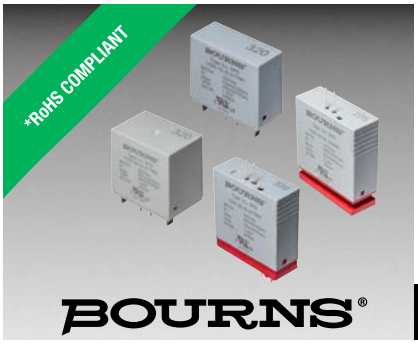

Features

- 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 Disconnector (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:

PRODUCT | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

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 Disconnector (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 μs (I_n)	10 kA				
	Max. Discharge Current (I_{max}) 1 Impulse 8/20 μs	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.
c UL us	UL 1449	E313168

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*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.

Applications

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

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 Disconnector (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 μs (I_n)	20 kA			
	Max. Discharge Current (I_{max}) 1 Impulse 8/20 μs	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 Disconnector (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 μs (I_n)	20 kA					
	Max. Discharge Current (I_{max}) 1 Impulse 8/20 μs	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}					

Electrical Characteristics (continued)

Characteristic		1220-20		
		-I5-120M4	-I5-230M4	-I5-277M4
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 Disconnector (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 μs (I_n)	20 kA		
	Max. Discharge Current (I_{max}) 1 Impulse 8/20 μs	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 Disconnector	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 MΩ
Response Time	≤25 ns
Follow Current	None

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 - Ix - xxxMx

Model Designator
- 1220 = Thermally Protected Metal Oxide Varistor

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

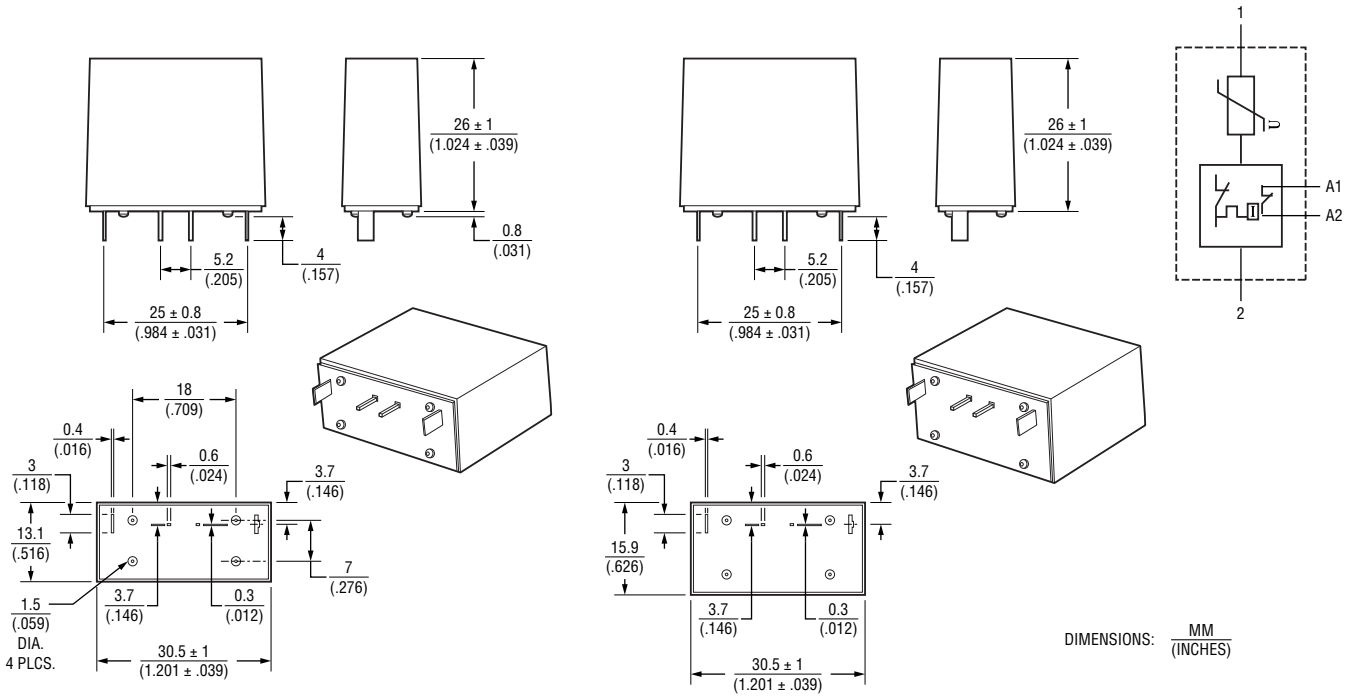
Max. Discharge Current (8/20µs) I_{max} rate
- 1 = 22 kA
- 2 = 25 kA
- 3 = 40 kA
- 4 = 50 kA
- 5 = 75 kA

