |
| A1     | 0.00     |      | 0.10 |
| A2     | 0.80     |      | 1.00 |
| b      | 0.15     |      | 0.30 |
| c      | 0.10     |      | 0.18 |
| D      | 1.80     | 2.00 | 2.20 |
| E      | 1.80     | 2.10 | 2.40 |
| E1     | 1.15     | 1.25 | 1.35 |
| e      | 0.65 BSC |      |      |
| L      | 0.26     | 0.36 | 0.46 |
| L1     | 0.42 REF |      |      |
| L2     | 0.15 BSC |      |      |
| θ      | 0°       |      | 8°   |
| θ1     | 4°       |      | 10°  |



**SIDE VIEW**



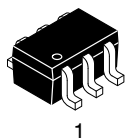
**END VIEW**

**Notes:**

- (1) All dimensions are in millimeters. Angles in degrees.
- (2) Complies with JEDEC MO-203.

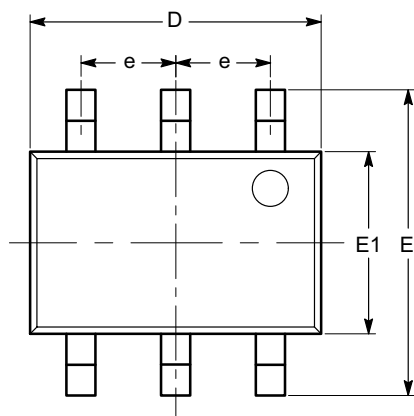
|                         |                                      |                                                                                                                                                                                  |
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| <b>DESCRIPTION:</b>     | <b>SC-88A (SC-70 5 LEAD), 1.25X2</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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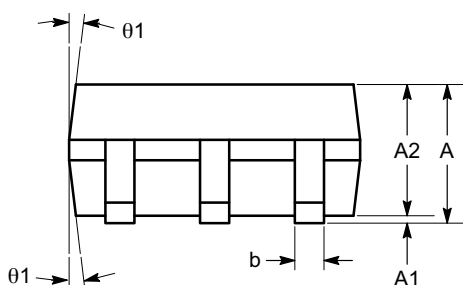


**SC-88 (SC-70 6 Lead), 1.25x2**  
CASE 419AD  
ISSUE A

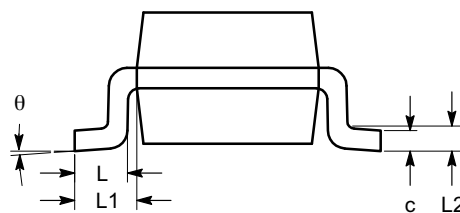
DATE 07 JUL 2010



**TOP VIEW**



**SIDE VIEW**



**END VIEW**

| SYMBOL | MIN      | NOM  | MAX  |
|--------|----------|------|------|
| A      | 0.80     |      | 1.10 |
| A1     | 0.00     |      | 0.10 |
| A2     | 0.80     |      | 1.00 |
| b      | 0.15     |      | 0.30 |
| c      | 0.10     |      | 0.18 |
| D      | 1.80     | 2.00 | 2.20 |
| E      | 1.80     | 2.10 | 2.40 |
| E1     | 1.15     | 1.25 | 1.35 |
| e      | 0.65 BSC |      |      |
| L      | 0.26     | 0.36 | 0.46 |
| L1     | 0.42 REF |      |      |
| L2     | 0.15 BSC |      |      |
| θ      | 0°       |      | 8°   |
| θ1     | 4°       |      | 10°  |

**Notes:**

- (1) All dimensions are in millimeters. Angles in degrees.
- (2) Complies with JEDEC MO-203.

|                         |                                     |                                                                                                                                                                                     |
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| <b>DESCRIPTION:</b>     | <b>SC-88 (SC-70 6 LEAD), 1.25X2</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                                  |

