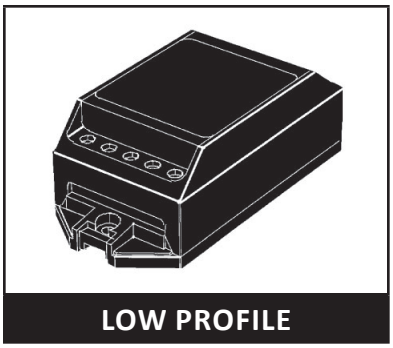
LOW PROFILE 240V AC POWER LINE SURGE SUPPRESSOR



LOW PROFILE

DESCRIPTION

The 587BxxxLP Series of 240 Volt AC Surge Suppressors is designed for use by the OEM, equipment installer and or maintenance contractor. These modules employ a three stage technology proven to be the most cost effective and reliable method in protecting sensitive electronic equipment from over voltage transients. This series is designed to protect AC powered equipment from the 6,000 volt peak open circuit voltage and 3,000 Amp short circuit current as defined in ANSI/IEEE C62.41, Category C1.

The 587BxxxLP Series offers a high degree of protection against 240 VAC EMI line noise. It is ideal for protecting 800 Volt components because the solid state TVS technology assures that the line-to-neutral voltage will not exceed 800 Volts. While the modules are designed for transient voltage protection, the advanced circuitry will also attenuate the amplitude and slow the rate of rise of high frequency noise acting as an EMI filter. The 587BxxxLP Series includes differential mode protection, which is effective in reducing interference from line to equipment and are effective in reducing equipment generated noise to meet FCC, VDE and CSA interference requirements.

FEATURES

- Compatible with IEC 61000-4-5 (Surge): 1kA, 8/20µs, Level 4 (Line-Gnd) & 333A, Level 4 (Line-Line)
- Meets ANSI/IEEE C62.41 Requirements
- Listed to CSA, File LR65240
- Differential and Common Mode Protection
- Low Clamping Voltage
- Nanosecond Response Time
- Long Life and Maintenance Free
- Finger Safe Connections

APPLICATIONS

- Hard Wired Equipment AC Power Protection
- Load Side Distribution Systems
- Secondary Protection for Light Industrail AC Power

MECHANICAL CHARACTERISTICS

- Low Profile Plastic Package
- Approximate Weight: 360 grams
- Flammability Rating UL 94V-0

FIGURE 1
TRANSIENT VOLTAGE THREAT CONDITION

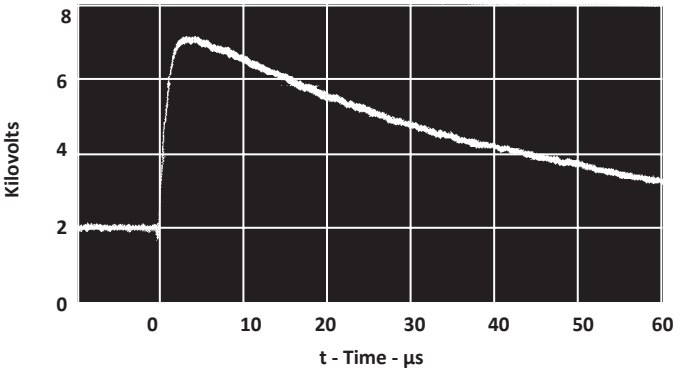
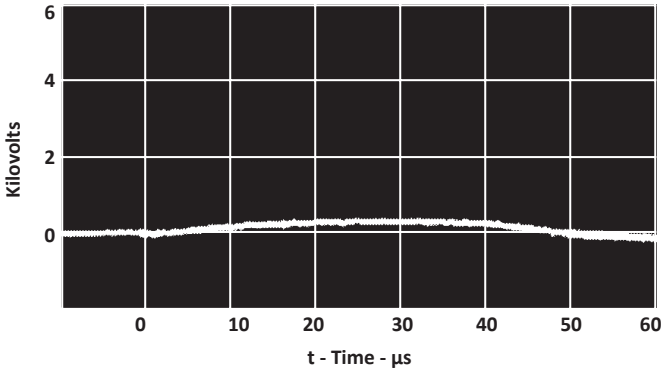


FIGURE 2
TYPICAL CLAMPING ACTION OF A 15A MODULE



Figures 1 and 2 are photographs of digitized waveforms showing the typical clamping action of a 15A module. A 12 Ohm resistor is used to represent a 10A equipment load. The load is then subjected to the ANSI/IEEE C62.41 Catagory CI test conditions (6000V/3000A). These photographes contrast the effect on equipment with and without the protector.

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	**SYMBOL**	**VALUE**	**UNITS**
Operating Line Voltage: +10%	V_O	240	Volts AC
Line Current: 587B062LP/587B102LP/587B162LP/587B302LP	-	6/10/16/30	Amps
Peak Transient Voltage	-	6000	Volts
Peak Transient Current	-	3000	Amps
Current Leakage @ 240 Volts AC: Line-to-Neutral, Neutral-to-Ground, Line-to-Ground	-	1	mA
Operating Temperature - Note 1	T_A	-40 to 85	°C
Storage Temperature - Note 1	T_{STG}	-40 to 85	°C

NOTES
1. Measured at the center of the mounting surface.

