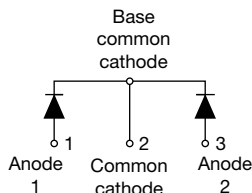
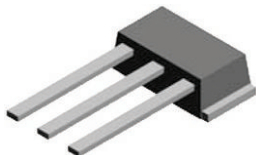
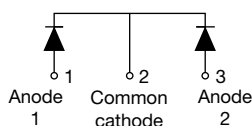
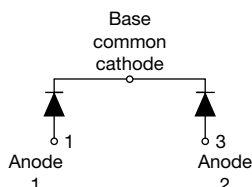


# High Performance Schottky Rectifier New Generation 3, D-61 Package, 2 x 55 A

**VS-115CNQ015APbF**

**D-61-8**

**VS-115CNQ015ASMPbF**

**D-61-8-SM**

**VS-115CNQ015ASLPbF**

**D-61-8-SL**


## FEATURES

- 125 °C  $T_J$  operation ( $V_R < 5$  V)
- Center tap module
- Optimized for OR-ing applications
- Ultralow forward voltage drop
- High frequency operation
- High power discrete
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- New fully transfer-mold low profile, small footprint, high current package
- Designed and qualified for industrial level
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?999912](http://www.vishay.com/doc?999912)

## Note

\* This datasheet provides information about parts that are RoHS-compliant and/or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information/tables in this datasheet for details.



## DESCRIPTION

The center tap Schottky rectifier module has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 °C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

## PRODUCT SUMMARY

Package	D-61-8, D-61-8-SM, D-61-8-SL
$I_{F(AV)}$	2 x 55 A
$V_R$	15 V
$V_F$ at $I_F$	0.37 V
$I_{RM}$ max.	1200 mA at 100 °C
$T_J$ max.	125 °C
Diode variation	Common cathode
$E_{AS}$	54 mJ

## MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	110	A
$V_{RRM}$		15	V
$I_{FSM}$	$t_p = 5 \mu s$ sine	5050	A
$V_F$	55 A <sub>pk</sub> , $T_J = 75$ °C (per leg)	0.33	V
$T_J$	Range	-55 to +125	°C

## VOLTAGE RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VS-115CNQ015APbF	UNITS
Maximum DC reverse voltage	$V_R$	$T_J = 100$ °C	15	V
Maximum working peak reverse voltage	$V_{RWM}$	$T_J = 125$ °C	5	

**ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 5	$I_{F(AV)}$	50 % duty cycle at $T_C = 112^\circ\text{C}$ , rectangular waveform	55	A
per leg per device			110	
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	$I_{FSM}$	5 $\mu\text{s}$ sine or 3 $\mu\text{s}$ rect. pulse	5050	A
		10 ms sine or 6 ms rect. pulse	830	
Non-repetitive avalanche energy per leg	$E_{AS}$	$T_J = 25^\circ\text{C}$ , $I_{AS} = 2\text{ A}$ , $L = 4.5\text{ mH}$	54	mJ
Repetitive avalanche current per leg	$I_{AR}$	Current decaying linearly to zero in 1 $\mu\text{s}$ Frequency limited by $T_J$ maximum $V_A = 3 \times V_R$ typical	2	A

**ELECTRICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum forward voltage drop per leg See fig. 1	$V_{FM}^{(1)}$	55 A	0.37	V
		110 A	0.46	
		55 A	0.33	
		110 A	0.43	
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 25^\circ\text{C}$	20	mA
		$T_J = 100^\circ\text{C}$	1200	
		$T_J = 100^\circ\text{C}$	900	
		$T_J = 100^\circ\text{C}$	540	
Maximum junction capacitance per leg	$C_T$	$V_R = 5\text{ V}_{DC}$ (test signal range 100 kHz to 1 MHz), $25^\circ\text{C}$	5500	pF
Typical series inductance per leg	$L_S$	Measured lead to lead 5 mm from package body	5.5	nH
Maximum voltage rate of change	$dV/dt$	Rated $V_R$	10 000	V/ $\mu\text{s}$

