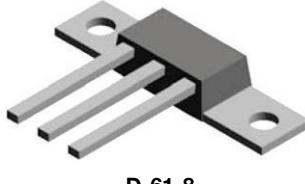
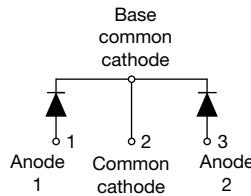
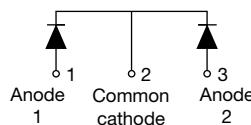
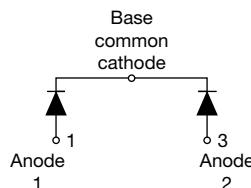


High Performance Schottky Rectifier New Generation 3 D-61 Package, 2 x 55 A

VS-110CNQ045APbF

D-61-8

VS-110CNQ045ASMPbF

D-61-8-SM

VS-110CNQ045ASLPbF

D-61-8-SL


PRODUCT SUMMARY

Package	D-61
$I_{F(AV)}$	2 x 55 A
V_R	45 V
V_F at I_F	0.54 V
I_{RM} max.	350 mA at 125 °C
T_J max.	150 °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}		45	V
I_{FSM}	$t_p = 5 \mu s$ sine	5400	A
V_F	55 A _{pk} , $T_J = 125$ °C (per leg)	0.5	V
T_J	Range	-55 to +150	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	VS-110CNQ045APbF	UNITS
Maximum DC reverse voltage	V_R	45	V
Maximum working peak reverse voltage	V_{RWM}		

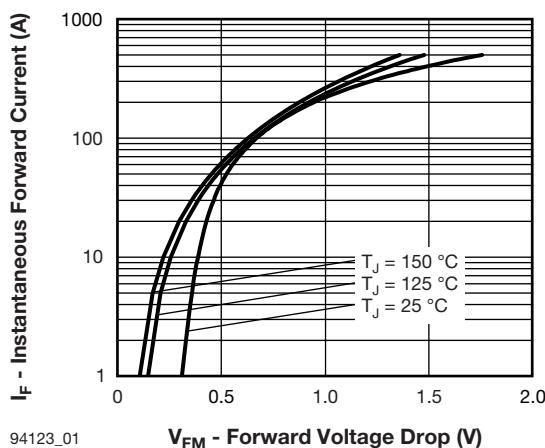
ABSOLUTE MAXIMUM RATINGS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current per leg See fig. 5	I _{F(AV)}	50 % duty cycle at T _C = 125 °C, rectangular waveform		55	A	
per device				110		
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	I _{FSM}	5 µs sine or 3 µs rect. pulse	Following any rated load condition and with rated V _{RRM} applied	5400	A	
		10 ms sine or 6 ms rect. pulse		800		
Non-repetitive avalanche energy per leg	E _{AS}	T _J = 25 °C, I _{AS} = 8 A, L = 1.7 mH		54	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		8	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	0.54	V	
		110 A		0.7		
		55 A	T _J = 125 °C	0.5		
		110 A		0.69		
Maximum reverse leakage current per leg See fig. 2	I _{RM} ⁽¹⁾	T _J = 25 °C	V _R = Rated V _R	3	mA	
		T _J = 125 °C		350		
Maximum junction capacitance per leg	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz), 25 °C		3800	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 %

