

Features

- Complies with UL 1449 and IEC/EN 61643-11 standards
- UL recognized Type 4, Type 2 location SPD, passed short circuit current rating (SCCR) 200 kA
- High reliability protected MOV with Advanced Thermal Disconnecter (TD+)
- Compact size to save installation space
- PCB mount design, compatible with reflow and wave soldering procedures

1220 TPMOV Surge Protective Device

General Information

The Bourns® Model 1220 Series is a surge suppressor with thermal protection designed to open in the event of overheating due to an abnormal overvoltage or temporary overvoltage (TOV) and will interrupt any abnormal current that may be encountered, up to rated limits.

Additional Information


Click these links for more information:



Electrical Characteristics

Characteristic		1220-10				
		-I2-120M1	-I2-277M1	-I2-400M1	-I1-480M1	-I1-600M1
Nominal System Voltage		120 V	277 V	347 V	480 V	600 V
Compliance		UL 1449				
Category UL		Type 4, Type 2 Location				
Product Technologies		High Energy MOV Technology Advanced Thermal Disconnecter (TD+)				
Connection Mode		1 Pole, L-N or L-G or N-PE				
AC System		IT, TT, TN, Single, Split Phase, Delta, Wye				
Max. Operating Voltage (MCOV)		150 V	320 V	420 V	550 V	690 V
UL 1449	Nominal Discharge Current 8/20 μ s (I_n)	10 kA				
	Max. Discharge Current (I_{max}) 1 Impulse 8/20 μ s	25 kA			22 kA	
	Voltage Protection Rating (VPR)	≤ 0.6 kV	≤ 1.0 kV	≤ 1.2 kV	≤ 1.8 kV	≤ 2.0 kV
	Short Circuit Current Rating (SCCR)	200 kA _{rms}				

Agency Recognition

Agency	Category	Agency File No.
	UL1449 - 5th Ed.	E313168

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Americas: Tel: +1 951-781-5500 • Email: americus@bourns.com

Mexico: Tel: +52-614-478-0400 • Email: mexicus@bourns.com

Asia: Tel: +886-2-2562-4117 • Email: asiacus@bourns.com

EMEA: Tel: +36 88 885 877 • Email: euocus@bourns.com

www.bourns.com

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

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Users should verify actual device performance in their specific applications.

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Applications

- Surge protection devices
- AC-DC distribution
- All power circuits
- Telecommunications
- Built-in surge protection of electronic equipment

1220 TPMOV Surge Protective Device

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Electrical Characteristics (continued)

Characteristic		1220-20			
		-I4-120M2	-I4-277M2	-I4-400M2	-I4-480M2
Nominal System Voltage		120 V	277 V	347 V	480 V
Compliance		UL 1449			
Category UL		Type 4, Type 1 Location			
Product Technologies		High Energy MOV Technology Advanced Thermal Disconnect (TD+)			
Connection Mode		1 Pole, L-N or L-G or N-PE			
AC System		IT, TT, TN, Single, Split Phase, Delta, Wye			
Max. Operating Voltage (MCOV)		150 V	320 V	420 V	550 V
UL 1449	Nominal Discharge Current 8/20 μ s (I_n)	20 kA			
	Max. Discharge Current (I_{max}) 1 Impulse 8/20 μ s	50 kA			
	Voltage Protection Rating (VPR)	≤ 0.6 kV	≤ 1.0 kV	≤ 1.2 kV	≤ 1.8 kV
	Short Circuit Current Rating (SCCR)	200 kA _{rms}			

