

# ANTREX Electronics

Electronic Components Sourcing Information

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## Product Reference Information

**Part Number:** 112CNQ030ASL

**Manufacturer:** Vishay General Semiconductor - Diodes Division

**Package:** Bulk

**Availability:** Please confirm with sales

### Product Page:

<https://antrexco.com/product/details/vishay-general-semiconductor-diodes-division/112cnq030asl.html>

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### Note:

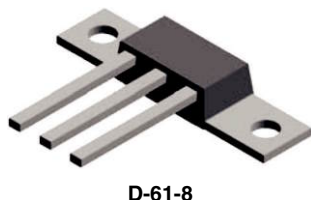
This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

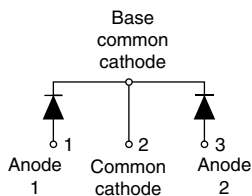
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## Schottky Rectifier New Generation 3 D-61 Package, 2 x 55 A

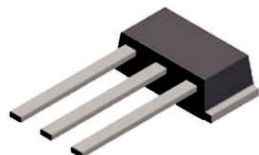
VS-112CNQ030APbF



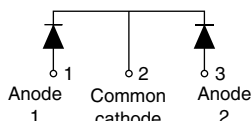
D-61-8



VS-112CNQ030ASMPbF



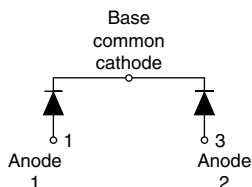
D-61-8-SM



VS-112CNQ030ASLPbF



D-61-8-SL



### FEATURES

- 150 °C  $T_J$  operation
- Center tap module
- Very low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- New fully transfer-mold low profile, small footprint, high current package
- Compliant to RoHS directive 2002/95/EC
- Designed and qualified for industrial level



Available  
**RoHS\***  
COMPLIANT

### DESCRIPTION

The center tap Schottky rectifier module has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150 °C junction temperature. Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

### PRODUCT SUMMARY

|             |          |
|-------------|----------|
| $I_{F(AV)}$ | 2 x 55 A |
| $V_R$       | 30 V     |

### MAJOR RATINGS AND CHARACTERISTICS

| SYMBOL      | CHARACTERISTICS                       | VALUES      | UNITS |
|-------------|---------------------------------------|-------------|-------|
| $I_{F(AV)}$ | Rectangular waveform                  | 110         | A     |
| $V_{RRM}$   |                                       | 30          | V     |
| $I_{FSM}$   | $t_p = 5 \mu s$ sine                  | 5100        | A     |
| $V_F$       | 55 Apk, $T_J = 125^\circ C$ (per leg) | 0.39        | V     |
| $T_J$       | Range                                 | - 55 to 150 | °C    |

### VOLTAGE RATINGS

| PARAMETER                            | SYMBOL    | VS-112CNQ030APbF | UNITS |
|--------------------------------------|-----------|------------------|-------|
| Maximum DC reverse voltage           | $V_R$     | 30               | V     |
| Maximum working peak reverse voltage | $V_{RWM}$ |                  |       |

\* Pb containing terminations are not RoHS compliant, exemptions may apply

# VS-112CNQ030A PbF Series



Vishay High Power Products

Schottky Rectifier  
New Generation 3 D-61 Package, 2 x 55 A

| ABSOLUTE MAXIMUM RATINGS                                                  |                    |                                                                                                                                        |                                                                    |        |       |
|---------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------|-------|
| PARAMETER                                                                 | SYMBOL             | TEST CONDITIONS                                                                                                                        |                                                                    | VALUES | UNITS |
| Maximum average forward current<br>See fig. 5                             | I <sub>F(AV)</sub> | 50 % duty cycle at T <sub>C</sub> = 131 °C, rectangular waveform                                                                       |                                                                    | 55     | A     |
| per leg<br>per device                                                     |                    |                                                                                                                                        |                                                                    | 110    |       |
| Maximum peak one cycle non-repetitive surge current per leg<br>See fig. 7 | I <sub>FSM</sub>   | 5 μs sine or 3 μs rect. pulse                                                                                                          | Following any rated load condition and with rated V <sub>RRM</sub> | 5100   | A     |
|                                                                           |                    | 10 ms sine or 6 ms rect. pulse                                                                                                         |                                                                    | 880    |       |
| Non-repetitive avalanche energy per leg                                   | E <sub>AS</sub>    | T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 8 A, L = 1.12 mH                                                                             |                                                                    | 36     | mJ    |
| Repetitive avalanche current per leg                                      | I <sub>AR</sub>    | Current decaying linearly to zero in 1 μs<br>Frequency limited by T <sub>J</sub> maximum V <sub>A</sub> = 1.5 x V <sub>R</sub> typical |                                                                    | 8      | A     |