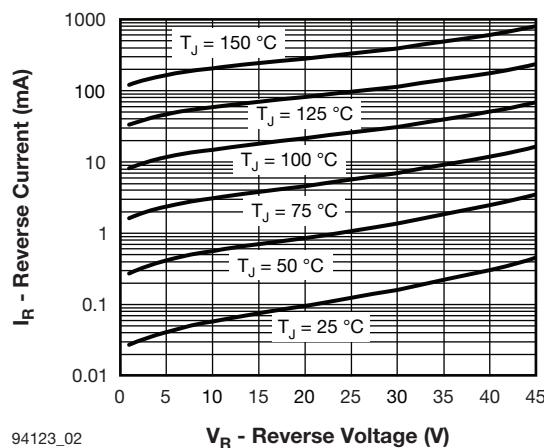
THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum junction and storage temperature range	T _J , T _{Stg}			-55 to +150	°C	
Maximum thermal resistance, junction to case per leg	R _{thJC}	DC operation See fig. 4		0.5	°C/W	
		DC operation		0.25		
Typical thermal 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		110CNQ045A		
		Case style D-61-8-SM		110CNQ045ASM		
		Case style D-61-8-SL		110CNQ045ASL		



94123_01

 V_{FM} - Forward Voltage Drop (V)

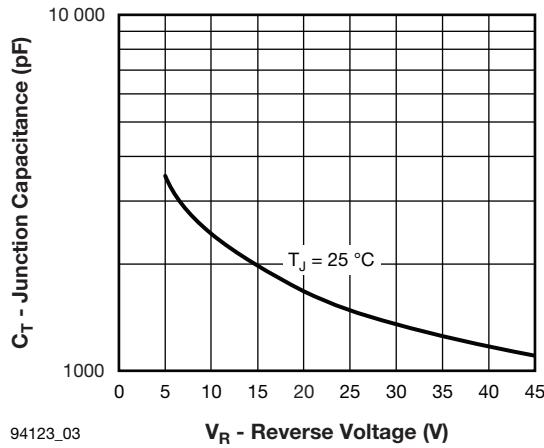
Fig. 1 - Maximum Forward Voltage Drop Characteristics
(Per Leg)



94123_02

 V_R - Reverse Voltage (V)

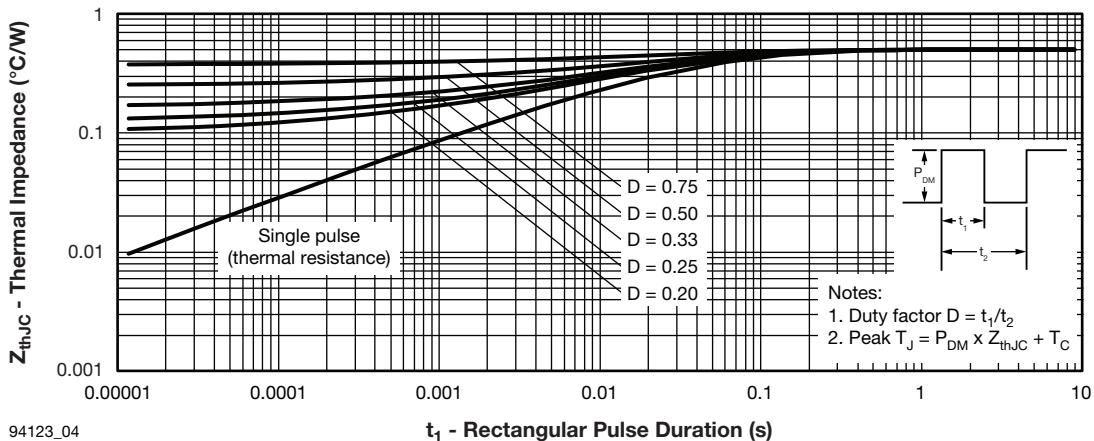
Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage
(Per Leg)



94123_03

 V_R - Reverse Voltage (V)

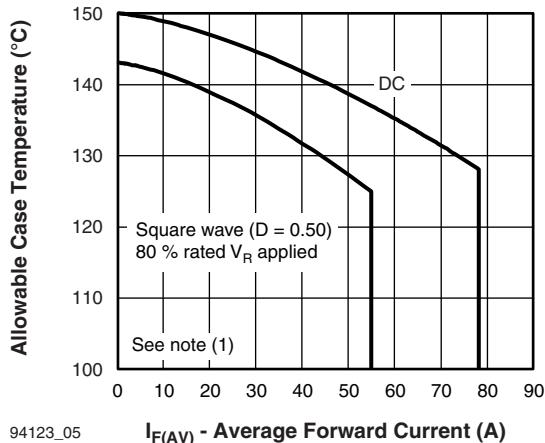
Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)



