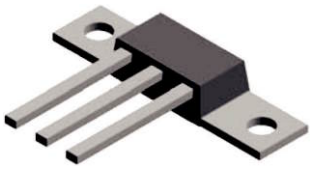
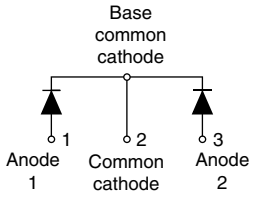
Schottky Rectifier
New Generation 3 D-61 Package, 2 x 55 A

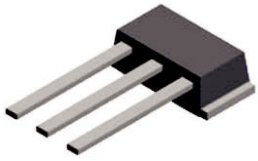
VS-113CNQ100APbF



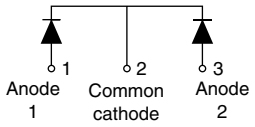
D-61-8



VS-113CNQ100ASMPbF



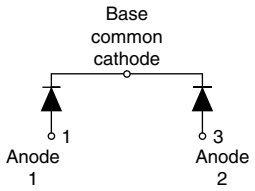
D-61-8-SM



VS-113CNQ100ASLPbF



D-61-8-SL



FEATURES

- 175 °C T_J operation
- Center tap module
- 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 series has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175 °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	100 V

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	110	A
V_{RRM}		100	V
I_{FSM}	t_p = 5 µs sine	7000	A
V_F	55 Apk, T_J = 125 °C (per leg)	0.67	V
T_J	Range	- 55 to 175	°C

VOLTAGE RATINGS			
PARAMETER	SYMBOL	VS-113CNQ100APbF	UNITS
Maximum DC reverse voltage	V_R	100	V
Maximum working peak reverse voltage	V_{RWM}		

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

ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current See fig. 5	per leg	$I_{F(AV)}$	50 % duty cycle at T_C = 150 °C, rectangular waveform		55	A
	per device				110	
Maximum peak one cycle non-repetitive surge current per leg See fig. 7		I_{FSM}	5 µs sine or 3 µs rect. pulse	Following any rated load condition and with rated V_{RRM} applied	7000	A
			10 ms sine or 6 ms rect. pulse		720	
Non-repetitive avalanche energy per leg		E_{AS}	T_J = 25 °C, I_{AS} = 1 A, L = 30 mH		15	mJ
Repetitive avalanche current per leg		I_{AR}	Current decaying linearly to zero in 1 µs Frequency limited by T_J maximum V_A = 1.5 x V_R typical		1	A

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg See fig. 1	V_{FM} (1)	55 A	T_J = 25 °C	0.81	V
		110 A		1.00	
		55 A	T_J = 125 °C	0.66	
		110 A		0.79	
Maximum reverse leakage current per leg See fig. 2	I_{RM} (1)	T_J = 25 °C	V_R = Rated V_R	1.0	mA
		T_J = 125 °C		32	
Maximum junction capacitance per leg	C_T	V_R = 5 V_{DC} (test signal range 100 kHz to 1 MHz), 25 °C		1960	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/µs

Note

(1) Pulse width < 300 µs, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS

PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range		T_J, T_{Stg}		- 55 to 175	°C
Maximum thermal resistance, junction to case per leg		R_{thJC}	DC operation 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_{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		Recommended hardware 3M stainless screw	12 (10)	kgf · cm (lbf · in)
	maximum			24 (20)	
Marking device			Case style D-61	113CNQ100A	
			Case style D-61-8-SM	113CNQ100ASM	
			Case style D-61-8-SL	113CNQ100ASL	