Characteristic		1220-20					
		-I4-120M3	-I4-230M3	-I4-277M3	-I4-400M3	-I4-480M3	-I3-600M3
Nominal System Voltage		120 V	230 V	277 V	347 V	480 V	600 V
Compliance		UL 1449					
Category UL		Type 4, Type 2 Location					
Product Technologies		High Energy MOV Technology Advanced Thermal Disconnect (TD+)					
Connection Mode		1 Pole, L-N or L-G or N-PE					
AC System		IT, TT, TN, Single, Split Phase, Delta, Wye					
Max. Operating Voltage (MCOV)		150 V	275 V	320 V	420 V	550 V	690 V
UL 1449	Nominal Discharge Current 8/20 μ s (I_n)	20 kA					
	Max. Discharge Current (I_{max}) 1 Impulse 8/20 μ s	50 kA					40 kA
	Voltage Protection Rating (VPR)	≤ 0.6 kV	≤ 0.8 kV	≤ 1.0 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 2.0 kV
	Short Circuit Current Rating (SCCR)	200 kA _{rms}					

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1220 TPMOV Surge Protective Device

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Electrical Characteristics (continued)

Characteristic		1220-20		
		-15-120M4	-15-230M4	-15-277M4
Nominal System Voltage		120 V	230 V	277 V
Compliance		UL 1449		
Category UL		Type 4, Type 2 Location		
Product Technologies		High Energy MOV Technology Advanced Thermal Disconnect (TD+)		
Connection Mode		1 Pole, L-N or L-G or N-PE		
AC System		IT, TT, TN, Single, Split Phase, Delta, Wye		
Max. Operating Voltage (MCOV)		150 V	275 V	320 V
UL 1449	Nominal Discharge Current 8/20 μ s (I_n)	20 kA		
	Max. Discharge Current (I_{max}) 1 Impulse 8/20 μ s	75 kA		
	Voltage Protection Rating (VPR)	≤ 0.6 kV	≤ 0.8 kV	≤ 1.0 kV
	Short Circuit Current Rating (SCCR)	200 kA _{rms}		

General Characteristics

Characteristic	1220 TPMOV
Thermal Disconnect	UL 60691
Dimensions	See Product Dimensions
Mounting	PCB
Remote Signal Indicator	Floating Contact (50 mA 12 VDC) for Fault Indication Module Type 1 and Type 2 – Open: Failure; Closed: Normal Module Type 3 and Type 4 – Open: Normal; Closed: Failure
Enclosure Material	Thermoplastic UL 94V0
Insulation Resistance	>10 M Ω
Response Time	≤ 25 ns
Follow Current	None

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1220 TPMOV Surge Protective Device



Environmental Characteristics

Characteristic	1220 TPMOV
Operating Temperature	Model Type 1: -40 °C to +80 °C Model Type 2/3/4: -40 °C to +85 °C
Operating Altitude	≤2000 m
Relative Humidity	5 to 95 % Non-condensing
Environmental Rating	IP20
Moisture Sensitivity Level	1
ESD Classification (HBM)	N/A

Standards Compliance

IEC/EN 61643-11..... Class II , Type 2
 UL1449..... Type 4, Type 2 location
 CSA C22.2..... Type 4, Type 2 location
 IEEE C62.41
 RoHS..... RoHS Directive 2015/863, Mar 31, 2015 and Annex

How to Order

1220 - xx - lx - xxxMx

Model Designator _____
 1220 = Thermally Protected Metal Oxide Varistor

Nominal Discharge Current (8/20µs) I_{nom} rate _____
 10 = 10 kA
 20 = 20 kA

Max. Discharge Current (8/20µs) I_{max} rate _____
 1 = 22 kA
 2 = 25 kA
 3 = 40 kA
 4 = 50 kA
 5 = 75 kA

Operating Voltage _____
 120 = 120/240 V, 120/208 V
 230 = 220/380 V, 230/400 V
 277 = 240/415 V, 277/480 V
 400 = 277/480 V, 347/600 V
 480 = 347/600 V, 480 V (Delta)
 600 = 600 V (Delta)

Module Type (Refer the Product Dimensions) _____
 M1 = Module Type 1
 M2 = Module Type 2
 M3 = Module Type 3
 M4 = Module Type 4

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Users should verify actual device performance in their specific applications.