94123_04

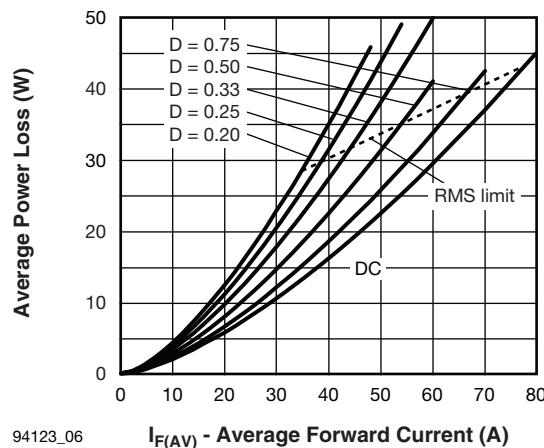
 t_1 - Rectangular Pulse Duration (s)

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



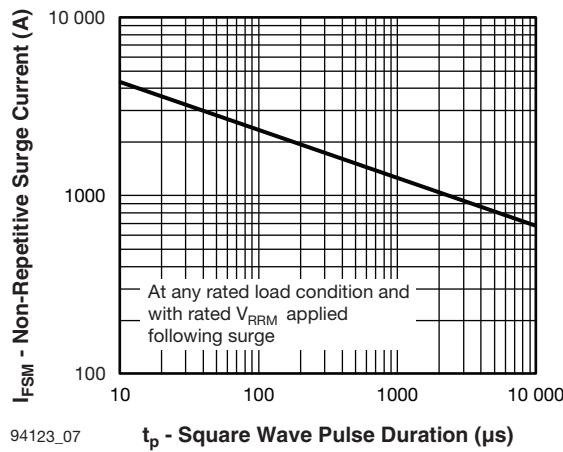
94123_05 **$I_{F(AV)}$ - Average Forward Current (A)**