| ELECTRICAL SPECIFICATIONS                             |                                |                                                                                  |                                       |        |       |
|-------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------|---------------------------------------|--------|-------|
| PARAMETER                                             | SYMBOL                         | TEST CONDITIONS                                                                  |                                       | VALUES | UNITS |
| Maximum forward voltage drop per leg<br>See fig. 1    | V <sub>FM</sub> <sup>(1)</sup> | 55 A                                                                             | T <sub>J</sub> = 25 °C                | 0.49   | V     |
|                                                       |                                | 110 A                                                                            |                                       | 0.57   |       |
|                                                       |                                | 55 A                                                                             | T <sub>J</sub> = 125 °C               | 0.39   |       |
|                                                       |                                | 110 A                                                                            |                                       | 0.51   |       |
| Maximum reverse leakage current per leg<br>See fig. 2 | I <sub>RM</sub> <sup>(1)</sup> | T <sub>J</sub> = 25 °C                                                           | V <sub>R</sub> = Rated V <sub>R</sub> | 3.5    | mA    |
|                                                       |                                | T <sub>J</sub> = 125 °C                                                          |                                       | 400    |       |
| Maximum junction capacitance per leg                  | C <sub>T</sub>                 | V <sub>R</sub> = 5 V <sub>DC</sub> , (test signal range 100 kHz to 1 MHz), 25 °C |                                       | 5100   | pF    |
| Typical series inductance per leg                     | L <sub>S</sub>                 | Measured lead to lead 5 mm from package body                                     |                                       | 5.5    | nH    |
| Maximum voltage rate of change                        | dV/dt                          | Rated V <sub>R</sub>                                                             |                                       | 10 000 | V/μs  |

## Note

(1) Pulse width < 300  $\mu\text{s}$ , duty cycle < 2 %

| THERMAL - MECHANICAL SPECIFICATIONS                        |                                   |                                                                  |              |                        |
|------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------|--------------|------------------------|
| PARAMETER                                                  | SYMBOL                            | TEST CONDITIONS                                                  | VALUES       | UNITS                  |
| Maximum junction and storage temperature range             | T <sub>J</sub> , T <sub>Stg</sub> |                                                                  | - 55 to 150  | °C                     |
| Maximum thermal resistance, junction to case per leg       | R <sub>thJC</sub>                 | DC operation<br>See fig. 4                                       | 0.5          | °C/W                   |
| Maximum thermal resistance, junction to case per package   |                                   | DC operation                                                     | 0.25         |                        |
| Typical thermal resistance, case to heatsink (D-61-8 only) | R <sub>thCS</sub>                 | Mounting surface, smooth and greased<br>Device flatness < 5 mils | 0.30         |                        |
| Approximate weight                                         |                                   |                                                                  | 7.8          | g                      |
|                                                            |                                   |                                                                  | 0.28         | oz.                    |
| Mounting torque                                            | minimum                           |                                                                  | 40 (35)      | kgf · cm<br>(lbf · in) |
| (D-61-8 only)                                              | maximum                           |                                                                  | 58 (50)      |                        |
| Marking device                                             |                                   | Case style D-61                                                  | 112CNQ030A   |                        |
|                                                            |                                   | Case style D-61-8-SM                                             | 112CNQ030ASM |                        |
|                                                            |                                   | Case style D-61-8-SL                                             | 112CNQ030ASL |                        |