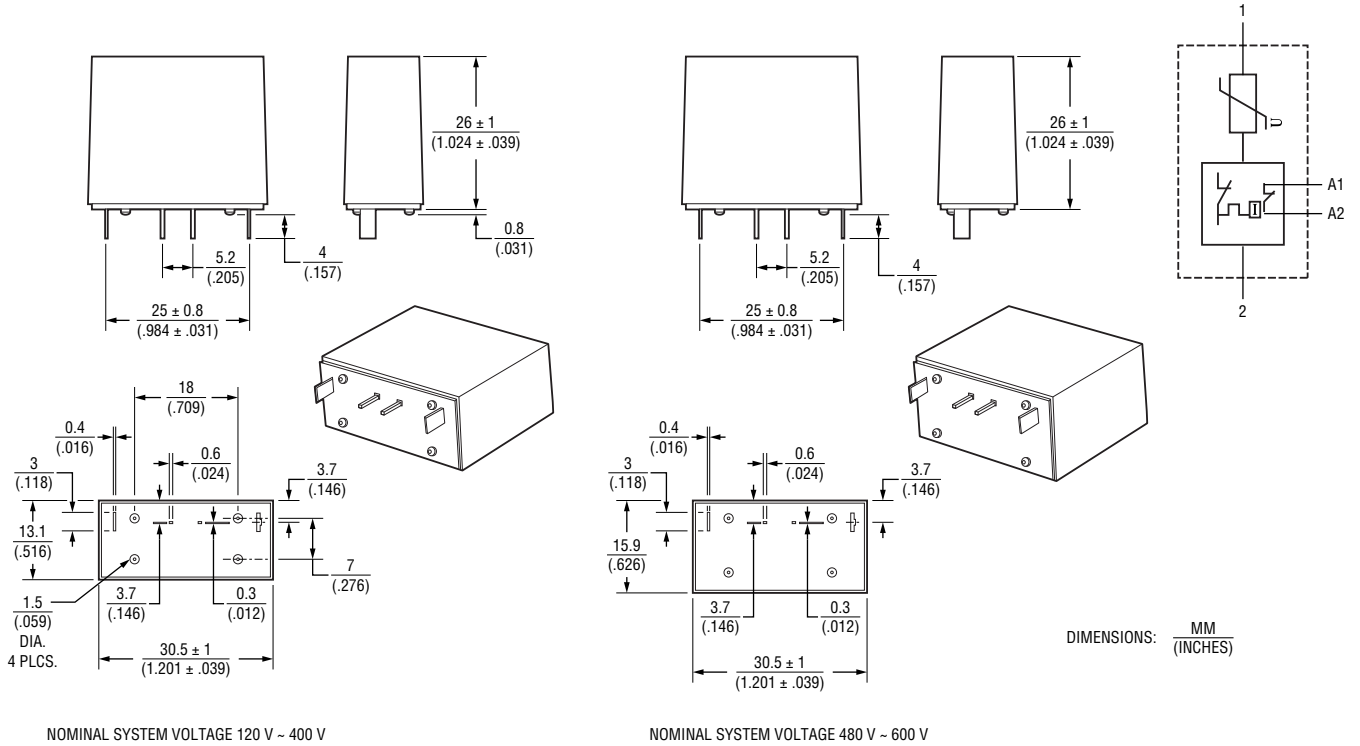
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Product Dimensions and Schematics