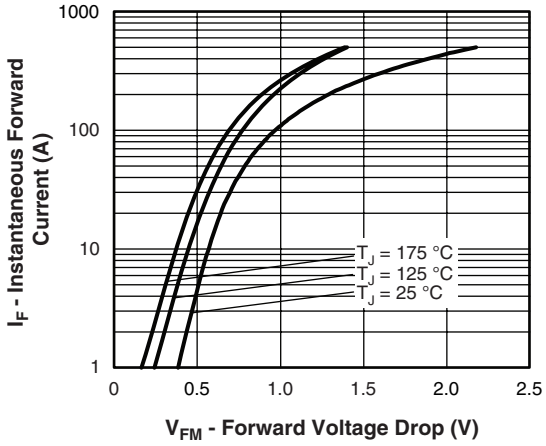


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

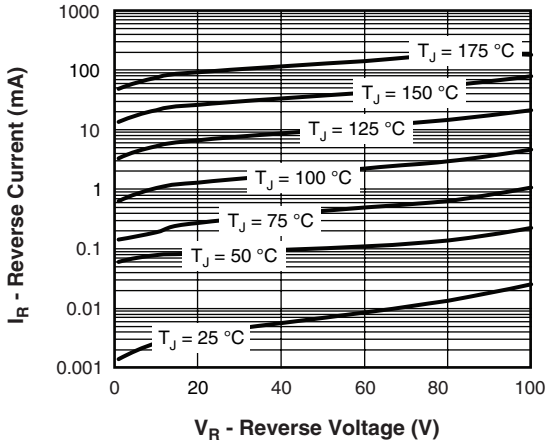


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

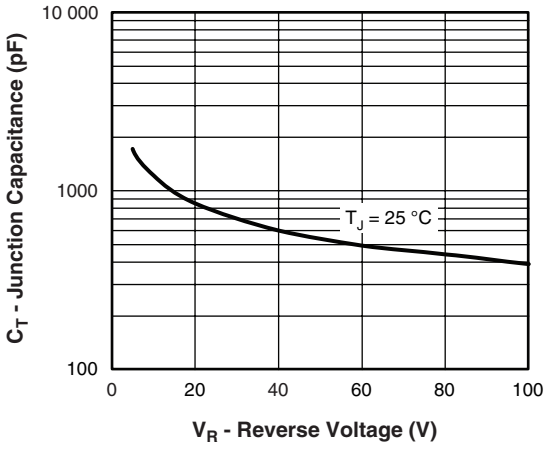


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

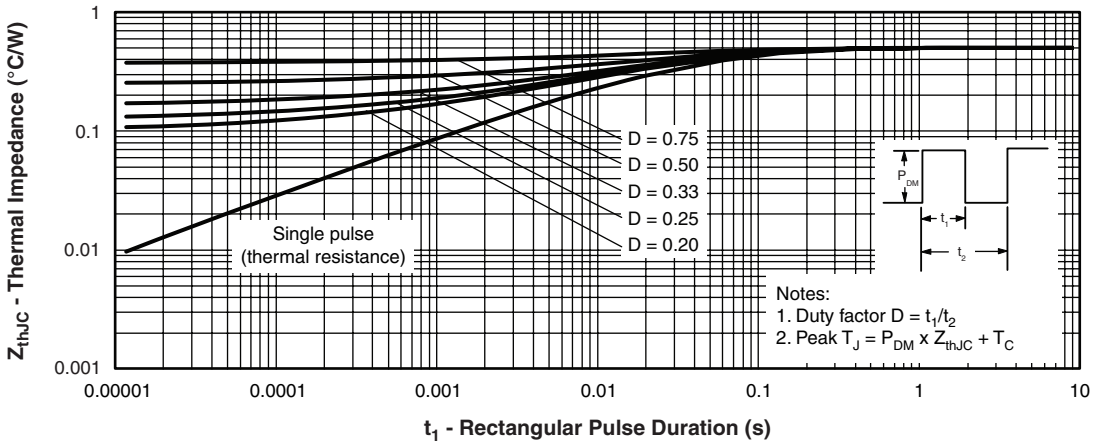


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

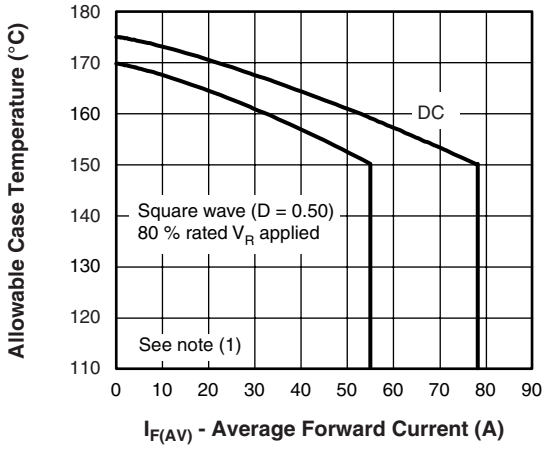


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