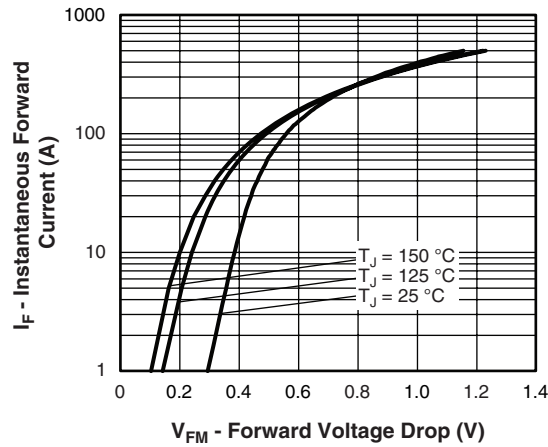


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

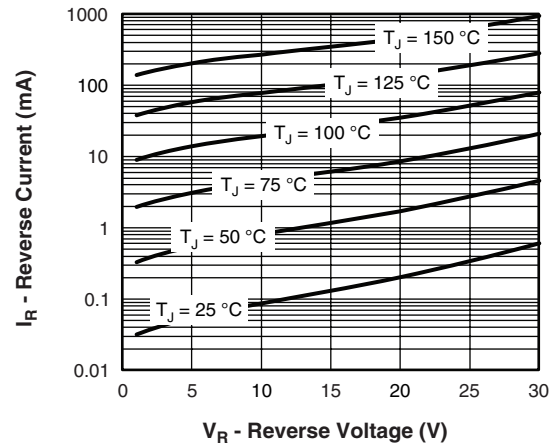


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

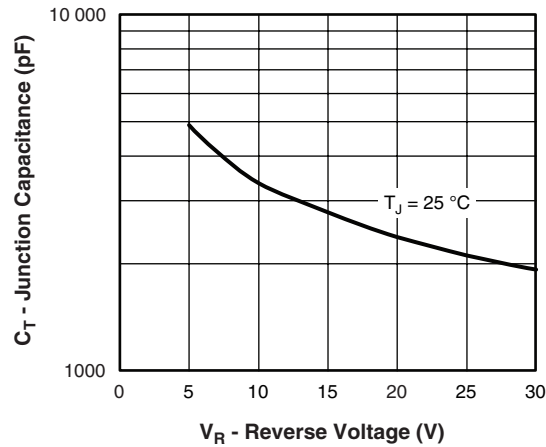


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

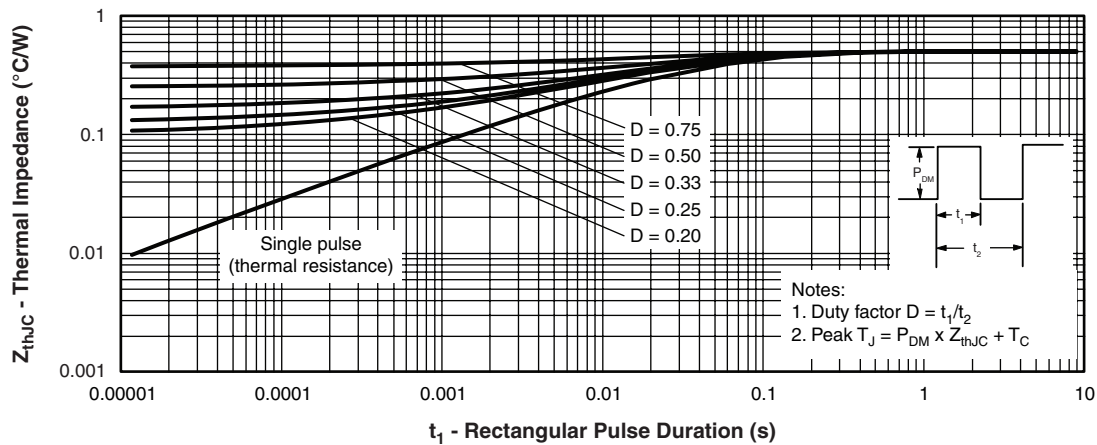


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

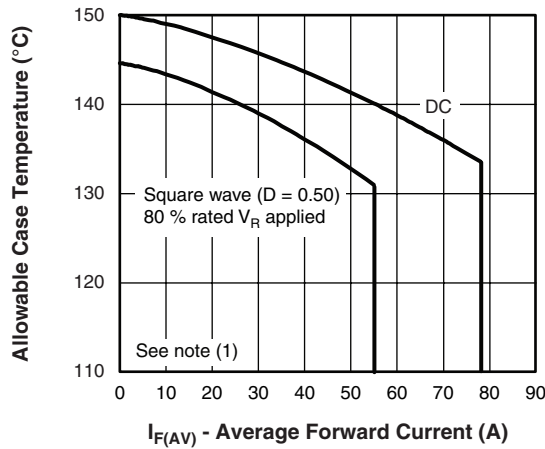


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

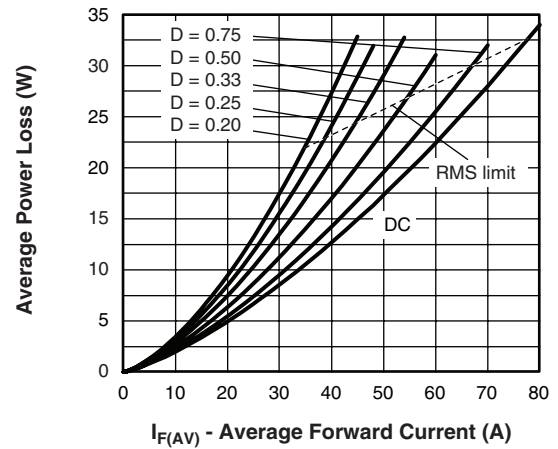


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

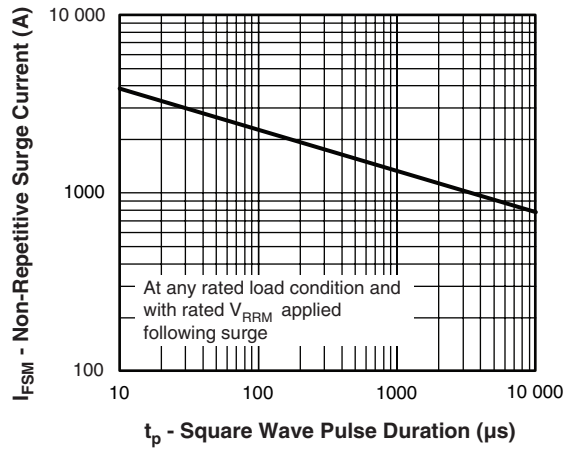


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

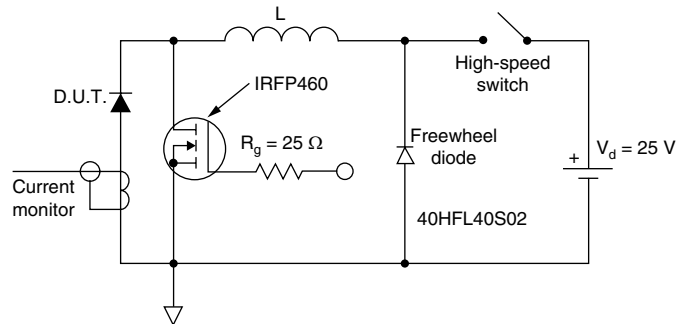


Fig. 8 - Unclamped Inductive Test Circuit

## Note

- (1) Formula used:  $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$ ;  
 $P_d$  = Forward power loss =  $I_{F(AV)} \times V_{FM}$  at  $(I_{F(AV)}/D)$  (see fig. 6);  
 $P_{d_{REV}}$  = Inverse power loss =  $V_{R1} \times I_R (1 - D)$ ;  $I_R$  at  $V_{R1} = 80\%$  rated  $V_R$



## VS-112CNQ030A PbF Series

Schottky Rectifier  
New Generation 3 D-61 Package, 2 x 55 A

Vishay High Power Products

### ORDERING INFORMATION TABLE

|             |            |            |          |          |          |            |          |            |
|-------------|------------|------------|----------|----------|----------|------------|----------|------------|
| Device code | <b>VS-</b> | <b>112</b> | <b>C</b> | <b>N</b> | <b>Q</b> | <b>030</b> | <b>A</b> | <b>PbF</b> |
|             | ①          | ②          | ③        | ④        | ⑤        | ⑥          | ⑦        | ⑧          |