M1 – Module Type 1



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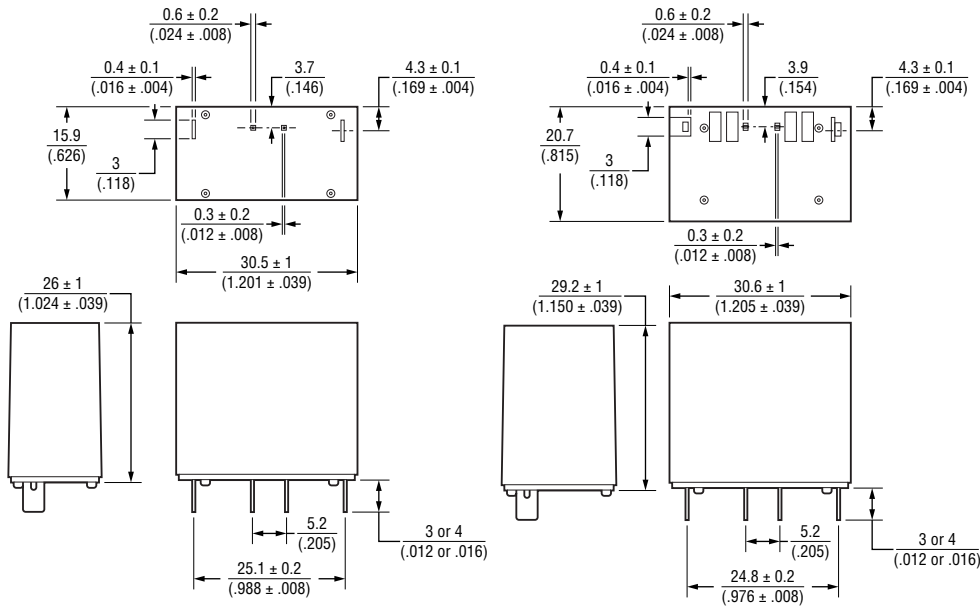
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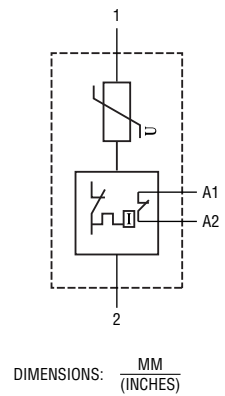
Product Dimensions and Schematics (continued)

M2 – Module Type 2



NOMINAL SYSTEM VOLTAGE 120 V

NOMINAL SYSTEM VOLTAGE 277 V - 480 V



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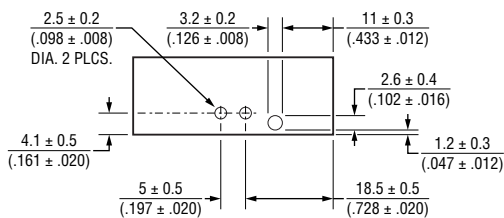
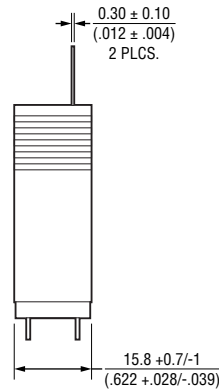
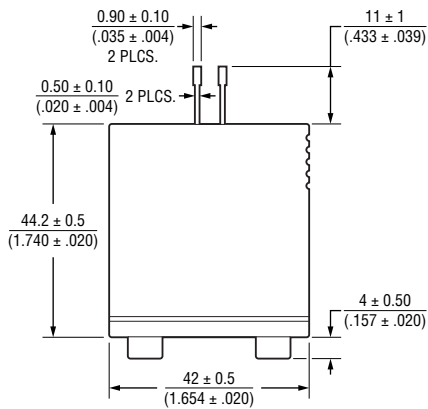
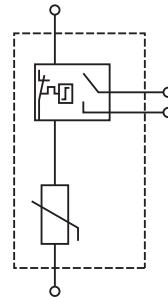
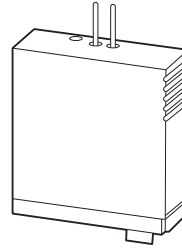
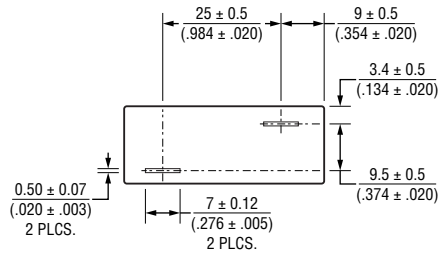
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Product Dimensions and Schematics (continued)

M3 – Module Type 3



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

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Users should verify actual device performance in their specific applications.