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



94123_06 **$I_{F(AV)}$ - Average Forward Current (A)**

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



94123_07

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

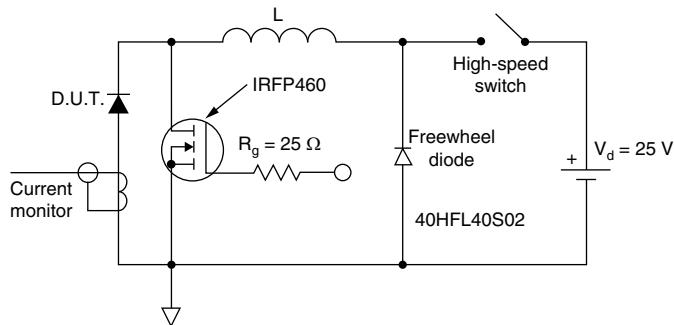


Fig. 8 - Unclamped Inductive Test Circuit

Note

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

ORDERING INFORMATION TABLE

Device code	VS-	110	C	N	Q	045	A	PbF
	1	2	3	4	5	6	7	8

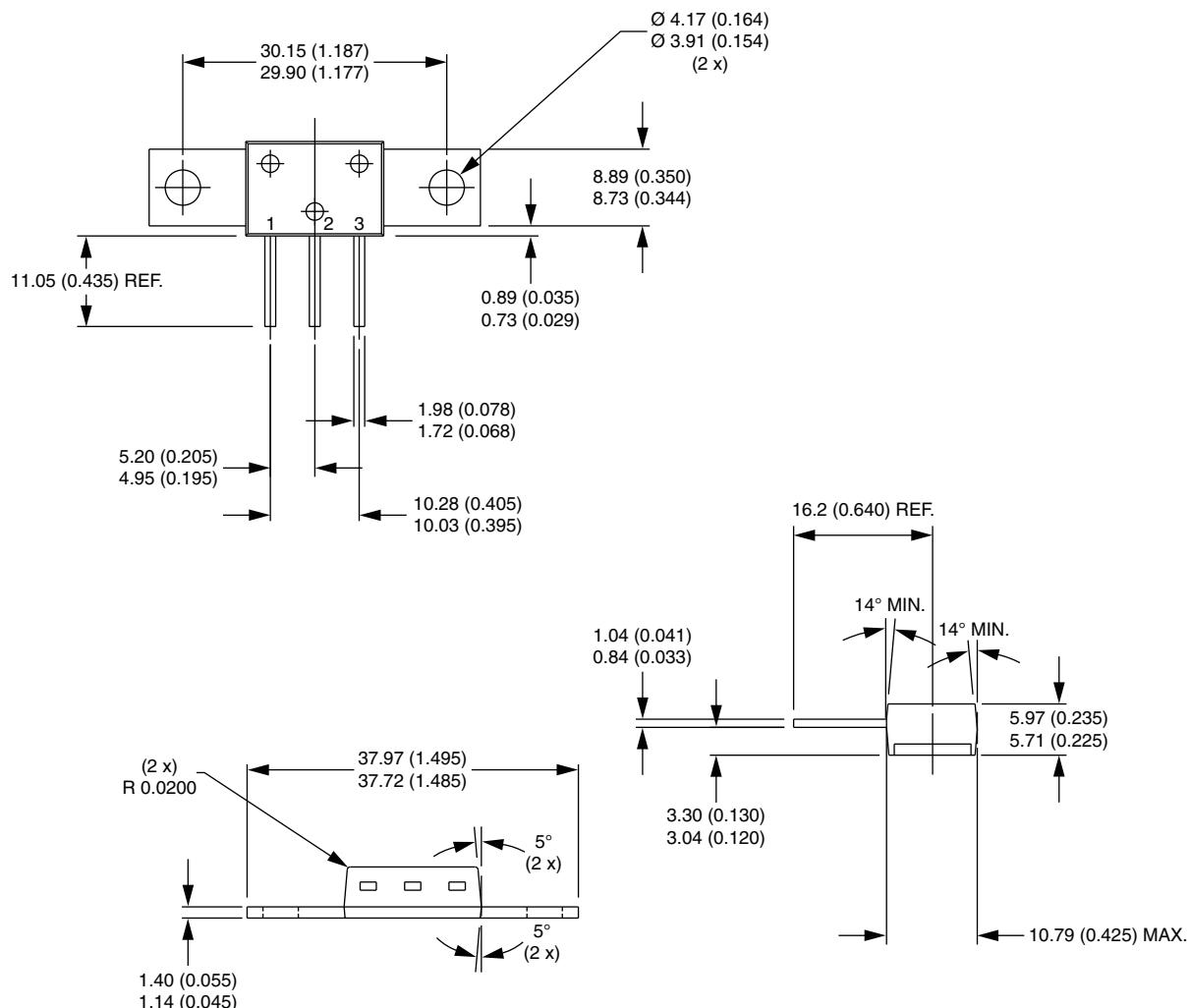
- 1** - Vishay Semiconductors product
- 2** - Current rating (110 = 110 A)
- 3** - Circuit configuration:
C = common cathode
- 4** - Package:
N = D-61
- 5** - Schottky "Q" series
- 6** - Voltage rating (045 = 45 V)
- 7** - Package style:
 - A = D-61-8
 - ASM = D-61-8-SM
 - ASL = D-61-8-SL
- 8** - • None = standard production
• PbF = lead (Pb)-free