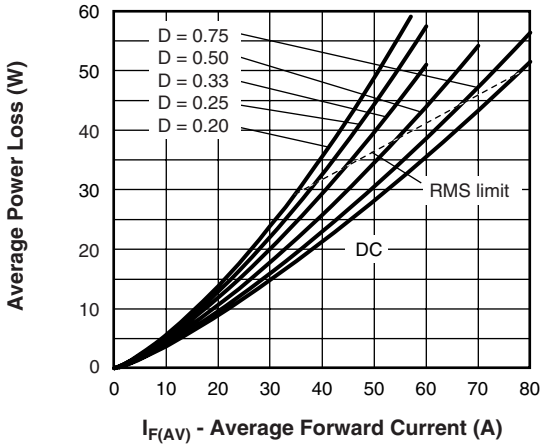


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

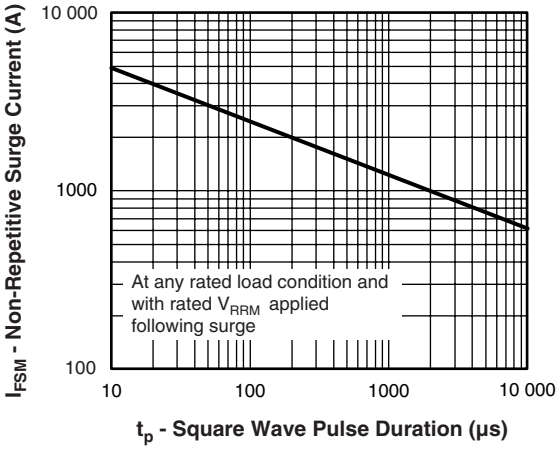


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

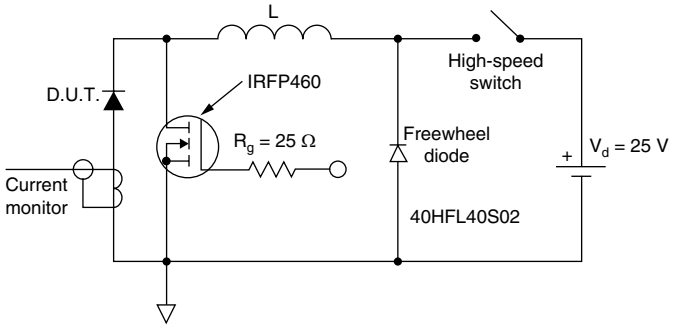


Fig. 8 - Unclamped Inductive Test Circuit

Note

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

ORDERING INFORMATION TABLE

Device code

VS-	113	C	N	Q	100	A	PbF
1	2	3	4	5	6	7	8

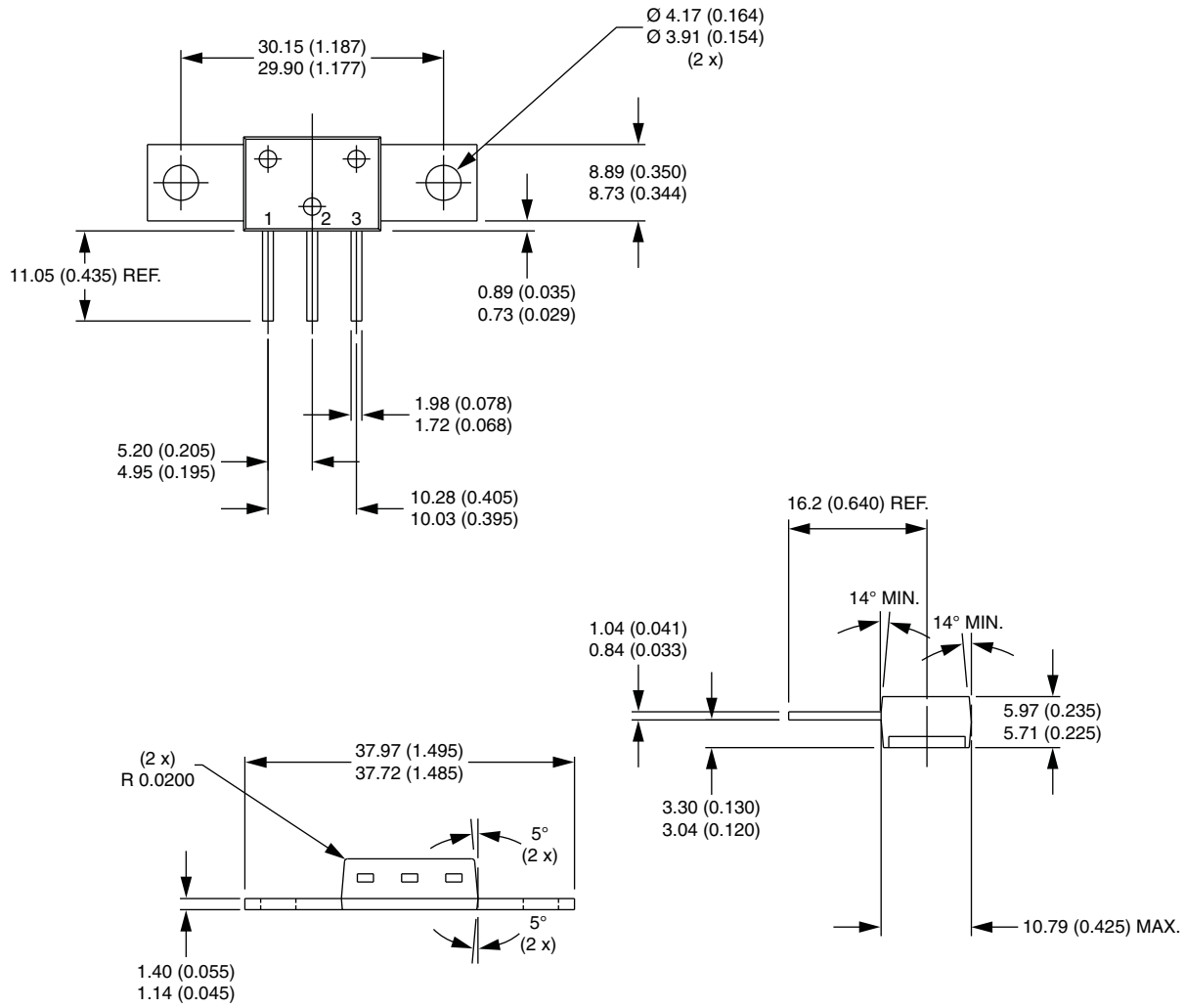
- 1 - HPP product suffix
- 2 - Current rating (110 A)
- 3 - Circuit configuration:
  C = Common cathode
- 4 - Package:
  N = D-61
- 5 - Schottky “Q” series
- 6 - Voltage rating (100 = 100 V)
- 7 - Package style:
  - A = D-61-8
  - ASM = D-61-8-SM
  - ASL = D-61-8-SL
- 8 -
  - None = Standard production
  - PbF = Lead (Pb)-free

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

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95354
Part marking information	www.vishay.com/doc?95356