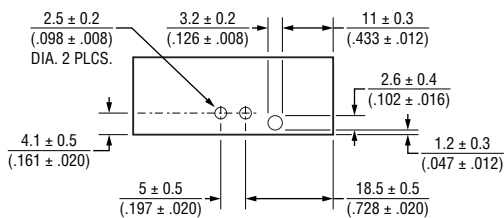
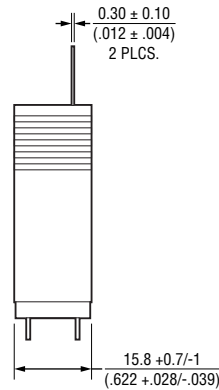
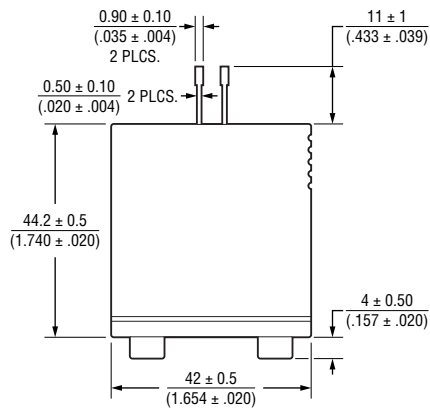
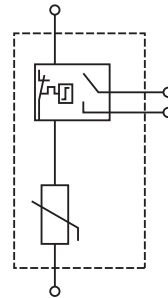
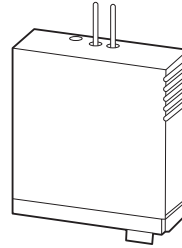
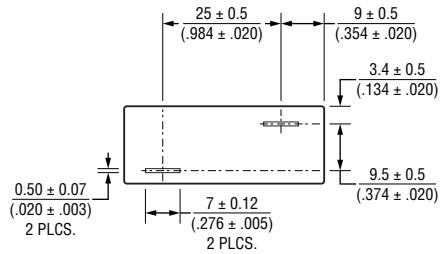
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Product Dimensions and Schematics (continued)

M4 – Module Type 4



DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

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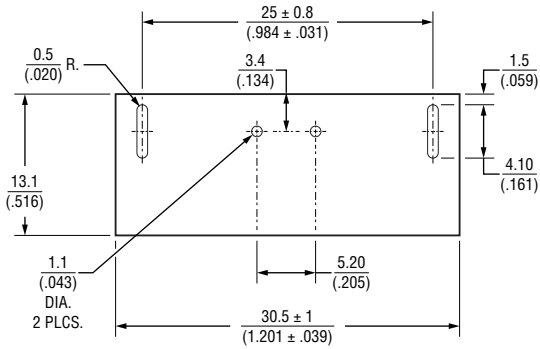
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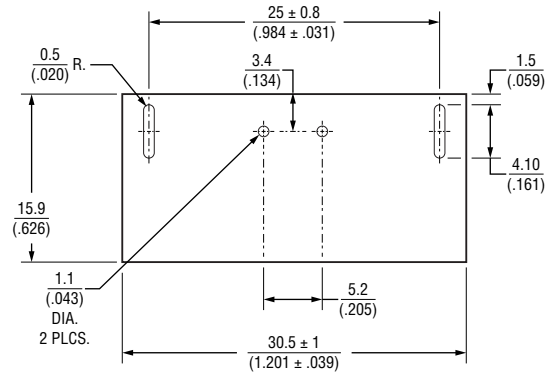
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PCB Layout Dimensions