**Note**(1) Pulse width < 300  $\mu\text{s}$ , duty cycle < 2 %**THERMAL - MECHANICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction temperature range	$T_J$		-55 to +125	$^\circ\text{C}$
Maximum storage temperature range	$T_{Stg}$		-55 to +150	
Maximum thermal resistance, junction to case per leg	$R_{thJC}$	DC operation See fig. 4	0.5	$^\circ\text{C/W}$
Maximum thermal resistance, junction to case per package		DC operation	0.25	
Typical thermal resistance, case to heatsink (D-61-8 only)	$R_{thCS}$	Mounting surface, smooth and greased Device flatness < 5 mils	0.30	
Approximate weight			7.8	g
			0.28	oz.
Mounting torque (D-61-8 only)	minimum		40 (35)	kgf · cm (lbf · in)
	maximum		58 (50)	
Marking device		Case style D-61-8	115CNQ015A	
		Case style D-61-8-SM	115CNQ015ASM	
		Case style D-61-8-SL	115CNQ015ASL	

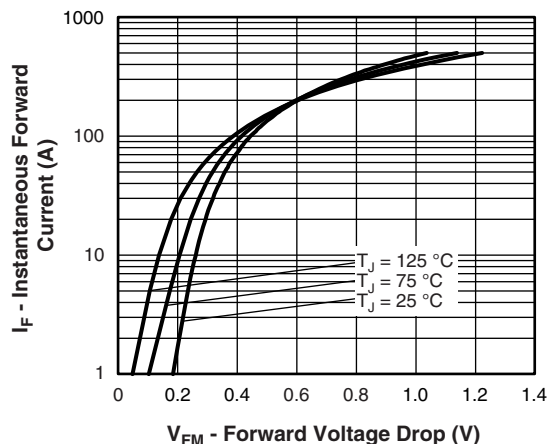


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