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

Product Dimensions and Schematics

M1 – Module Type 1

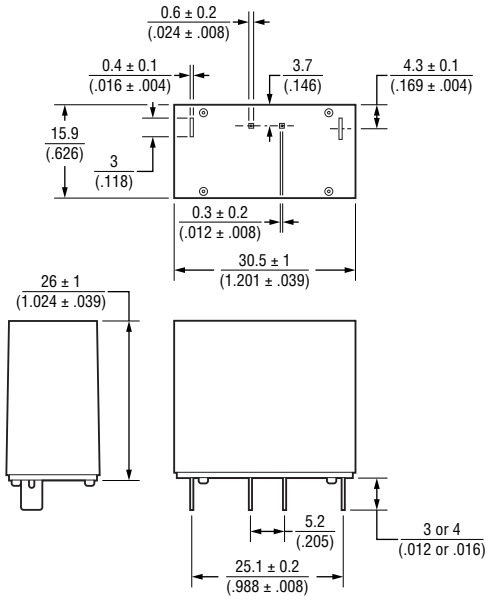


NOMINAL SYSTEM VOLTAGE 120 V ~ 400 V

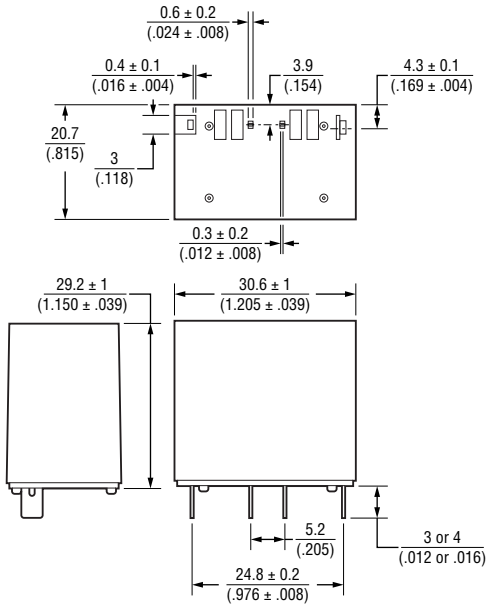
NOMINAL SYSTEM VOLTAGE 480 V ~ 600 V

Product Dimensions and Schematics (continued)

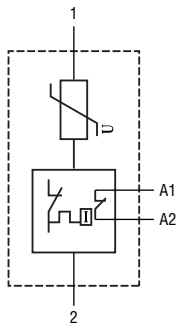
M2 – Module Type 2



NOMINAL SYSTEM VOLTAGE 120 V



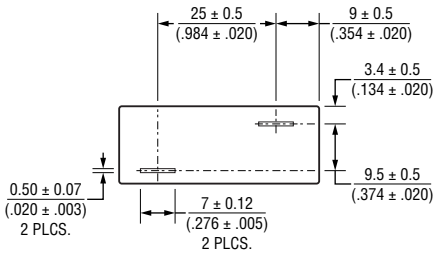
NOMINAL SYSTEM VOLTAGE 277 V ~ 480 V

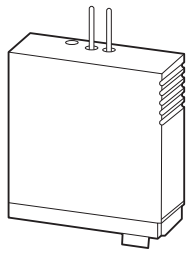


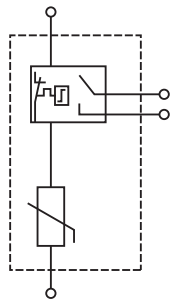
DIMENSIONS: MM / (INCHES)

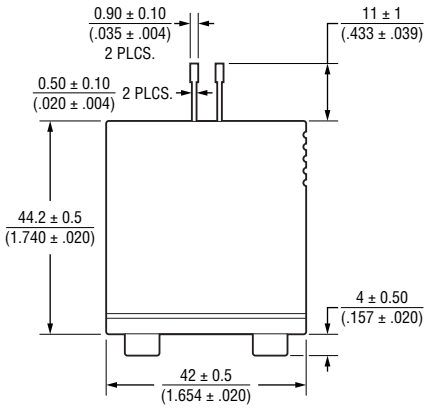
Product Dimensions and Schematics (continued)