M1 – Module Type 1



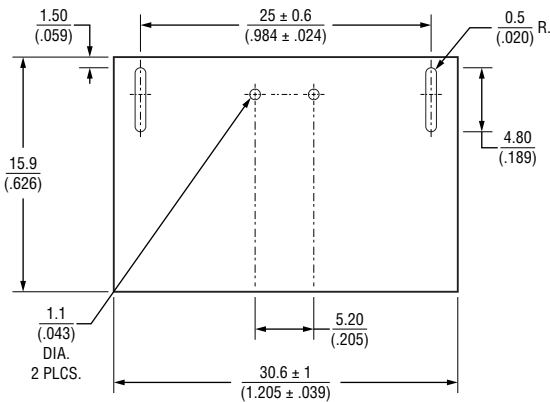
NOMINAL SYSTEM VOLTAGE 120 V ~ 400 V



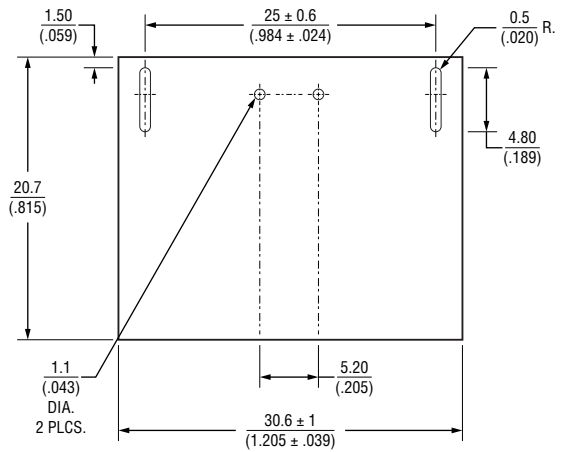
NOMINAL SYSTEM VOLTAGE 480 V ~ 600 V

TOLERANCE: ± 0.5 (.020)

M2 – Module Type 2



NOMINAL SYSTEM VOLTAGE 120 V



NOMINAL SYSTEM VOLTAGE 277 V ~ 480 V

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

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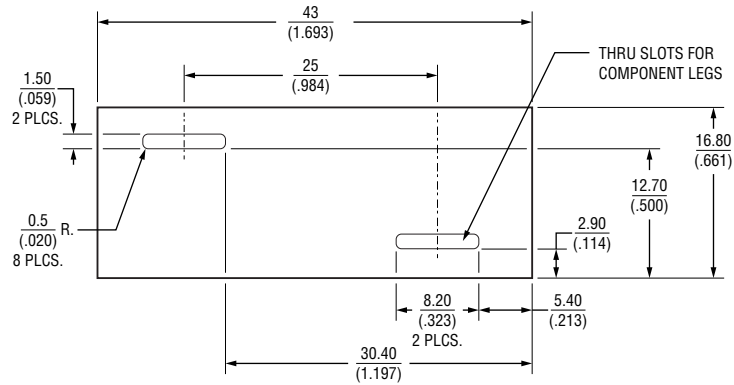
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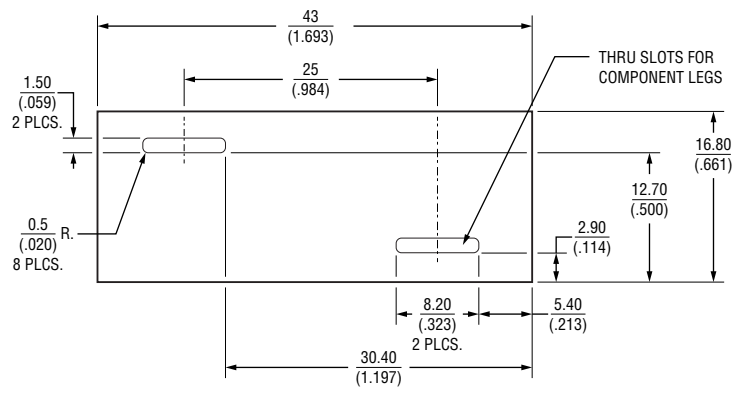
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PCB Layout Dimensions (continued)

M3 – Module Type 3



M4 – Module Type 4



REV. 06/25

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