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
Maximum rated voltage	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	-	-	PTCCL07H100VBE
10	50	400 ± 100	600	> 1000	UL	PTCCL10H010SBE

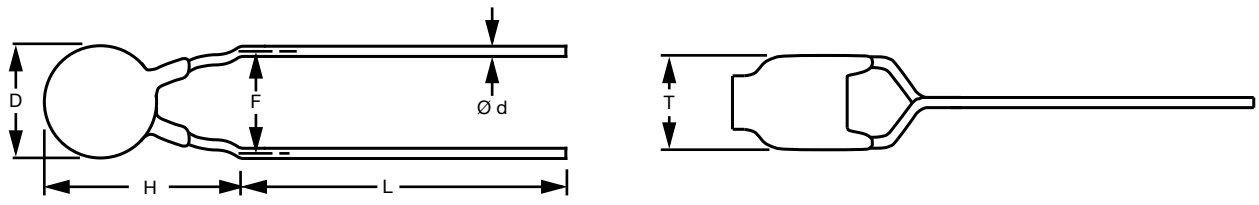
Notes

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

(2) Other resistance values and voltage levels on request

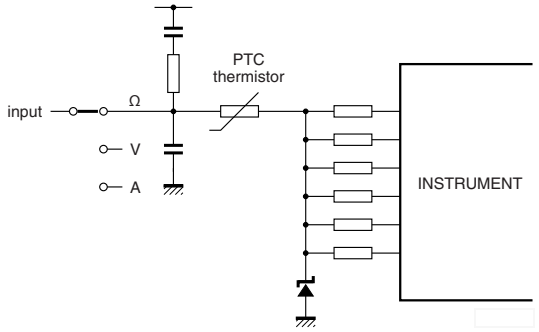
COMPONENT DIMENSIONS in millimeters

PTC THERMISTORS IN BULK

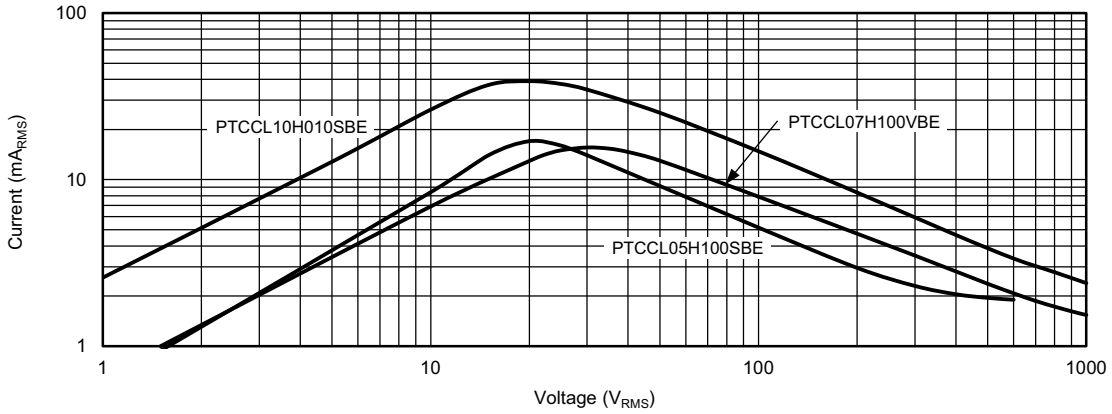


H MAX.	L	D MAX.	T MAX.	F	Ø d	MASS (g)	SPQ	PART NUMBER
10.4	20 ± 3	5	4.5	5.0	0.6	~ 0.5	500	PTCCL05H100SBE
12	20 ± 3	7	5.0	5.0	0.6	~ 0.60	250	PTCCL07H100VBE
13.5	3.1 ± 0.5	10	6.5	8.12	0.8	~ 1.8	500	PTCCL10H010SBE

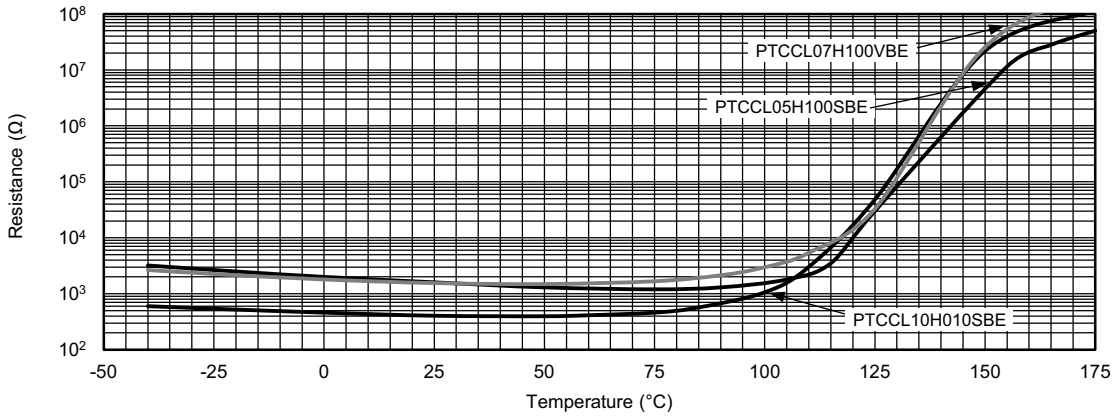
TYPICAL CONNECTION OF THE PTC THERMISTOR FOR DIGITAL MULTIMETER PROTECTION



TYPICAL CURRENT / VOLTAGE CHARACTERISTIC



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



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PTCAUX7-36-5C PTCCL09H251FBE PTCTL3MR100GTE PTCCL05H630HTE B59346A1502P020 PTCTT95R100GTE PTCLL05P131TBE PTCCL09H541DBE TFPT0805L1800FV B59725T1120A062 B59116S0225B010 B59008C0150A040 B59100M1090A070 B59100M1145A070 B59873C0120A070 B59300M1150A070 B59339A1501P020 B59770B0120A070 B59985C0120A070 B59995C0120A070 YQR100R060 YQS5751PTO YQS5856PTF YQS5930PTO YS5675 YS5918PTO YQS5898PTO YQS5868PTF YQD100N1000 KTY81/210,112 B59010D1135B40 B59606A110A62 B59874C120A70 B59960C160A70 YQD120N0025 PTGL12AR270M9C01B0 PTGL12AR100M6C01B0 PTGL07AS2R7K2B51A0 PTGL07AS1R8K2B51B0 PTGL10AR3R9M3P51B0 PTGL07BD220N3B51B0 PTGL07AS5R6K4B51B0 PTGL07AS150K6B51A0 PTGL07AR8R2M3P51B0 PTGL07AR560M9A51B0 PTFL04BD471Q2N34B0 PRG21BC3R3MM1RA PRG21BC1R0MM1RA PRG21BC0R2MM1RA PRG21BB220MB1RK