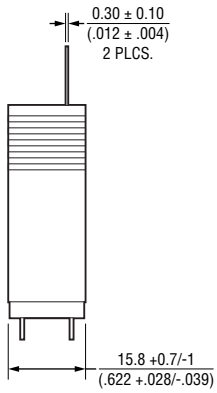
M3 – Module Type 3

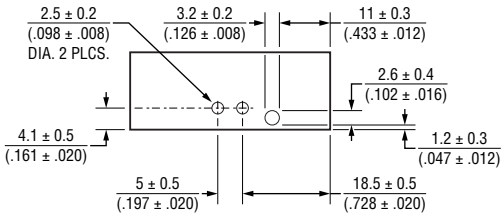








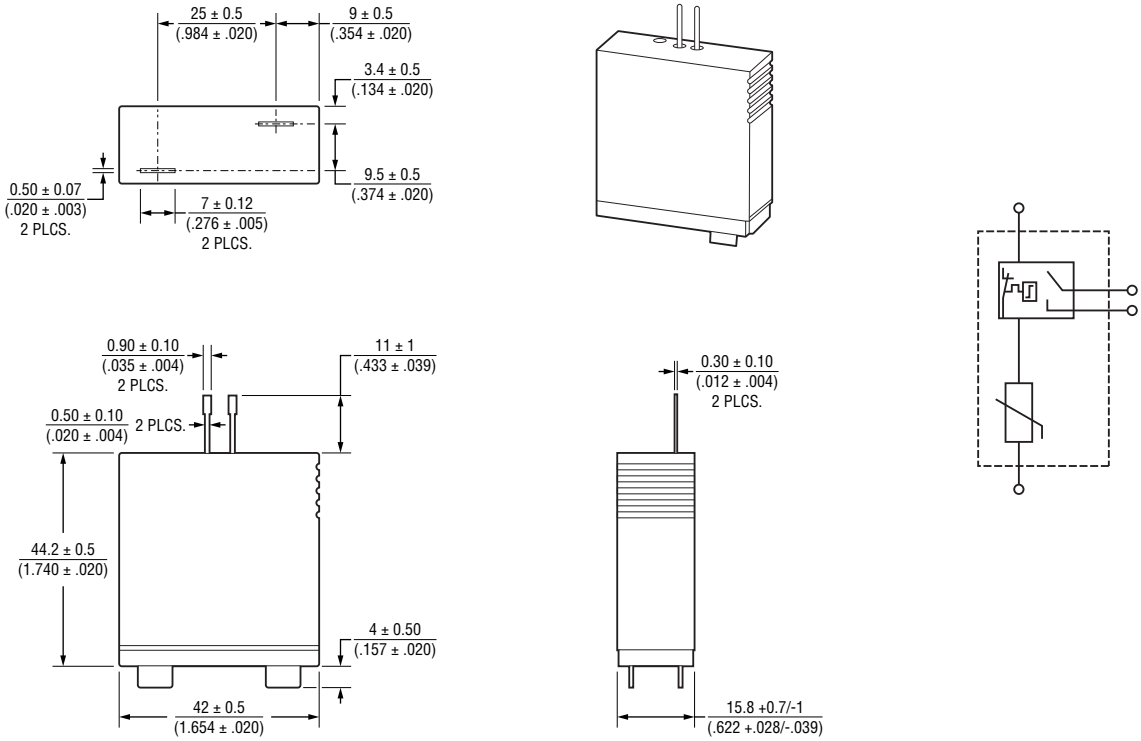




DIMENSIONS: MM / (INCHES)

Product Dimensions and Schematics (continued)

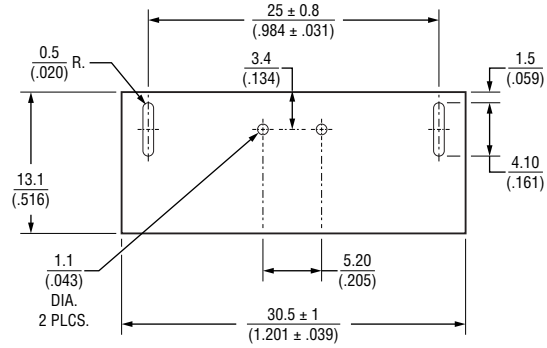
M4 – Module Type 4



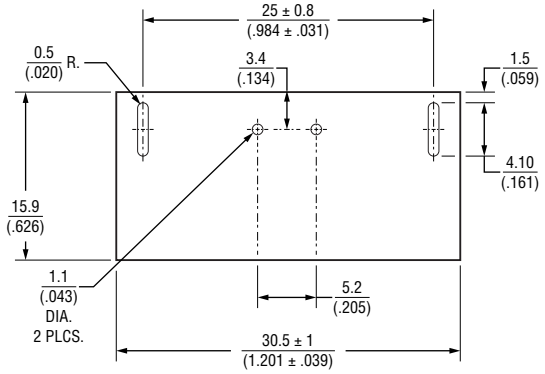
DIMENSIONS: MM / (INCHES)