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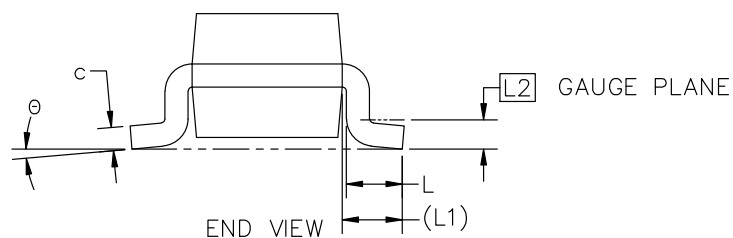
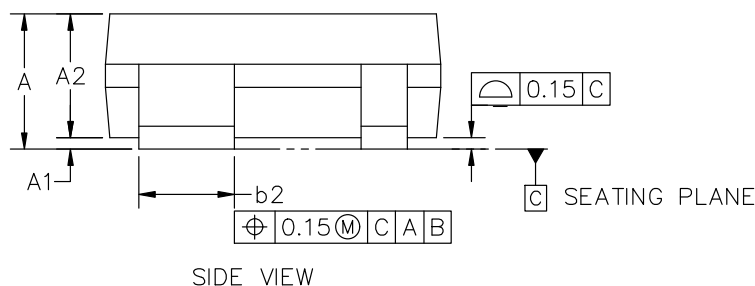
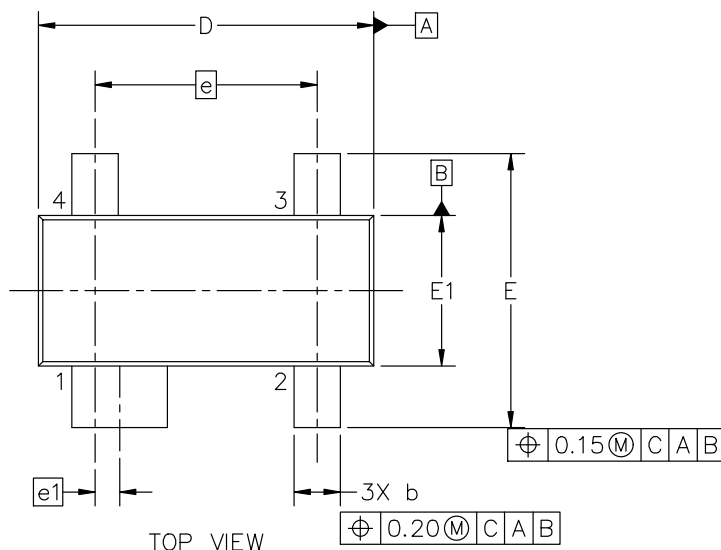


**SOT-143, 4 LEAD, 2.90x1.30x0.90, 1.92P**

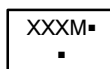
CASE 527AF

ISSUE B

DATE 26 FEB 2024



### GENERIC MARKING DIAGRAM\*



XXX = Specific Device Code

M = Month Code

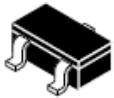
- = Pb-Free Package

(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.

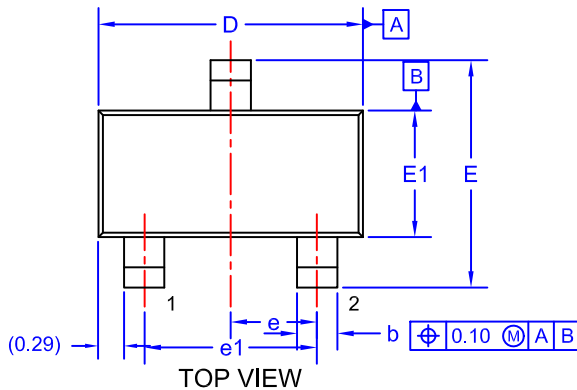
|                         |                                               |                                                                                                                                                                                     |
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| <b>DESCRIPTION:</b>     | <b>SOT-143, 4 LEAD, 2.90x1.30x0.90, 1.92P</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                                  |

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**SOT-23/SUPERSOT™ –23, 3 LEAD, 1.4x2.9**  
**CASE 527AG**  
**ISSUE A**