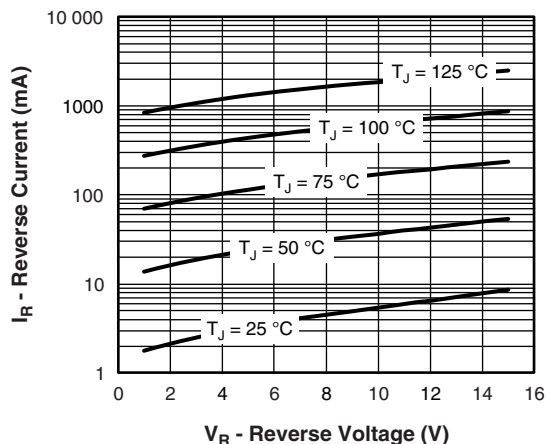


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

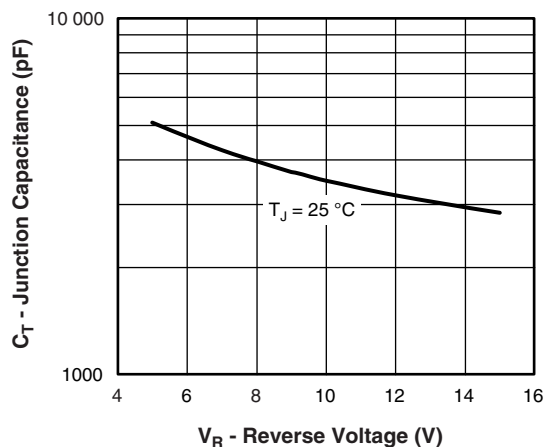


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

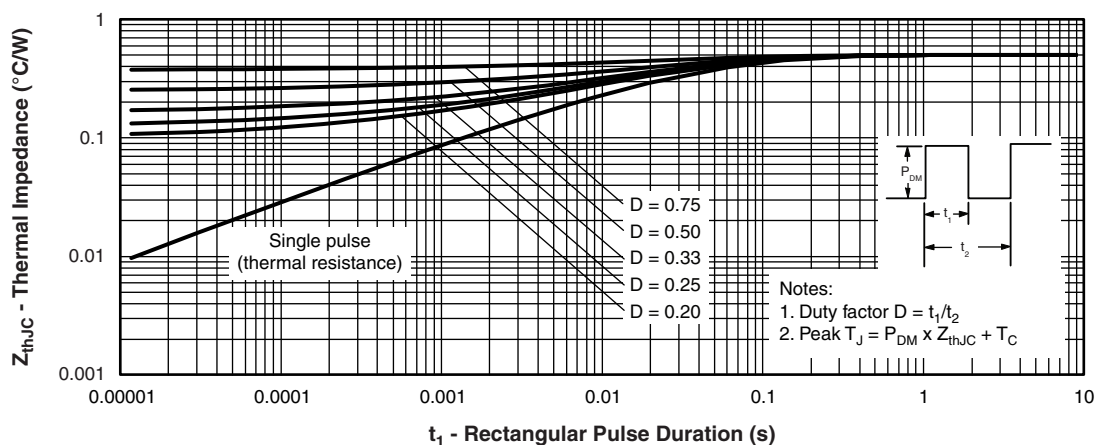


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

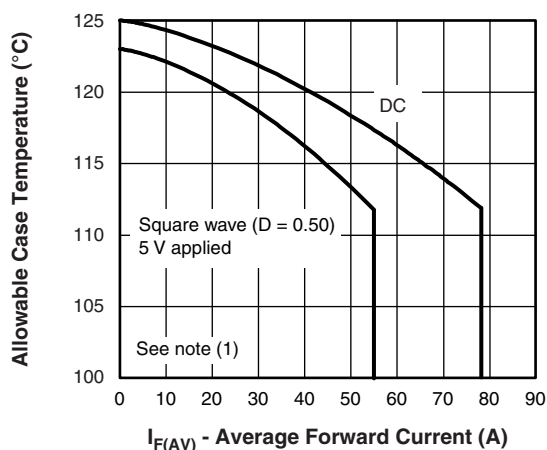


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

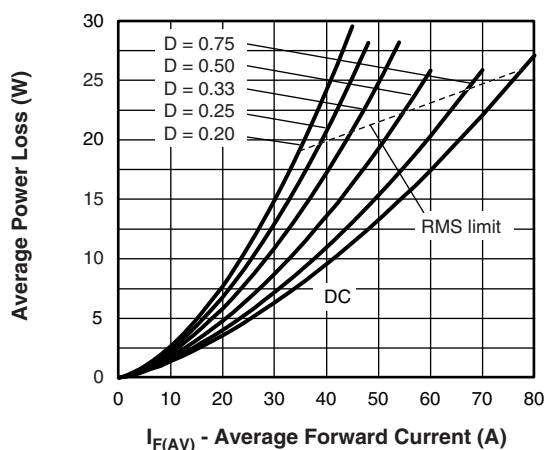


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

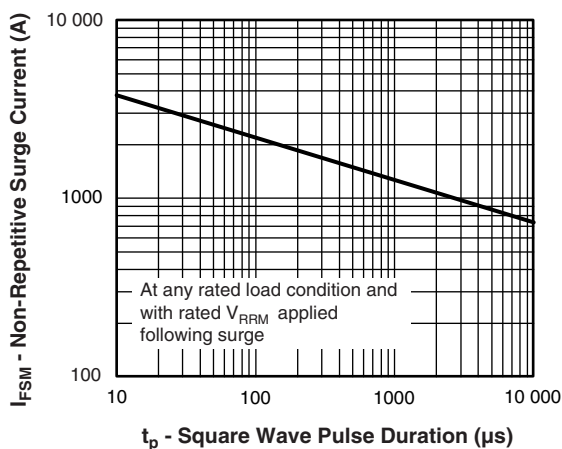


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

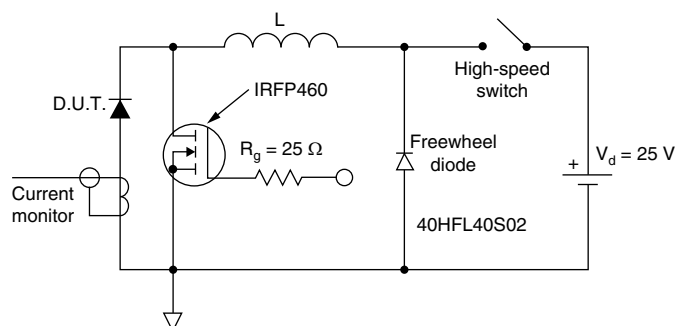


Fig. 8 - Unclamped Inductive Test Circuit

#### Note

- (1) Formula used:  $T_C = T_J - (P_d + P_{dREV}) \times R_{thJC}$ ;  
 $P_d$  = Forward power loss =  $I_{F(AV)} \times V_{FM}$  at  $(I_{F(AV)}/D)$  (see fig. 6);  
 $P_{dREV}$  = Inverse power loss =  $V_{R1} \times I_R (1 - D)$ ;  $I_R$  at  $V_{R1} = 5$  V