PCB Layout Dimensions

M1 – Module Type 1



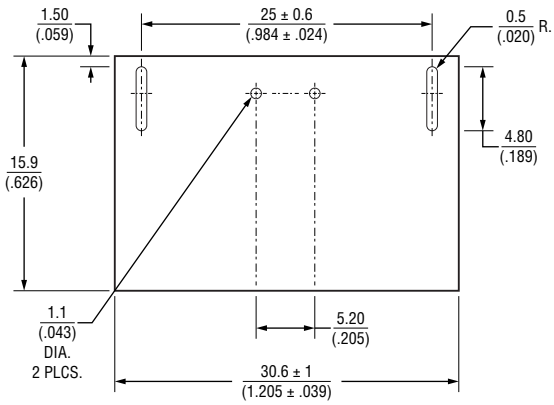
NOMINAL SYSTEM VOLTAGE 120 V ~ 400 V



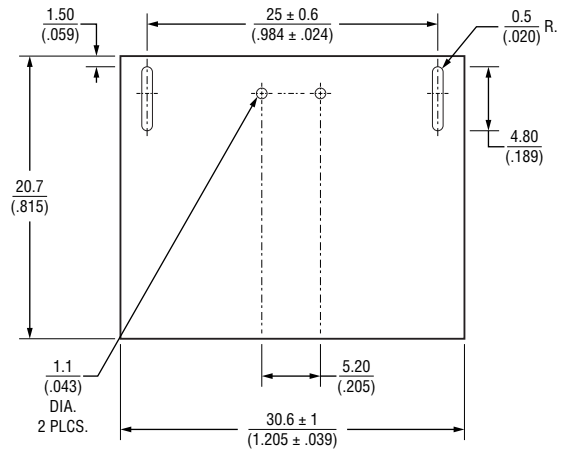
NOMINAL SYSTEM VOLTAGE 480 V ~ 600 V

TOLERANCE: ±0.5 (.020)

M2 – Module Type 2



NOMINAL SYSTEM VOLTAGE 120 V

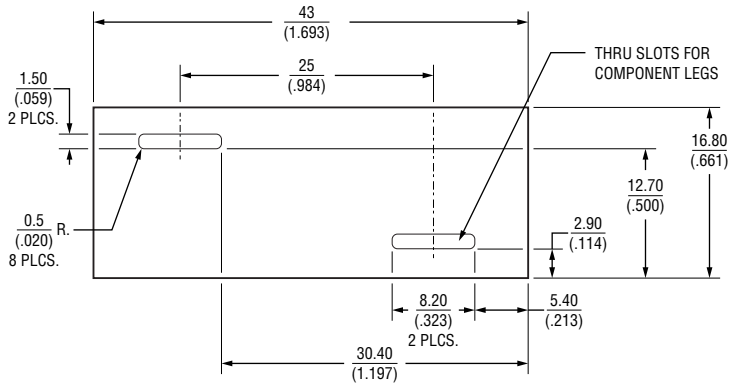


NOMINAL SYSTEM VOLTAGE 277 V ~ 480 V

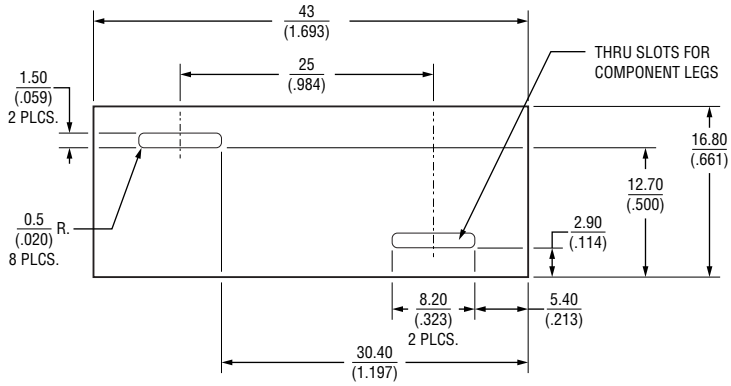
DIMENSIONS: MM / (INCHES)

PCB Layout Dimensions (continued)

M3 – Module Type 3



M4 – Module Type 4



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1220-20-I4-480M3	1220-20-I5-120M4	1220-20-I5-230M4	1220-20-I5-277M4	1220-10-I1-600M1	1220-10-I2-120M1
1220-20-I4-230M3	1220-20-I4-277M2	1220-20-I4-277M3	1220-20-I4-400M2	1220-20-I4-400M3	1220-20-I4-480M2