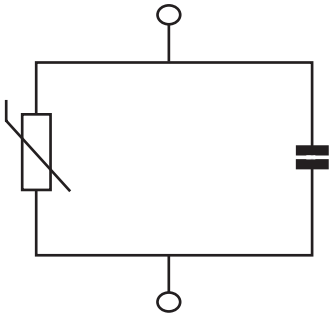
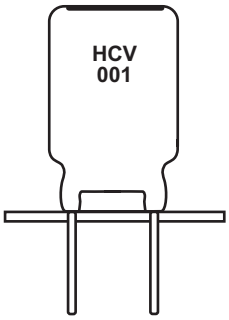
Integrated Passive Device (Capacitor and Varistor)





FEATURES

- Custom solutions combine metallized polyester film capacitor and varistor in single leaded package
- Device integration reduces part count and simplifies assembly
- Capacitor values from 3.3 nF to 1.5 µF
- Rated DC voltages from 12V to 100 V
- Capacitor tolerances down to ± 5%
- Varistor voltage ratings from 12 Vdc to 82 Vdc
- Varistor response times below 0.5 ns
- IPD temperature range: -40°C to + 105°C
- Non-repetitive surge current and surge energy to customer requirements
- A range of packaging and mounting options
- Resistant to solvents and rinsing liquids
- Fully compatible with modern solder processes
- IPD solutions available for other leaded component technologies

DESCRIPTION

By integrating two passive components into a single, miniature leaded device, IPD technology from Vishay Intertechnology provides a cost-effective route to reduce component count, save board space, and simplify both board layout and assembly.

Typical solutions include IPDs that combine metallized film capacitors used in domestic appliance applications in parallel with varistors. Such devices offer a single component solution for the protection of circuits from transient phenomena and for the suppression of EMI-RFI.

All IPD solutions are custom-developed by Vishay Intertechnology using technologies from the company's comprehensive passive component portfolio. In addition to capacitor/varistor IPDs, a wide variety of capacitor, resistor and varistor technologies can be combined to meet the specific requirements of individual applications.

APPLICATION GUIDE

Custom-developed for individual customer requirements, IPD technology can be used in many applications. Capacitor/varistor IPDs are typically used to reduce transient phenomena and act as EMI-RFI suppressors in automotive motor applications including:

- Engine cooling fans
- Heating and air conditioning fans
- Electric window regulators
- Windshield wipers
- Sun roofs

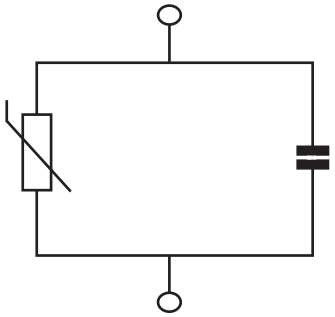
SAMPLE IPD SOLUTION

METALLIZED POLYESTER FILM CAPACITOR AND VARISTOR

FEATURES

- Low-inductive wound cell comprising metallized (PETP) film capacitor in parallel with varistor
- Cell protected by epoxy lacquer
- Radial leads of solder-coated, copper-clad, steel wire
- Resistant to solvents and rinsing liquids
- Designed for PCB-mounting
- Packaging: Loose in box

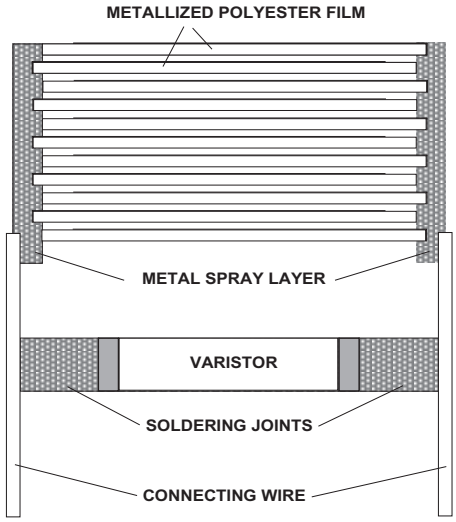
IPD CIRCUIT DIAGRAM



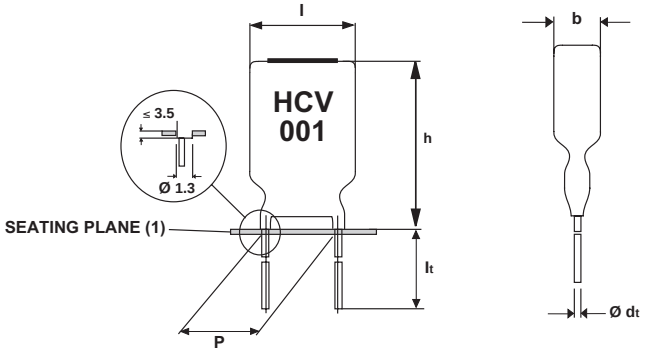
REFERENCE DATA

DESCRIPTION	VALUE
Capacitance Range	1.0 µF ± 10%
Rated (DC) Voltage	18 V
Rated (RMS) Voltage	14 V
Maximum Clamping Voltage at 5A	39 V
Maximum Non-repetitive Surge Current (8/20 µs)	150 A
Maximum Non-repetitive Surge Energy (10/1000 µs)	1 J
Response Time	< 0.5 ns
Average Power Dissipation of Transients	< 0.1 W
Climatic Category	55/105/56
Rated Temperature	+85°C
Maximum Application Temperature	+105°C
Tangent of Loss Angle at 100kHz	300 x 10^{-4}
Dimensions (b_{max} x b_{max} x l_{max})	15.5 x 14.5 x 8.0 mm

IPD CONSTRUCTION



IPD OUTLINE



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