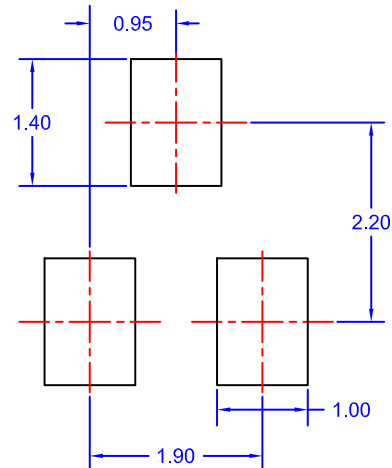
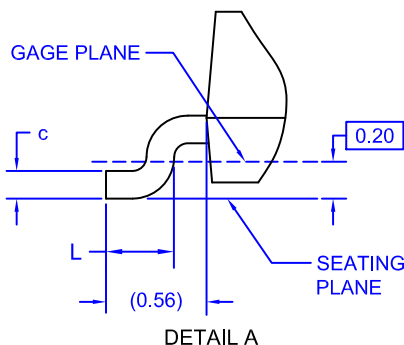
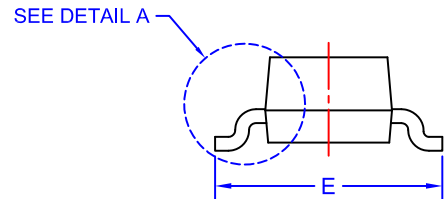
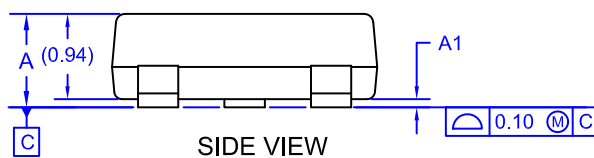
DATE 09 DEC 2019



NOTES: UNLESS OTHERWISE SPECIFIED

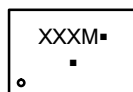
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.

| DIM | MIN.     | NOM.  | MAX.  |
|-----|----------|-------|-------|
| A   | 0.85     | 0.95  | 1.12  |
| A1  | 0.00     | 0.05  | 0.10  |
| b   | 0.370    | 0.435 | 0.508 |
| c   | 0.085    | 0.150 | 0.180 |
| D   | 2.80     | 2.92  | 3.04  |
| E   | 2.31     | 2.51  | 2.71  |
| E1  | 1.20     | 1.40  | 1.52  |
| e   | 0.95 BSC |       |       |
| e1  | 1.90 BSC |       |       |
| L   | 0.33     | 0.38  | 0.43  |



\*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 = Month Code  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

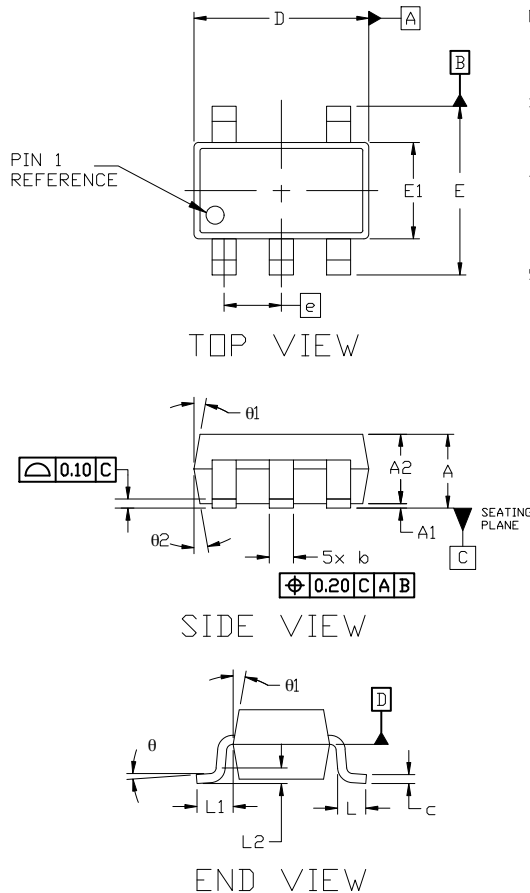
\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

|                         |                                            |                                                                                                                                                                                  |
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| <b>DESCRIPTION:</b>     | <b>SOT-23/SUPERSOT-23, 3 LEAD, 1.4X2.9</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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**SOT-23, 5 Lead**  
**CASE 527AH**  
**ISSUE A**

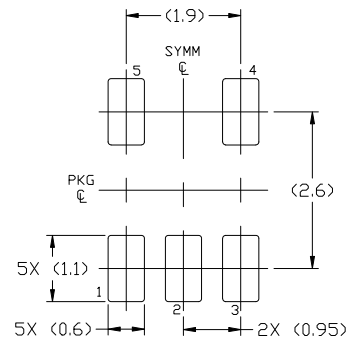
DATE 09 JUN 2021



## NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1989A
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.25 PER SIDE. D AND E1 DIMENSIONS ARE DETERMINED AT DATUM D.
5. DIMENSION 'b' DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08mm TOTAL IN EXCESS OF THE 'b' DIMENSION AT MAXIMUM MATERIAL CONDITION. MINIMUM SPACE BETWEEN PROTRUSION AND AN ADJACENT LEAD SHALL NOT BE LESS THAN 0.07mm.

| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 0.90        | —    | 1.45 |
| A1  | 0.00        | —    | 0.15 |
| A2  | 0.90        | 1.15 | 1.30 |
| b   | 0.30        | —    | 0.50 |
| c   | 0.08        | —    | 0.22 |
| D   | 2.90 BSC    |      |      |
| E   | 2.80 BSC    |      |      |
| E1  | 1.60 BSC    |      |      |
| e   | 0.95 BSC    |      |      |
| L   | 0.30        | 0.45 | 0.60 |
| L1  | 0.60 REF    |      |      |
| L2  | 0.25 REF    |      |      |
| θ   | 0°          | 4°   | 8°   |
| θ1  | 0°          | 10°  | 15°  |
| θ2  | 0°          | 10°  | 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, SOLDERRM/D.

**DOCUMENT NUMBER:** 98AON34320E

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**DESCRIPTION:** SOT-23, 5 LEAD

**PAGE 1 OF 1**

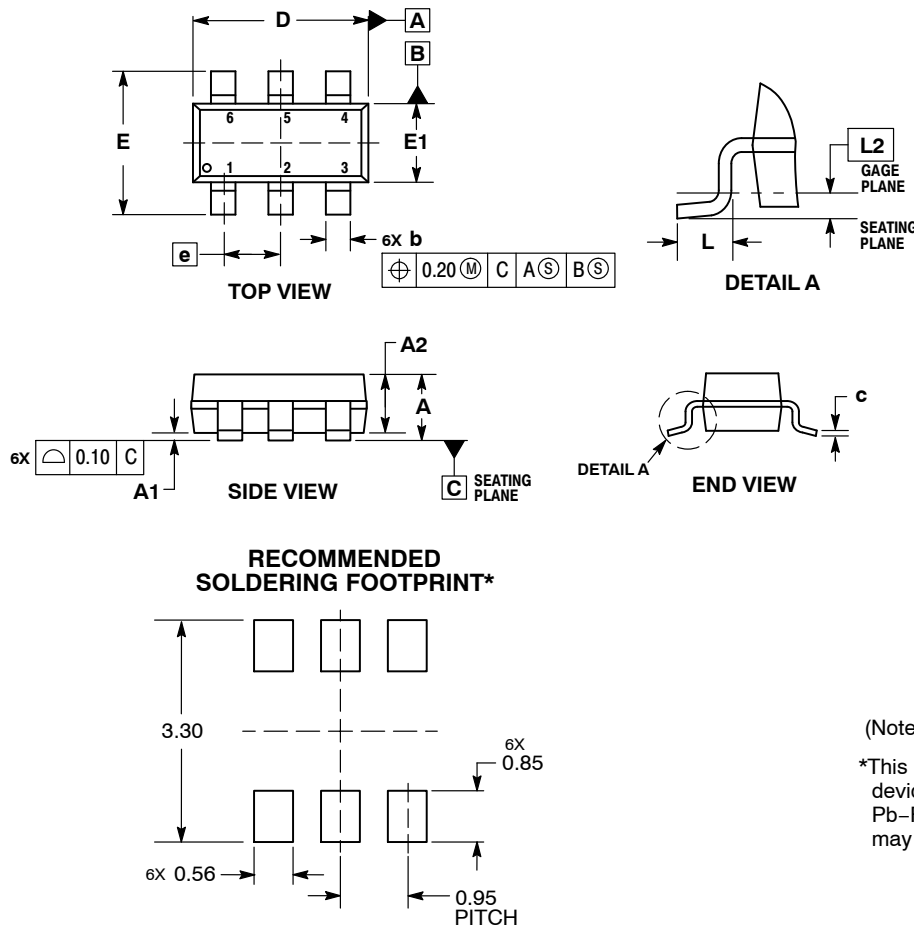
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SCALE 2:1