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

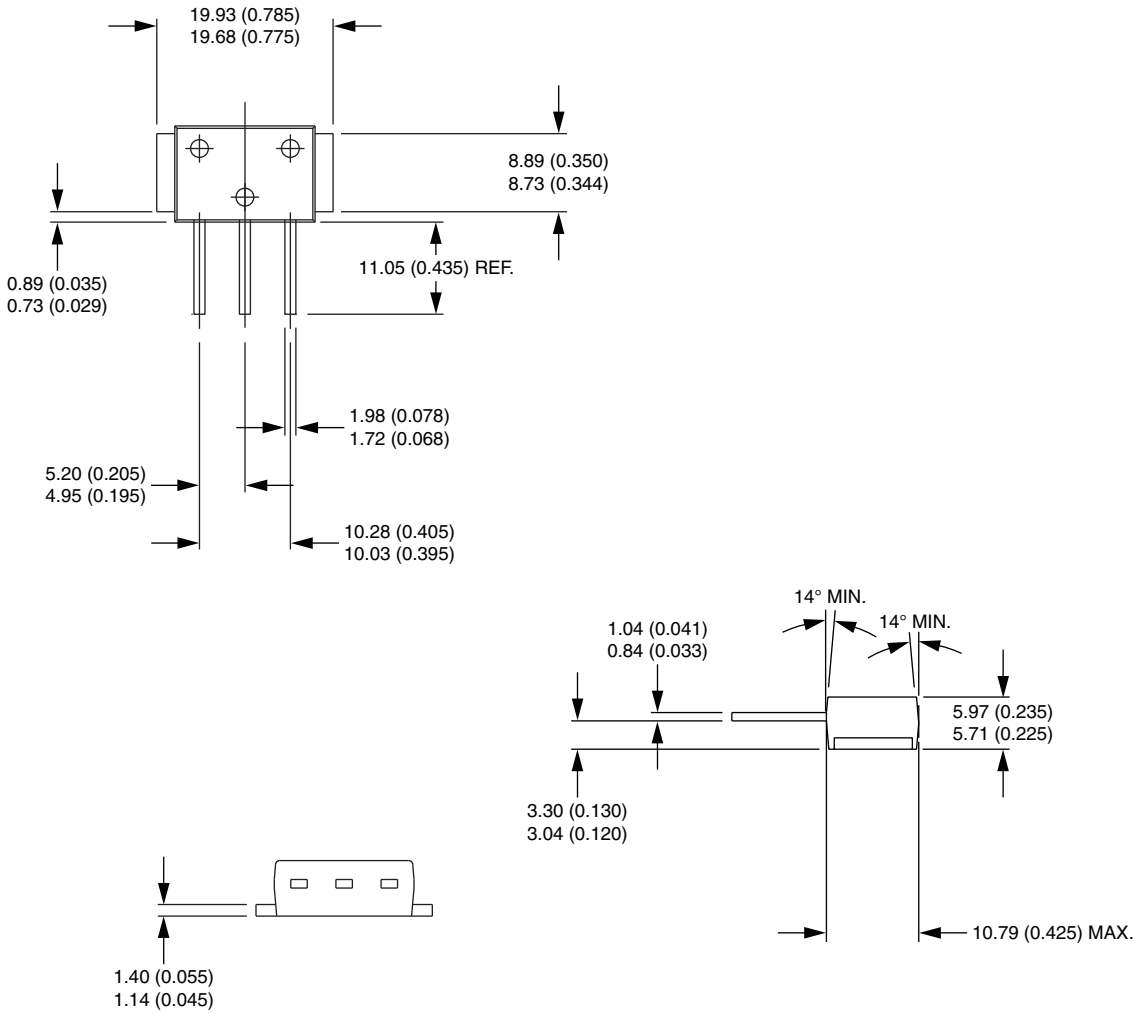
DIMENSIONS - D-61-8 in millimeters (inches)