## ORDERING INFORMATION TABLE

Device code	VS-	115	C	N	Q	015	A	PbF
	1	2	3	4	5	6	7	8

- 1** - Vishay Semiconductors product
- 2** - Current rating (110 A)
- 3** - Circuit configuration:
  - C = common cathode
- 4** - Package:
  - N = D-61
- 5** - Schottky "Q" series
- 6** - Voltage rating (015 = 15 V)
- 7** - Package style:
  - A = D-61-8
  - ASM = D-61-8-SM
  - ASL = D-61-8-SL
- 8** -
  - 
  -

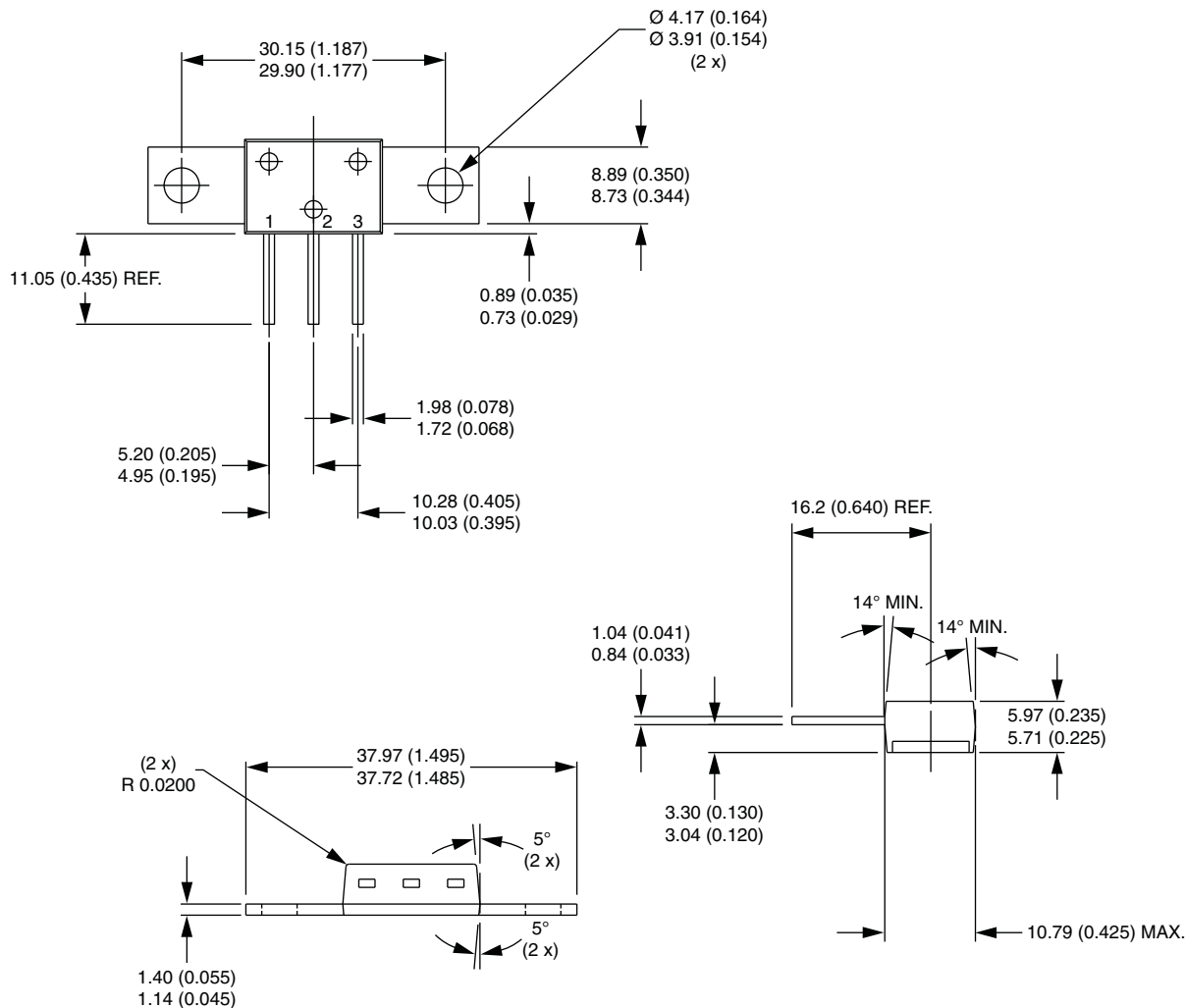
Standard pack quantity: A = 10 pieces; ASM/ASL = 20 pieces

