

## **PUNSUMI'S RANGE OF SURGE PROTECTIVE DEVICES**

### **1 Punsumi Surge Absorbers (PSA)**

The PSA are essentially Spark gaps but with very narrow inter-electrode spacing achieved with the help of specially doped silicon chips that provide low impulse breakdown voltages. The technology developed by our collaborator – Mr K Tachibana offers astonishing reliability and performance surpassing all other families of Spark Gaps. The PSA are being used by companies like LG Electronics, Samsung Electronics, Onida and many others. Some of the common applications of the PSA are RGB protection in CRTs, Tuner Circuit Protection and Protection of equipment on Telecom lines. Please see attached brochure for details.

### **2 Punsumi Ceramic Surge Absorbers (PTHC)**

This newly developed series uses the basic principles of a Spark Gap but is constructed with a patented Ceramic Tube with Nano – Structures to induce quick spark-over and reduce the impulse breakdown voltage. Available in DO-41 and DO-41S glass package, the Axial device also improves packaging for Auto Insertion machines in comparison to the conventional high voltage spark gaps (normally air-gaps). The PTHC series can be used for separation of Circuit Ground from the Mains ground in equipment like Set-top boxes which use a satellite signal or AV signal and are powered through AC supplies.

### **3 Power Line Modules (PLM)**

These 2 pin Hybrid Modules are designed as direct replacement of Metal Oxide Varistors (MOVs, VDRs) and are meant to be connected directly across the incoming power line cord in any power supply (Line – Neutral). The PLM offers lower clamping voltages, low capacitance and is not susceptible to Thermal Runaway. The PLM, hailed across the industry as the best Surge Protection Solution for Secondary Protection on Power Lines, has been tested and approved by various MNCs and Test Labs across Japan, Korea, India and China. The PLM is currently being used by LG electronics, Onida, BPL, Super Cassettes, Hotline and many others.

### **4 High Voltage Modules (HVM)**

This newly launched series complements the PLM series in providing the Shunt path of the Surge Energy to Ground. Similar in construction to the PLM, the HVM provides very robust protection and a long protection life, the marquee of all Punsumi Surge Protective Products. The HVM find application in equipment like Copiers, Fax Machines, Printers and in AV equipment for separation of Antenna ground from AC ground.

### **5 DC Rail Protection (PLM BXT)**

This module has been specially developed to address the problem of pre-mature failure of Mains Filter Capacitors in Power Supplies. An unusually high field failure of Power Supplies is being reported in (poor power quality) markets like India. A large proportion of these failures has been traced to pre-mature failure of Mains Filter Capacitors (MFC). Our analysis shows that high energy pulses are usually to blame. Designers have responded by building redundancy in design and graduated to using MFCs rated for 450Vdc and now to MFCs rated for 500Vdc. Yet the failure rates remain unchanged. The PLM BXT seeks to limit the potential across MFCs within tolerable limits and prevents operation of MFCs in stressed conditions thereby ensuring that the MFC can last its full design life. The current range of PLM BXT is designed for protection of MFCs rated for 400 V – 450 Vdc however the design can be adapted for lower operating voltages.