- 1** - HPP product suffix
- 2** - Current rating (110 A)
- 3** - Circuit configuration:
  - C = Common cathode
- 4** - Package:
  - N = D-61
- 5** - Schottky "Q" series
- 6** - Voltage rating (030 = 30 V)
- 7** - Package style:
  - A = D-61-8
  - ASM = D-61-8-SM
  - ASL = D-61-8-SL
- 8** -
  - None = Standard production
  - PbF = Lead (Pb)-free

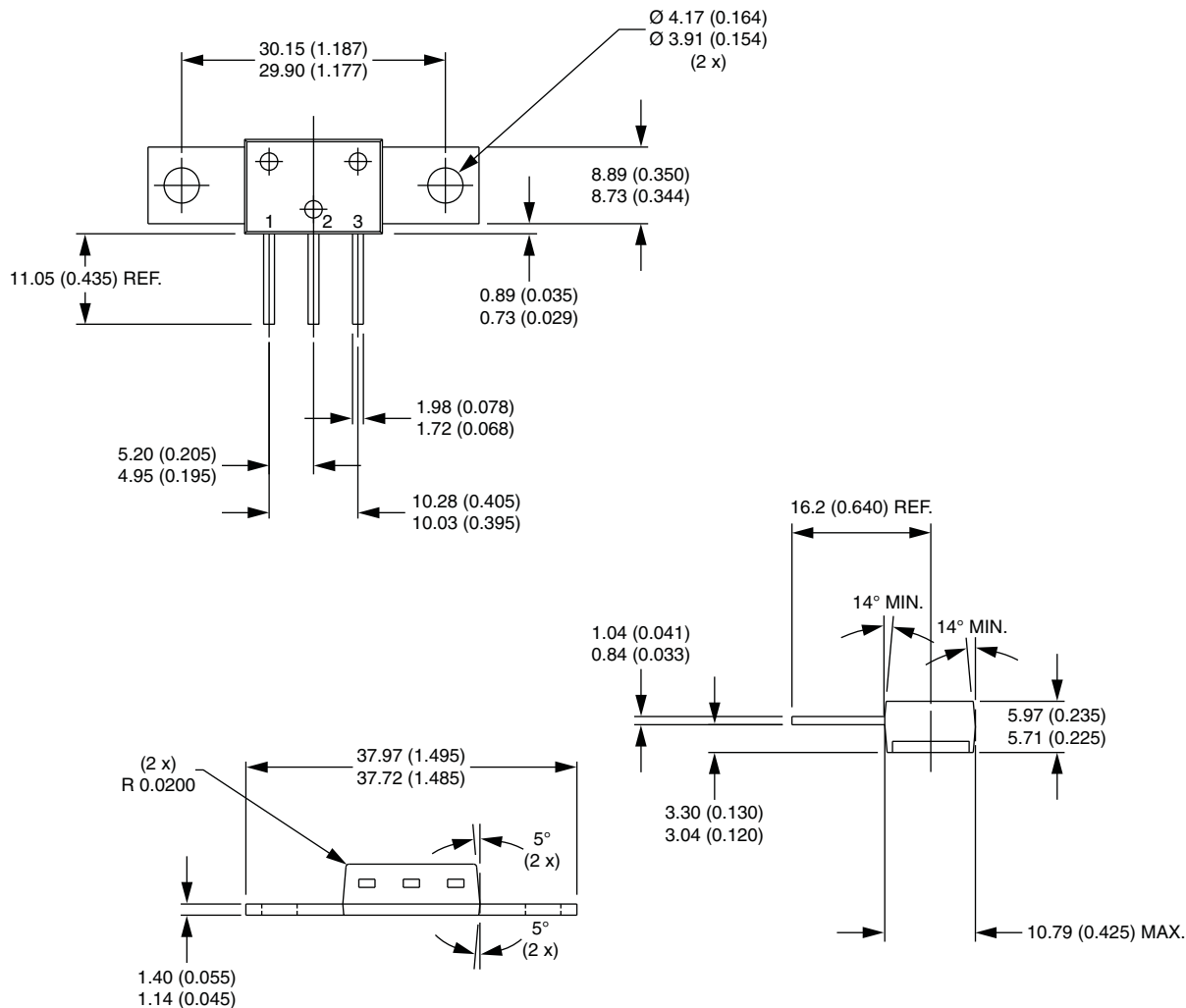
Standard pack quantity: A = 10 pieces; ASM/ASL = 20 pieces

| LINKS TO RELATED DOCUMENTS |                                                                        |
|----------------------------|------------------------------------------------------------------------|
| Dimensions                 | <a href="http://www.vishay.com/doc?95354">www.vishay.com/doc?95354</a> |
| Part marking information   | <a href="http://www.vishay.com/doc?95356">www.vishay.com/doc?95356</a> |



