600 V / 1000 V PTC Thermistors for Overload Protection

FEATURES

- Fast response time for rapid protection
- Automatic resetting once overload is removed
- Operates on DC or AC voltage
- UL approved types available (E148885)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

APPLICATIONS

Over-temperature/over-load protection for metering, low current signal protection, digital signal protection against over-voltage

DESCRIPTION

Test and measuring instruments, such as oscilloscopes and digital multimeters, can be easily damaged if excessive voltages are applied across their input terminals.

Simple and effective overload protection can be provided by connecting a high-voltage PTC thermistor in series with the instrument; see Typical Connection of the PTC Thermistor for Digital Multimeter Protection drawing. Under normal conditions, the resistance of the PTC thermistor is low, so the test voltage will be measured by the instrument. Under an overload condition, the PTC thermistor will switch to its high-resistance state, absorbing the overload current and protecting the instrument. When the overload is removed, the PTC thermistor will return to its low-resistance state, ready to resume its protective function.

QUICK REFERENCE DATA

PARAMETER	VALUE	UNIT
Rated voltage (RMS)	600 to 1000	V_{RMS}
Nominal holding current (Int)	10	mA
Resistance at 25 °C (R_{25})	400 to 1600	Ω
Tolerance on R_{25} value	20 to 30	%
Maximum overload current I_{ol}	0.5 to 2.0	A
Switching temperature	90 to 115	°C
Operating temperature range at rated voltage	-20 to 85	°C

ELECTRICAL DATA AND ORDERING INFROMATION

INT MAX. at 25 °C (mA)	IT MIN. at 25 °C (mA)	R_{25} (2) (Ω)	MAXIMUM VOLTAGE (1) (V)	INSULATION VOLTAGE (V)	UL APPROVAL	ORDERING PART NUMBERS
10	20	1600 ± 300	600	-	UL	PTCCL05H100SBE
10	25	1500 ± 450	1000	-	-	PTCCL07H100VBEE
10	50	400 ± 100	600	> 1000	UL	PTCCL10H010SBE

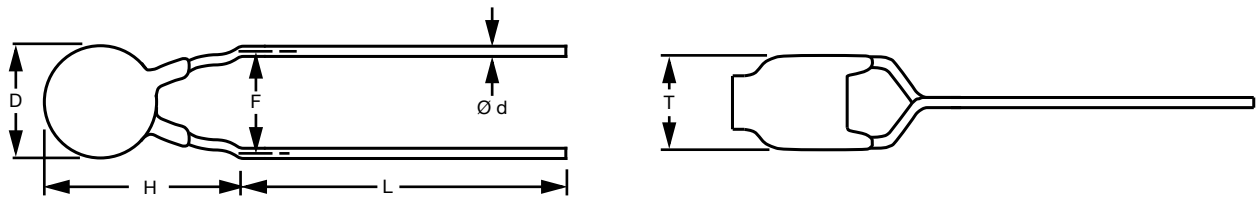
Notes

(1) These PTCs can handle maximum voltage without series resistance

(2) Other resistance values and voltage levels on request

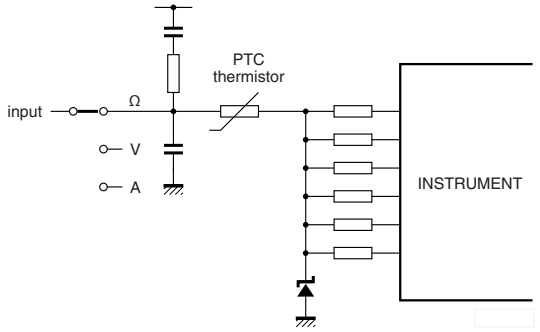
COMPONENT DIMENSIONS in millimeters

PTC THERMISTORS IN BULK

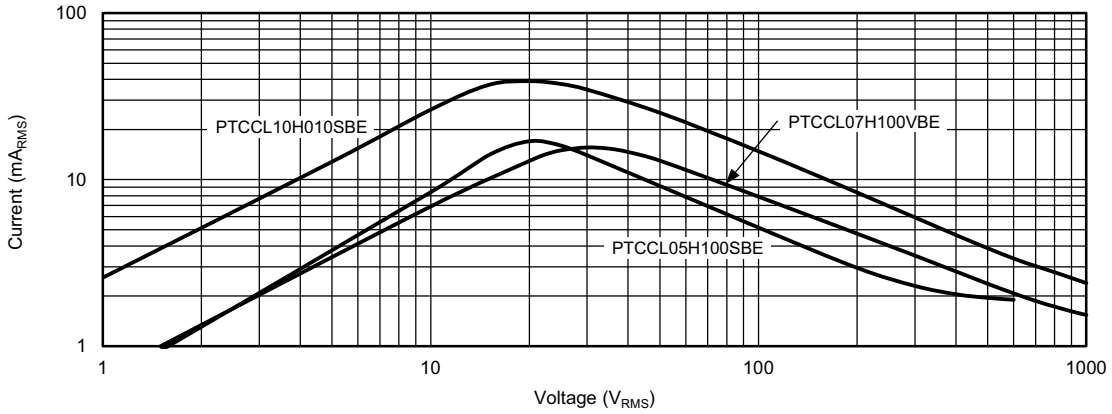


H MAX.	L	D MAX.	T MAX.	F	Ø d	MASS (g)	SPQ	PART NUMBER
10.4	20 ± 3	5	4.5	5.0	0.6	~ 0.5	500	PTCCL05H100SBE
12	20 ± 3	7	5.0	5.0	0.6	~ 0.60	250	PTCCL07H100VBE
13.5	3.1 ± 0.5	10	6.5	8.12	0.8	~ 1.8	500	PTCCL10H010SBE

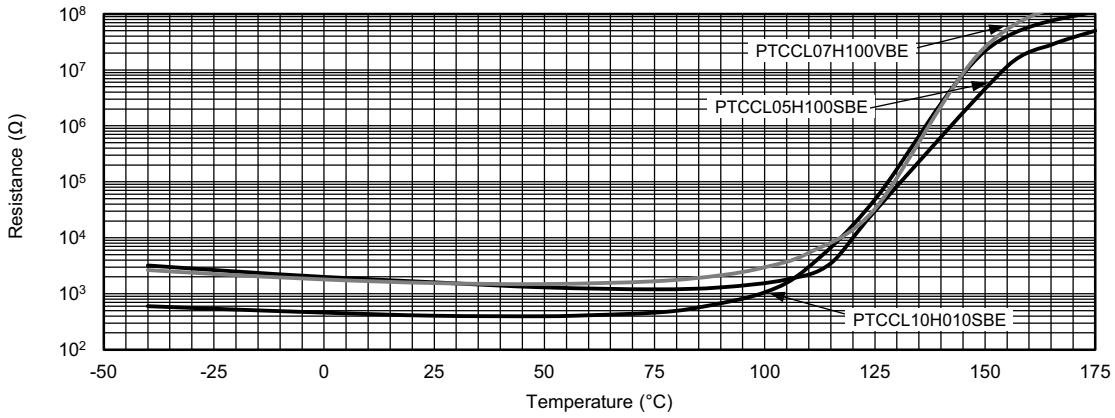
TYPICAL CONNECTION OF THE PTC THERMISTOR FOR DIGITAL MULTIMETER PROTECTION



TYPICAL CURRENT / VOLTAGE CHARACTERISTIC



TYPICAL RESISTANCE / TEMPERATURE CHARACTERISTIC (≤ 5 V_{DC})



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