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

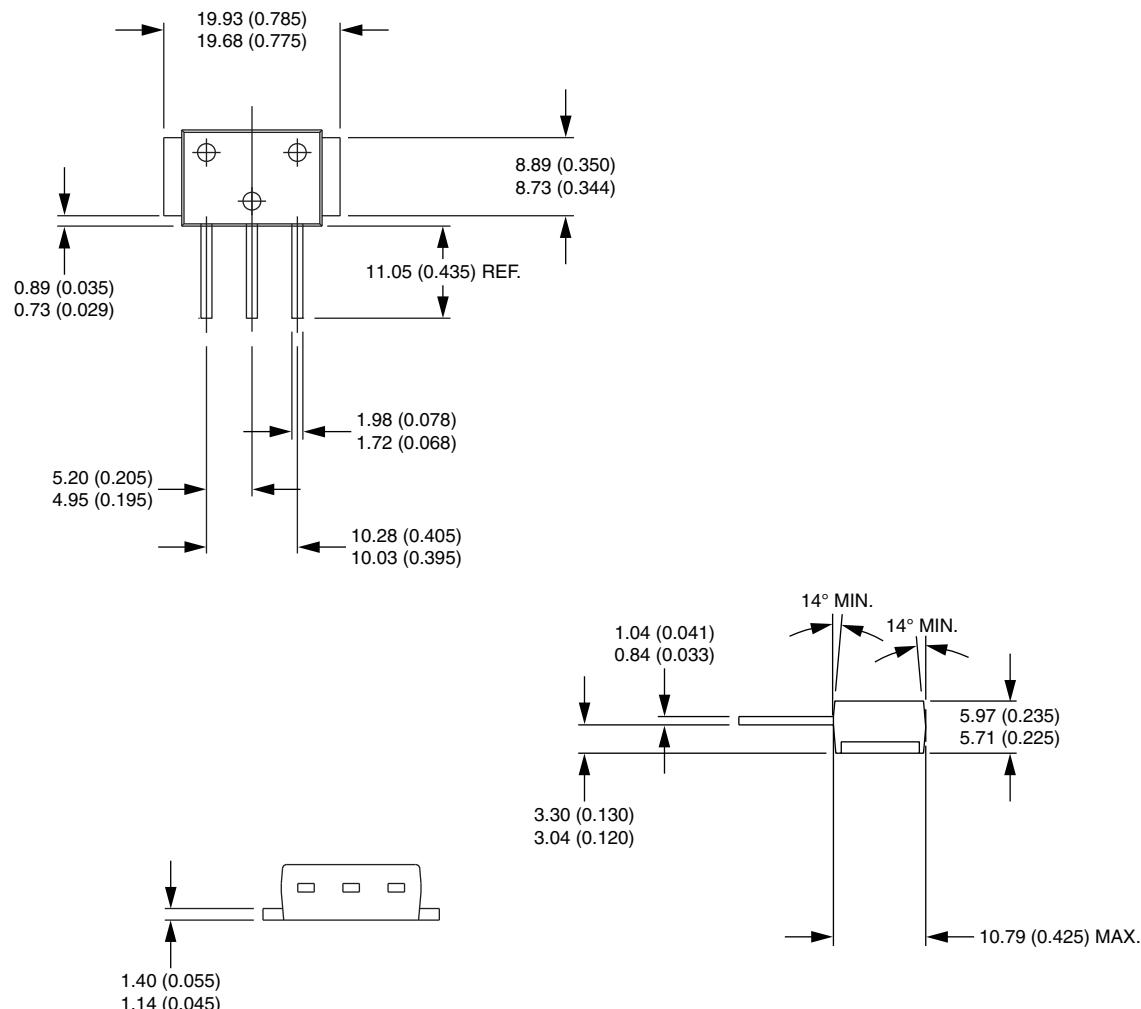
LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95354
Part marking information	www.vishay.com/doc?95356

