

## LOW PROFILE 120V AC POWER LINE SURGE SUPPRESSOR

### APPLICATIONS

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

### FEATURES

- Meets IEC 1000-4-5 Industry Requirements
- Meets ANSI/IEEE C62.41 Requirements
- Listed to CSA/NRTL, File LR65240-15
- Differential & Common Mode Protection
- Low Clamping Voltage
- Nanosecond Response Time
- Long Life & Maintenance Free
- Each Device 100% Tested

### MAXIMUM RATINGS

- Line Voltage: 130 VAC
- Line Current: —587B051LP: 5.0A  
—587B101LP: 10.0A  
—587B151LP: 15.0A  
—587B201LP: 20.0A  
—587B301LP: 30.0A
- Transient Voltage: 6,000V Peak
- Transient Current: 3,000A Peak
- Leakage Current @ 120 VAC:  
—Line-to-Neutral: 1.0mA  
—Neutral-to-Ground: 0.5mA
- Operating & Storage Temperatures: -40°C to 85°C

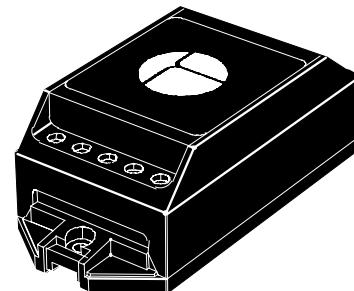
### DESCRIPTION

The 587B low profile (LP) series of 120 Volt AC surge suppressors is designed for use by the OEM, the equipment installer and/or maintenance contractor. These modules employ a three-stage, patented, solid state technology which was originally developed for aerospace applications. This multistage TVS technology has proven to be the most cost effective and reliable method in protecting sensitive electronic equipment from over voltage transients.

This device, a unique low clamping voltage transient suppressor, 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 B.

In addition, the 587B low profile series offers a high degree of protection against 120 VAC line noise. It is ideal for protecting 400 Volt rated components because the solid state TVS technology assures that line-to-neutral voltages will not exceed 350 Volts. While the modules are designed for transient voltage protection, the advanced patented circuitry will also attenuate the amplitude and slow the rate of rise of high frequency noise. The 587BxxxLP Modules include common mode and differential mode low-pass filters which are effective in reducing interference from line to equipment and are effective in reducing equipment generated noise to meet FCC, VDE and CSA interference requirements.

### IEC 1000-4 COMPATIBLE



U.S. PATENT 4,563,720

FIGURE 1  
TRANSIENT VOLTAGE THREAT  
CONDITION

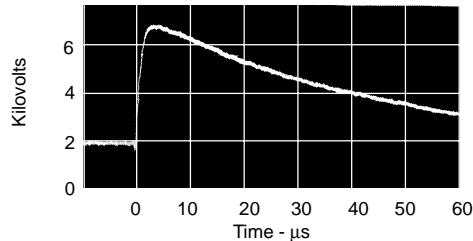
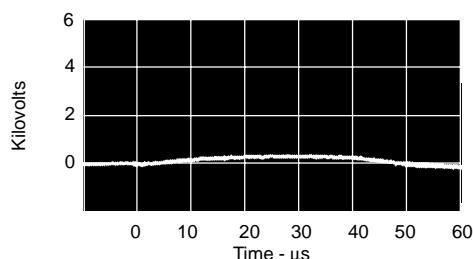


FIGURE 2  
TYPICAL CLAMPING ACTION  
OF A 15 AMP MODULE



Figures 1 and 2 are photographs of digitized waveforms showing the typical clamping action of a 15 ampere module. A 12 ohm resistor is used to represent a 10 Amp equipment load. The load is then subjected to the ANSI/IEEE C62.41 Category B test conditions (6,000V/3,000A). These photographs contrast the effect on equipment with and without the protector.

## ELECTRICAL CHARACTERISTICS @ 25°C Ambient Temperature

Operating Line Voltage: 130 VAC Max	RESPONSE TO TRANSIENT VOLTAGES			
Maximum Line Current: 587B051LP, 5A 587B101LP, 10A 587B151LP, 15A 587B201LP, 20A 587B301LP, 30A	Clamping			Test Condition
	PROTECTION MODE	MAXIMUM CLAMPING VOLTAGE	OPEN CIRCUIT VOLTAGE @ 1.2 x 50 µs	OPEN CIRCUIT VOLTAGE @ 8 x 20 µs
<b>MAXIMUM RATINGS</b>				
Transient Voltage: 6,000V <sub>peak</sub> Transient Current: 3,000A <sub>peak</sub>	DIFFERENTIAL (Line to Neutral)	295V 330V	1,000V 6,000V	500A 3,000A
Storage & Operating Case Temperature (measured at center of mounting surface): -40°C to +85°C	COMMON (Neutral to Ground) (Line to Ground)	500V 500V 500V	1,000V 6,000V	500A 3,000A
Current Leakage at 120 VAC Line to Neutral: 1.0mA Neutral to Ground: 0.5mA				

## 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 rated current load, and heat sinking may be required to maintain case temperatures 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 and magnetic shielding may be required. In addition, the electrical service must be connected to a low impedance earth ground.

## ARRESTER 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:** The waveshape 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. Example, 8/20 µs wave.

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

## 587BLP DIMENSIONS & CASE OUTLINE