**SOT-23, 6 Lead**  
**CASE 527AJ**  
**ISSUE B**

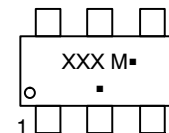
DATE 29 FEB 2012



## NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DATUM C IS THE SEATING PLANE.

| MILLIMETERS |          |      |
|-------------|----------|------|
| DIM         | MIN      | MAX  |
| A           | ---      | 1.45 |
| A1          | 0.00     | 0.15 |
| A2          | 0.90     | 1.30 |
| b           | 0.20     | 0.50 |
| c           | 0.08     | 0.26 |
| D           | 2.70     | 3.00 |
| E           | 2.50     | 3.10 |
| E1          | 1.30     | 1.80 |
| e           | 0.95 BSC |      |
| L           | 0.20     | 0.60 |
| L2          | 0.25 BSC |      |

**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.

\*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>SOT-23, 6 LEAD</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

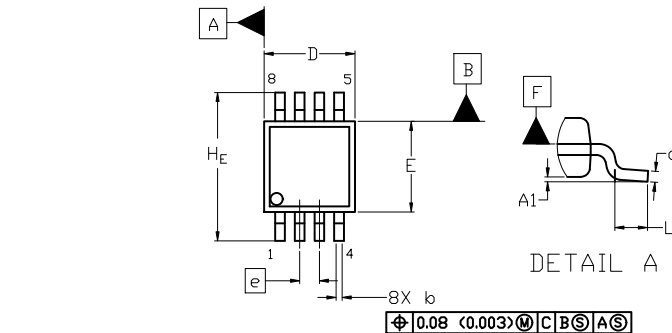
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SCALE 2:1

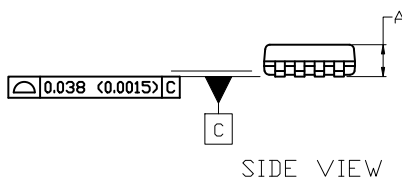
**Micro8**  
**CASE 846A-02**  
**ISSUE K**

DATE 16 JUL 2020

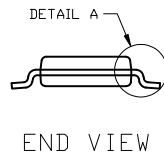


TOP VIEW

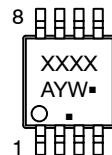
NOTE 3



SIDE VIEW



END VIEW

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


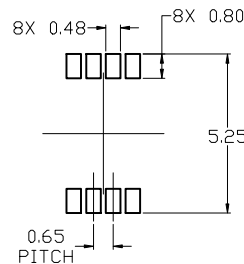
XXXX = Specific Device Code  
A = Assembly Location  
Y = Year  
W = Work Week  
▪ = Pb-Free Package

(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.

**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.10 mm IN EXCESS OF MAXIMUM MATERIAL CONDITION.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSION OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 mm PER SIDE. DIMENSION E DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 mm PER SIDE. DIMENSIONS D AND E ARE DETERMINED AT DATUM F.
5. DATUMS A AND B ARE TO BE DETERMINED AT DATUM F.
6. A1 IS DEFINED AS THE VERTICAL DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT ON THE PACKAGE BODY.


**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-10.

| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | ---         | ---  | 1.10 |
| A1  | 0.05        | 0.08 | 0.15 |
| b   | 0.25        | 0.33 | 0.40 |
| c   | 0.13        | 0.18 | 0.23 |
| D   | 2.90        | 3.00 | 3.10 |
| E   | 2.90        | 3.00 | 3.10 |
| e   | 0.65 BSC    |      |      |
| HE  | 4.75        | 4.90 | 5.05 |
| L   | 0.40        | 0.55 | 0.70 |

**STYLE 1:**

1. SOURCE
2. SOURCE
3. SOURCE
4. GATE
5. DRAIN
6. DRAIN
7. DRAIN
8. DRAIN

**STYLE 2:**

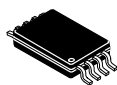
1. SOURCE 1
2. GATE 1
3. SOURCE 2
4. GATE 2
5. DRAIN 2
6. DRAIN 2
7. DRAIN 1
8. DRAIN 1