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>



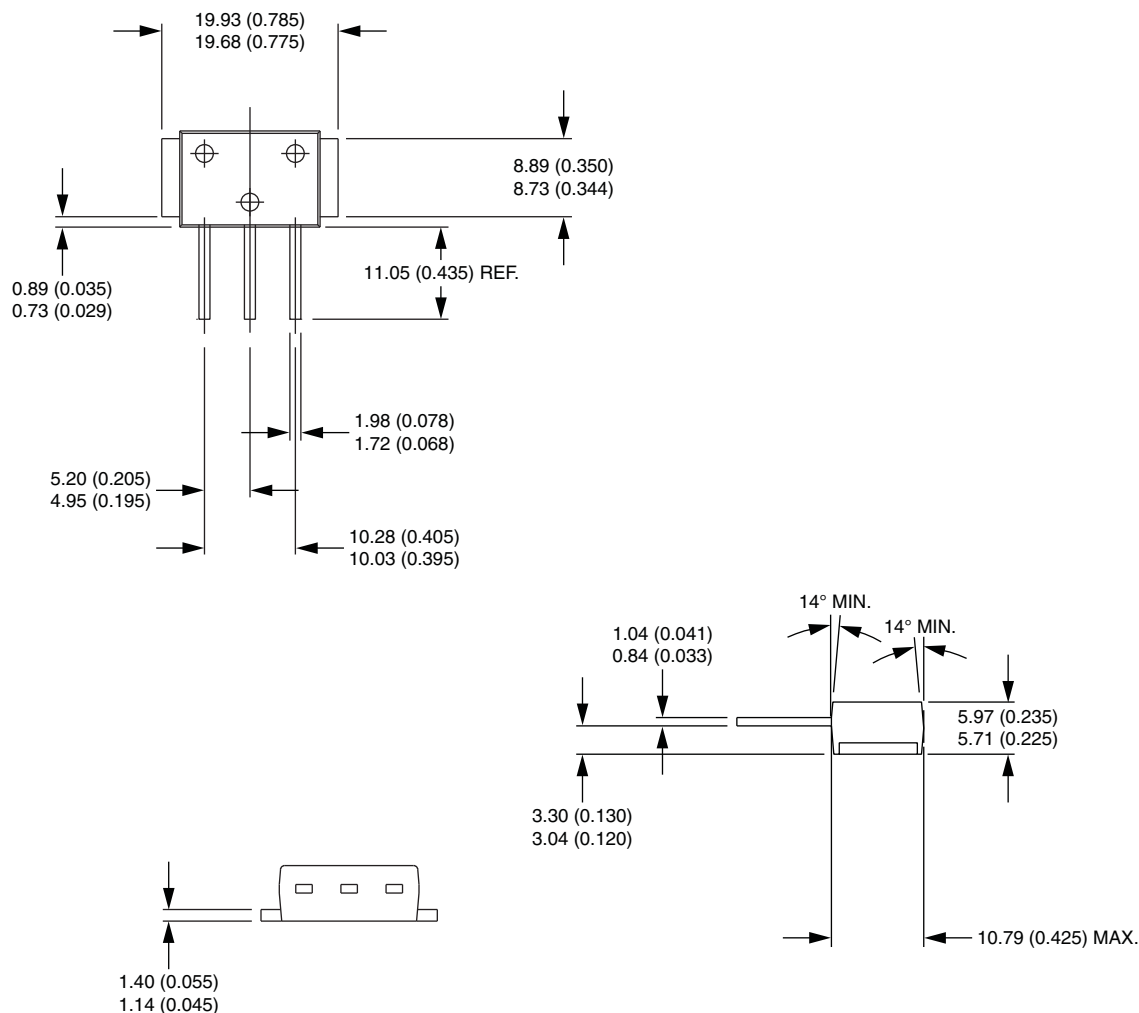
## D-61-8, D-61-8-SM, D-61-8-SL

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