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

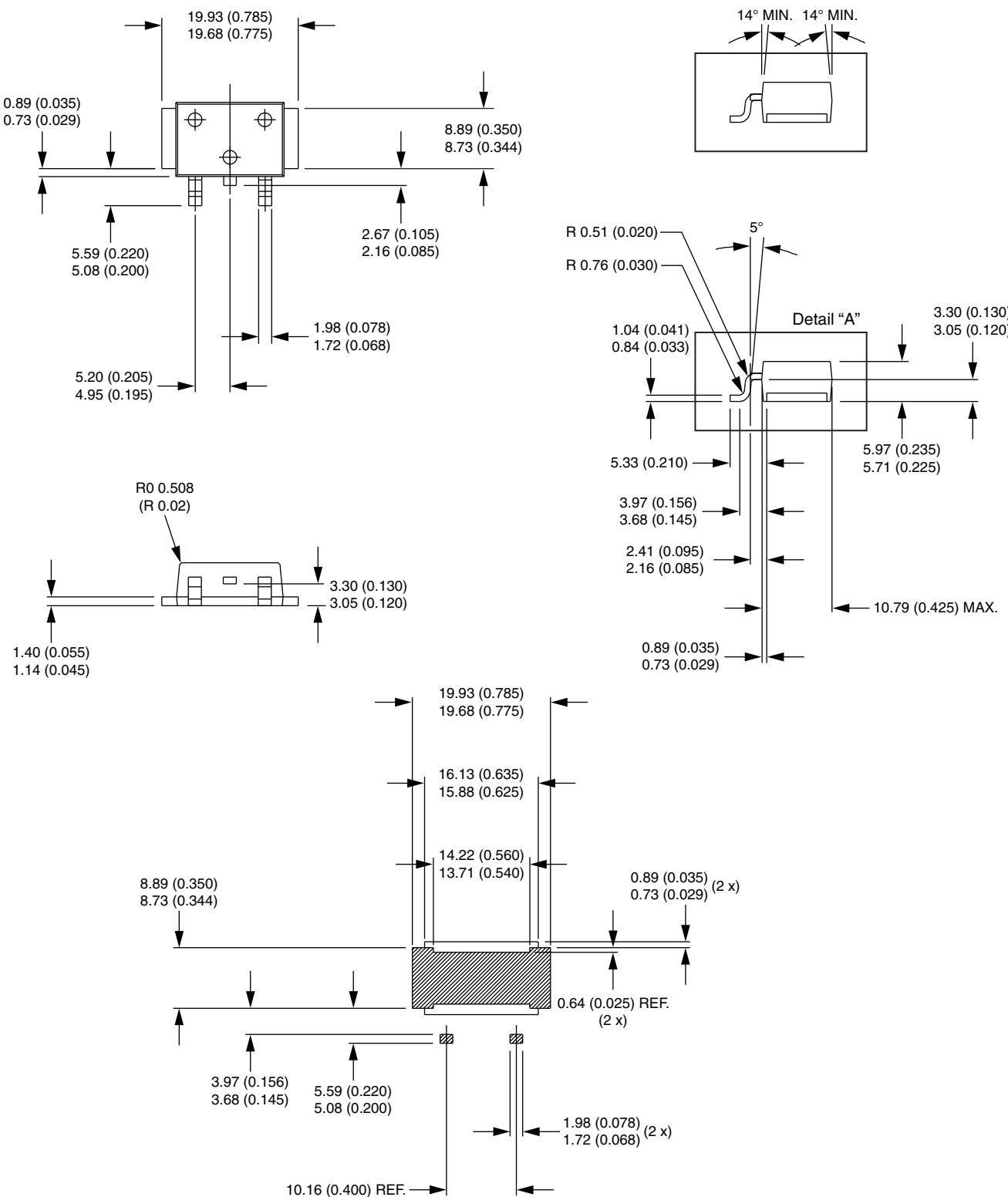
DIMENSIONS - D-61-8 in millimeters (inches)



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



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



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