**STYLE 3:**

1. N-SOURCE
2. N-GATE
3. P-SOURCE
4. P-GATE
5. P-DRAIN
6. P-DRAIN
7. N-DRAIN
8. N-DRAIN

|                         |                    |                                                                                                                                                                                  |
|-------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| <b>DESCRIPTION:</b>     | <b>MICRO8</b>      | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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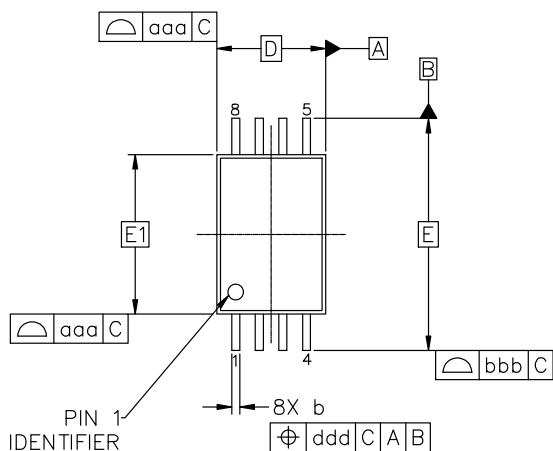
TSSOP-8 3.00x4.00x0.90, 0.65P

CASE 948S

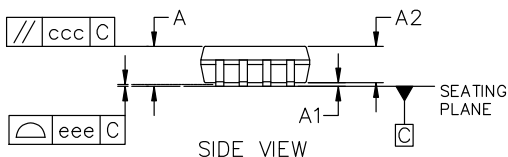
ISSUE D

DATE 24 OCT 2025

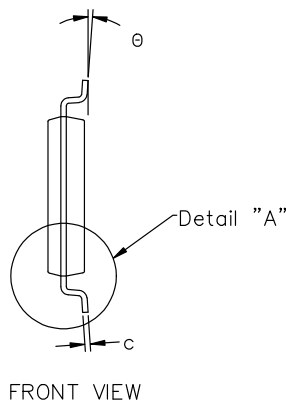
SCALE 2:1



TOP VIEW



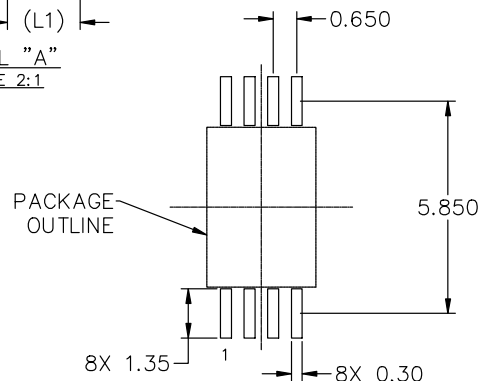
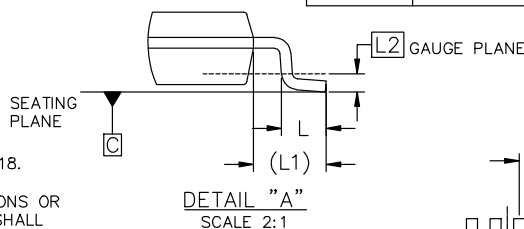
SIDE VIEW



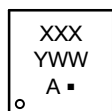
| MILLIMETERS               |          |      |      |
|---------------------------|----------|------|------|
| DIM                       | MIN      | NOM  | MAX  |
| A                         | 0.90     | 1.00 | 1.10 |
| A1                        | 0.05     | 0.10 | 0.15 |
| A2                        | 0.80     | 0.90 | 1.00 |
| b                         | 0.19     | 0.25 | 0.30 |
| c                         | 0.09     | 0.15 | 0.20 |
| D                         | 3.00 BSC |      |      |
| E                         | 6.40 BSC |      |      |
| E1                        | 4.40 BSC |      |      |
| L                         | 0.50     | 0.60 | 0.70 |
| L1                        | 1.00 REF |      |      |
| L2                        | 0.25 BSC |      |      |
| θ                         | 0°       | 4°   | 8°   |
| TOLERANCE FORM & POSITION |          |      |      |
| aaa                       | 0.10     |      |      |
| bbb                       | 0.20     |      |      |
| ccc                       | 0.10     |      |      |
| ddd                       | 0.10     |      |      |
| eee                       | 0.05     |      |      |

NOTES:

1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION "D" DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSION OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE.
4. DIMENSION "E1" DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 PER SIDE.
5. DIMENSION "b" DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08mm TOTAL IN EXCESS OF THE "b" DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OF THE FOOT. MINIMUM SPACE BETWEEN PROTRUSION AND ADJACENT LEAD IS 0.07mm.



GENERIC MARKING DIAGRAM\*



XXX = Specific Device Code  
A = Assembly Location  
Y = Year  
WW = Work Week  
▪ = 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, SOLDERRM/D.

|                  |                               |                                                                                                                                                                                  |
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