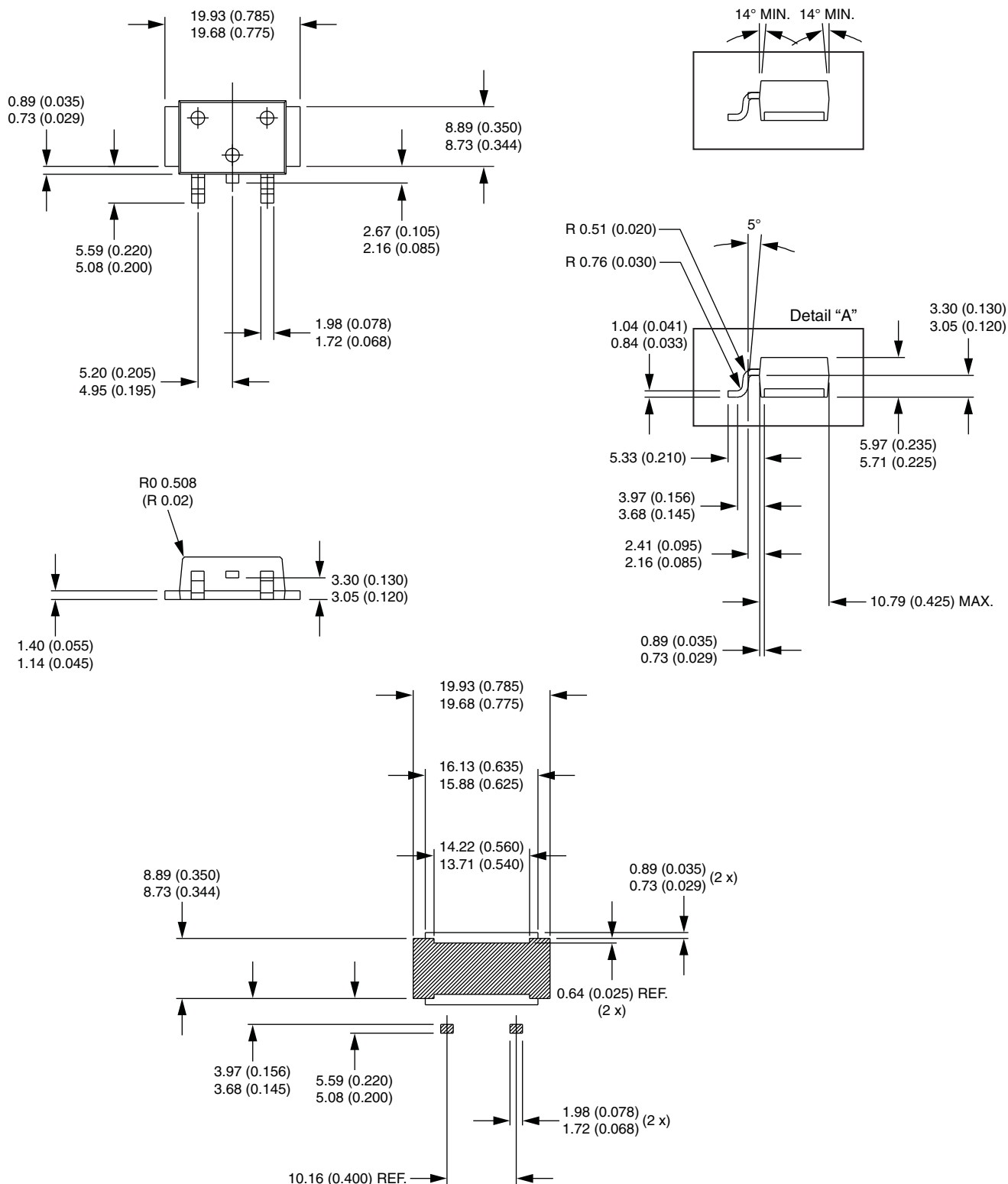


## DIMENSIONS - D-61-8-SM in millimeters (inches)





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





## Disclaimer

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