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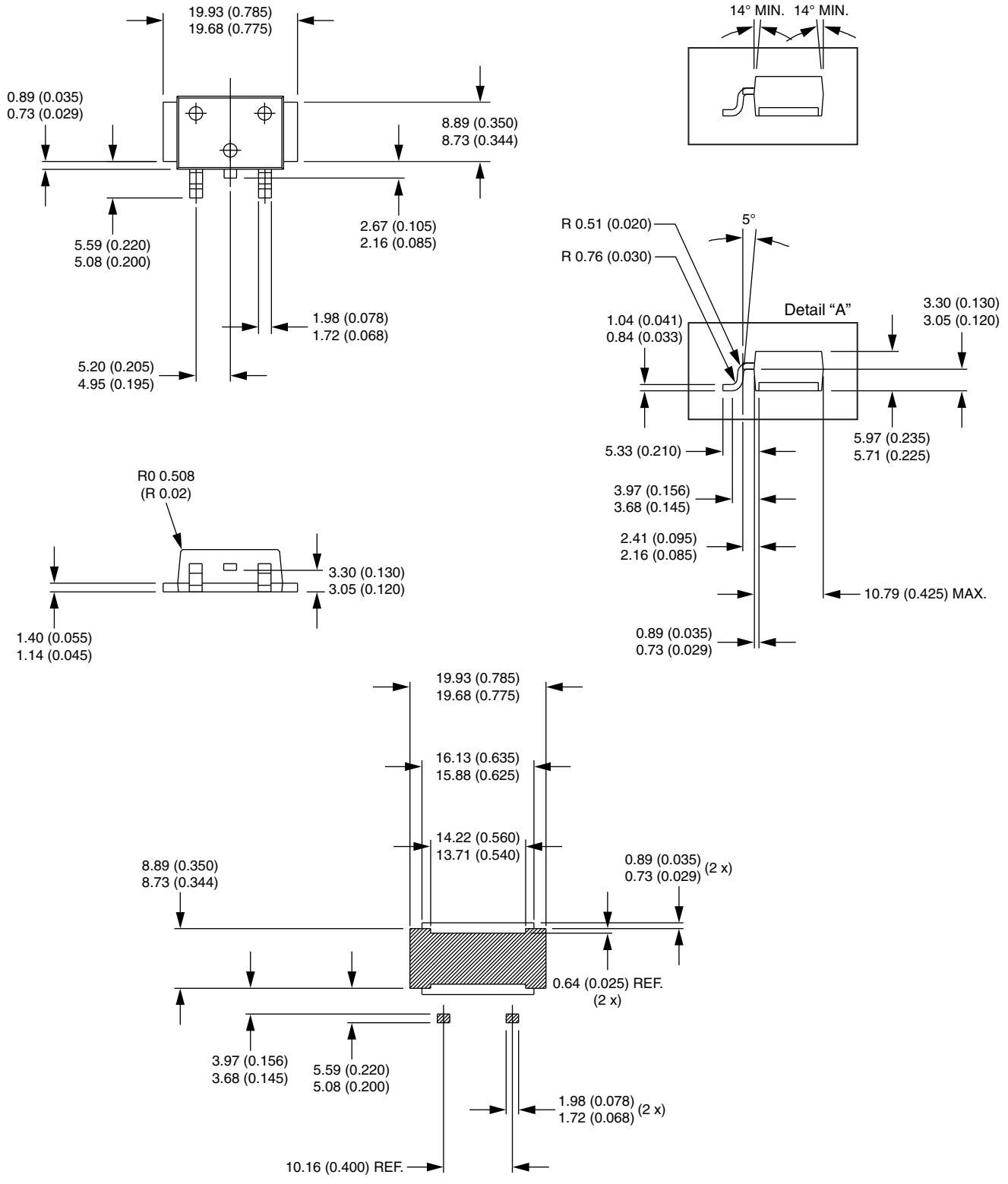
DIMENSIONS - D-61-8-SM in millimeters (inches)



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



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