ELECTRICAL CHARACTERISTICS @ 25°C Unless Otherwise Specified			
PROTECTION MODE (Note 1)	**MAXIMUM CLAMPING VOLTAGE (Note 2) VOLTS**	**OPEN CIRCUIT VOLTAGE (Note 2) @1.2/50µs VOLTS**	**SHORT CIRCUIT CURRENT (Note 2) @ 8/20µs AMPS**
Line to Neutral	800	6000	3000
Neutral to Ground	1000	6000	3000
Line to Ground	1000	6000	3000

NOTES
1. Differential Mode Protection: Line to Neutral. Common Mode Protection: Line to Ground & Neutral to Ground.
2. Test condition responses to transient voltages.

ARRESTOR DEFINITIONS

Clamping Voltage: The clamping voltage of an arrester is the voltage that appears across its terminals during conduction of a transient current.

Standard Wave Form: The waveform of a surge current or voltage is designated by a combination of two numbers. The first number is for the time of the wave front expressed in microseconds from zero to the peak of the wave. The second number is for the time of the wavetail also expressed in microseconds from zero to the instant that the wavetail reaches one half of the crest or peak value, i.e., 8/20 µs waveform.

Transient Current: The transient current of an arrestor is the peak surge current which flows through the arrester when voltage clamping occurs.

OPERATION

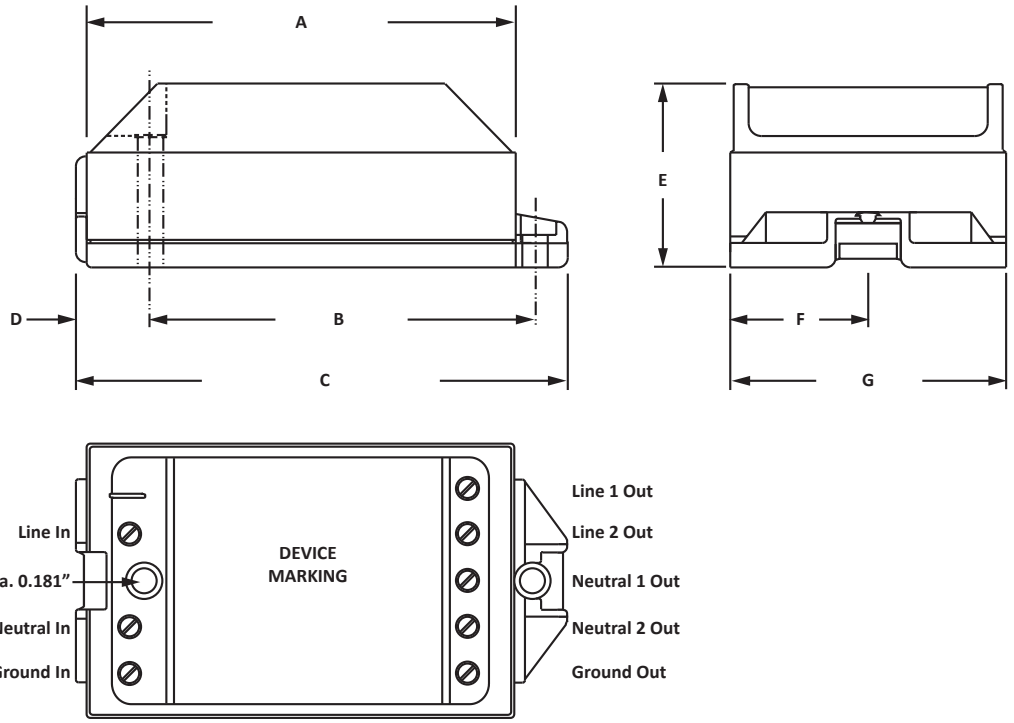
For maximum effectiveness, the protector should be installed directly after the AC line on/off switch and fuse. This will protect the electronics from the AC line switch arcing and the severe transients caused by a fuse clearing.

Some heat is produced when operating at full current load, and heat sinking may be required to maintain case temperature below 85°C. The case temperature is measured at the center of the mounting surface. The unit should not be mounted to a low combusting temperature material such as wood.

High energy transients will cause a large circulating current in the AC input line (2,500A is possible). To prevent electromagnetic coupling, the AC line on the input side of the protector must be dressed away from other wiring, magnetic shielding may be required. In addition, the electrical service must be connected to a low impedance earth ground.

PACKAGE INFORMATION

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	96.8		3.81	
B	88.9		3.50	
C	110.92	111.68	4.37	4.40
D	14.43		0.586	
E	43.89	44.39	1.62	1.72
F	27.9		1.10	
G	58.04	58.80	2.29	2.32



ORDERING INFORMATION	
BASE PART NUMBER (xx = Voltage)	MARKING
587BxxxLP	Part Number, Date Code, Voltage, Logo, Current Rating, CSA Logo

COMPANY INFORMATION

COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately-held company located in Tempe, Arizona, that offers a product line of transient voltage suppressors (TVS); avalanche breakdown diodes; steering diode TVS arrays and other surge suppressor component products. These TVS devices protect electronic systems from the effects of lightning, electrostatic discharge (ESD), nuclear electromagnetic pulses (NEMP), inductive switching and EMI / RFI. ProTek Devices also offers high performance interface and linear products that include analog switches; multiplexers; LED drivers; audio control ICs; RF and related high frequency products. The analog devices work in a host of consumer; industrial; automotive and other applications.

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PATENT INFORMATION: This device is patented under U.S. Patent No. 4,563,720