



Vishay Intertechnology Inrush Current Limiting PTC Thermistors Increase Performance in Active Charge and Discharge Circuits

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For Automotive and Industrial Applications, Self-Protecting Devices Combine R25 Values to 1 k Ω With High Voltages to 1200 VDC and Energy Handling to 240 J

MALVERN, Pa., March 06, 2024 (GLOBE NEWSWIRE) -- Vishay Intertechnology, Inc. (NYSE: VSH) today introduced a new series of inrush current limiting positive temperature coefficient (PTC) thermistors. Designed to increase performance in active charge and discharge circuits for automotive and industrial applications, Vishay BCcomponents [PTCEL](#) series devices combine a wide range of resistance at 25 °C (R25) values with high voltage and energy handling capabilities.

Featuring R25 values from 60 Ω to 1 k Ω , the devices released today enable high maximum voltages of 1000 VDC at 500 Ω and 1200 VDC at 1 k Ω , and maximum energy handling to 240 J — four times higher than competing devices. By combining multiple thermistors in parallel, energy absorption levels over 1000 J can be achieved. With their high temperature operation to +105 °C, the PTCEL series offers a heat capacity to 2.3 J/K for all resistance values.

AEC-Q200 qualified and self-protecting — with no risk of over-heating — the thermistors provide overload protection in AC/DC and DC/DC converters; load dump, DC-Link, battery management, and emergency discharge circuits; on-board chargers; home energy storage systems; motor drives; and welding equipment. For these applications, the devices withstand > 100 000 inrush-power cycles and are highly resilient against non-switching peak power up to 25 kW.

The PTCEL series is available in two sizes: the smaller PTCEL13R and larger PTCEL17 for low and high energy applications, respectively. All devices are available in tape on reel packaging and offer a leadwire pitch of 5 mm. In addition, the PTCEL17R is available with leadwire pitches of 7.5 mm and 10 mm to accommodate their higher voltages and can also be automatically handled by pick and place equipment for lower placement costs.

The barium titanate thermistors consist of a ceramic pellet soldered between two tinned CCS wires and coated with a UL 94 V-0 compliant high temperature silicone lacquer. The RoHS-compliant devices are C-UL-US recognized under file E148885 for AC and DC use, providing an increased and controlled safety level. SPICE and 3D models for the PTCEL13R and PTCEL17R are available.

Device Specification Table:

Part number	PTCEL13R	PTCEL17R
R25 (Ω)	60 to 1 k	
R25 tolerance (%)	30	
Max. AC voltage (VRMS)	350 to 600	440 to 800
Max. DC voltage (VDC)	500 to 850	625 to 1200
Maximum energy (J)	140, 150	230, 240
Heat capacity (J/K)	1.45	2.3
Lead pitch (mm)	5	5, 7.5, 10

Samples and production quantities of the PTCEL series are available now, with lead times of 12 weeks.

Vishay manufactures one of the world's largest portfolios of discrete semiconductors and passive electronic components that are essential to innovative designs in the automotive, industrial, computing, consumer, telecommunications, military, aerospace, and medical markets. Serving customers worldwide, Vishay is **The DNA of tech.**[®] Vishay Intertechnology, Inc. is a Fortune 1,000 Company listed on the NYSE (VSH). More on Vishay at www.Vishay.com.

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Link to product datasheet:

<http://www.vishay.com/ppg229165> (PTCEL Series)

Link to product photo:

<https://www.flickr.com/photos/vishay/albums/72177720315244429>

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