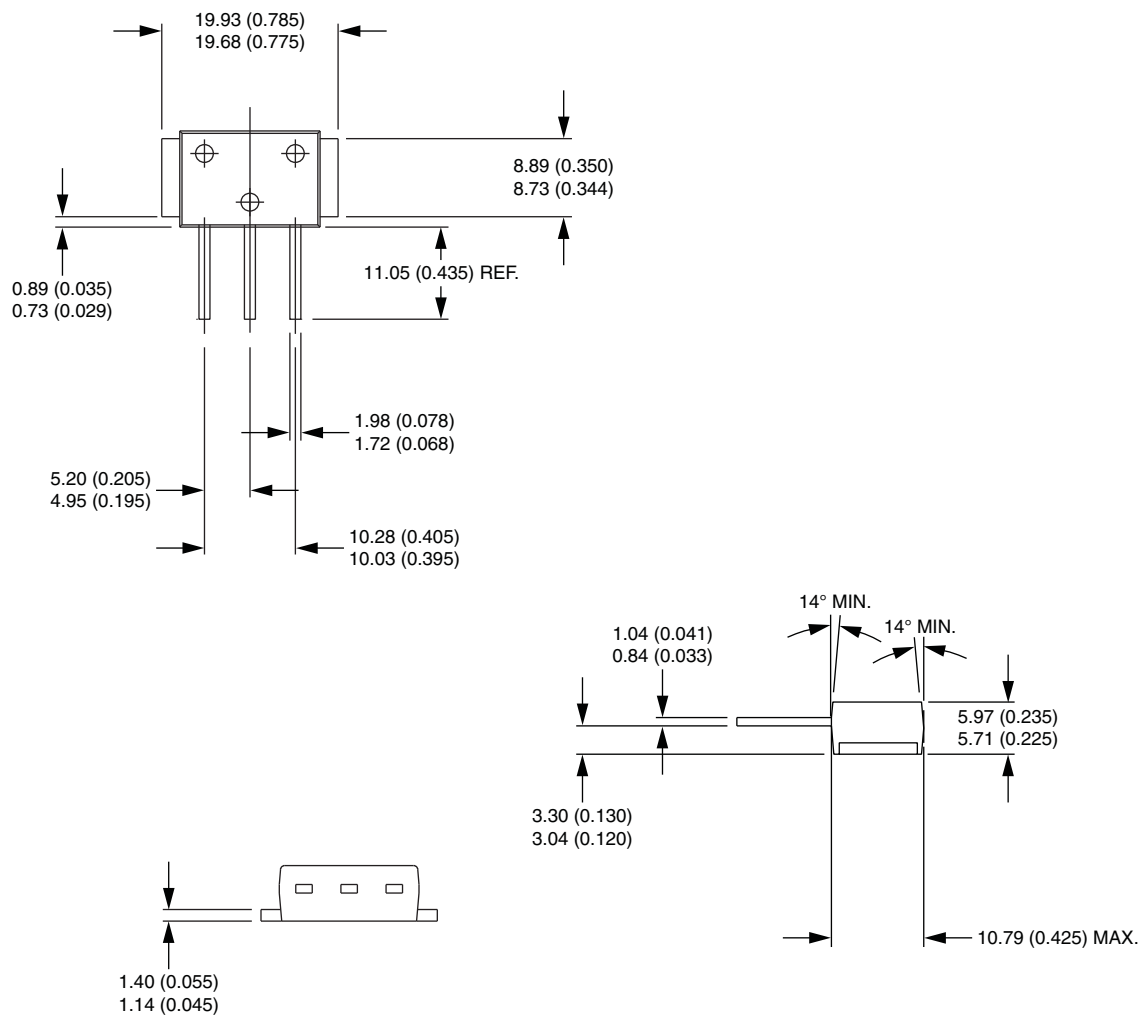
## D-61-8, D-61-8-SM, D-61-8-SL

### DIMENSIONS - D-61-8 in millimeters (inches)



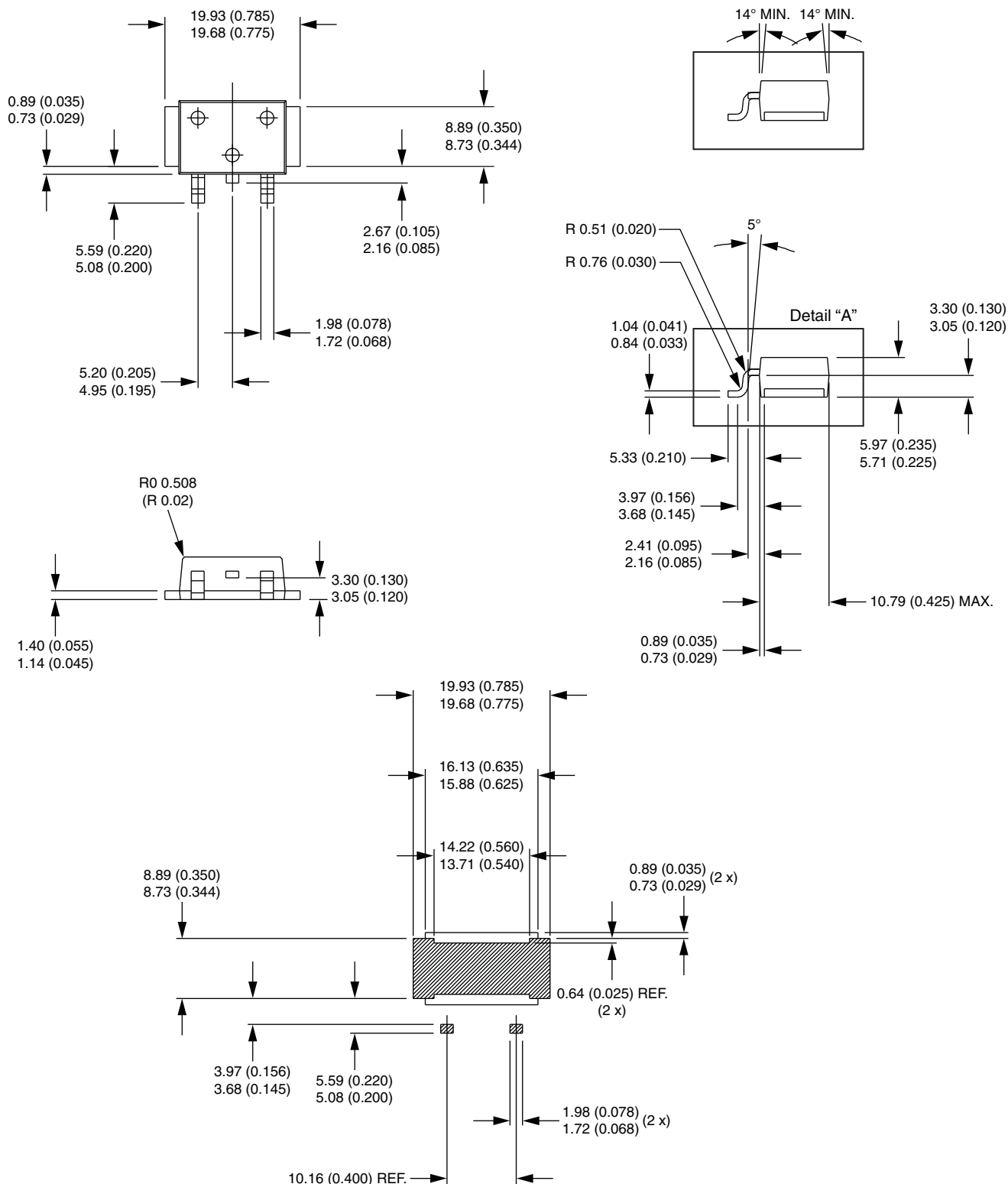


## DIMENSIONS - D-61-8-SM in millimeters (inches)





## DIMENSIONS - D-61-8-SL in millimeters (inches)





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