

## PTC Thermistors, Mini Radial Leaded for Over-Temperature Protection



### FEATURES

- Well-defined protection temperature levels
- Fast response time
- Accurate resistance for ease of circuit design
- Excellent long term behavior ( $\Delta T \leq 1^\circ\text{C}$  after 1000 h at  $T_n + 15^\circ\text{C}$ )
- Wide range of protection temperatures ( $80^\circ\text{C}$  to  $150^\circ\text{C}$ )
- Small size and rugged
- Coated leaded (bare pellets available)
- Material categorization:  
for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### APPLICATIONS

Over-temperature protection and control in:

- Industrial electronics, motor drives, and lighting drivers
- Power supplies, converters, and heat-sink
- Motor protection

### DESCRIPTION

These PTC sensing thermistors consist of a medium resistivity doped barium titanate ceramic with copper clad steel wires lead (Pb)-free soldered to the Ag metalized pellet. A high temperature silicone coating covers the sensing body and has a temperature marking character.

### PACKAGING

PTC thermistors are available in 500 pieces bulk packed or 2000 pieces tape on reel.

### QUICK REFERENCE DATA

PARAMETER	VALUE	UNIT
Resistance at $25^\circ\text{C}$ ( $R_{25}$ )	20 to 120	$\Omega$
Nominal working temperature $T_n$	80 to 150	$^\circ\text{C}$
Maximum voltage	30	V
Operating temperature range <sup>(1)</sup>	-40 to +165	$^\circ\text{C}$
Dissipation factor	5	mW/K
Thermal time constant (still air)	6	s
Weight	$\approx 0.12$	g

#### Note

- <sup>(1)</sup> Max operating temperature range is  $T_n + 15^\circ\text{C}$ , indicated value is for  $T_n = 150^\circ\text{C}$ .

### NOMINAL WORKING TEMPERATURES AND ORDERING INFORMATION

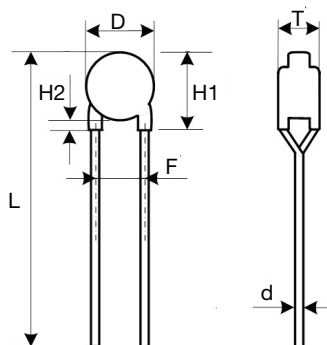
NOMINAL WORKING TEMPERATURE	VISHAY SAP ORDERING NUMBER		
$T_n$ ( $^\circ\text{C}$ )	BULK	TAPE AND REEL	MARKING CODE
80	PTCSL03T081DB1E	PTCSL03T081DT1E	8
90	PTCSL03T091DB1E	PTCSL03T091DT1E	9
100	PTCSL03T101DB1E	PTCSL03T101DT1E	0
110	PTCSL03T111DB1E	PTCSL03T111DT1E	1
120	PTCSL03T121DB1E	PTCSL03T121DT1E	2
130	PTCSL03T131DB1E	PTCSL03T131DT1E	3
140	PTCSL03T141DB1E	PTCSL03T141DT1E	4
150	PTCSL03T151DB1E	PTCSL03T151DT1E	5

#### Note

- 2E pitch version in bulk or tape and reel available on request.

**ELECTRICAL CHARACTERISTICS**

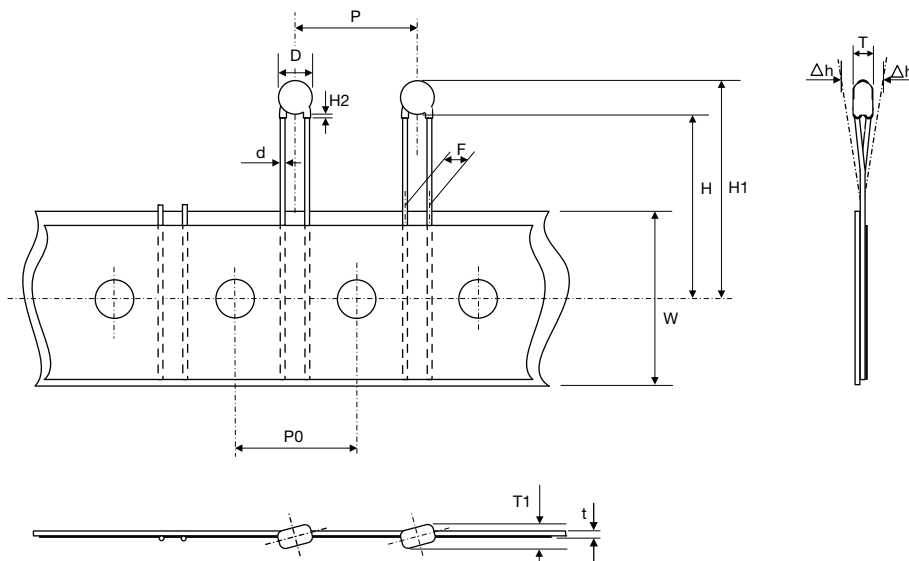
PARAMETER	VALUES	UNIT
Resistance at 25 °C	20 to 120	$\Omega$
Maximum resistance between -20 °C and $(T_n - 20)$ °C	250	$\Omega$
Maximum resistance at -40 °C	300	$\Omega$
Maximum resistance at $(T_n - 5)$ °C	550	$\Omega$
Minimum resistance at $(T_n + 5)$ °C	1330	$\Omega$
Minimum resistance at $(T_n + 15)$ °C	4000	$\Omega$
Maximum voltage	30	V (AC or DC)

**DIMENSIONS** in millimeters

**COMPONENT DIMENSIONS** in millimeters

D	4.0 max.
H1	7.0 max.
H2	3 max.
d	$0.5 \pm 0.05$
L	$30 \pm 3$
F	2.5
T	3.0 max.

**TAPING DATA DIMENSIONS** in millimeters (based on IEC 60286-2)

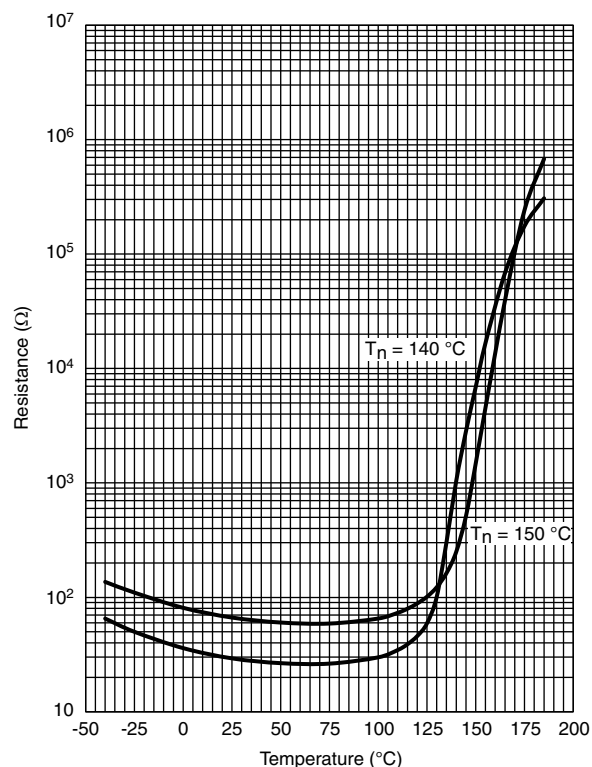
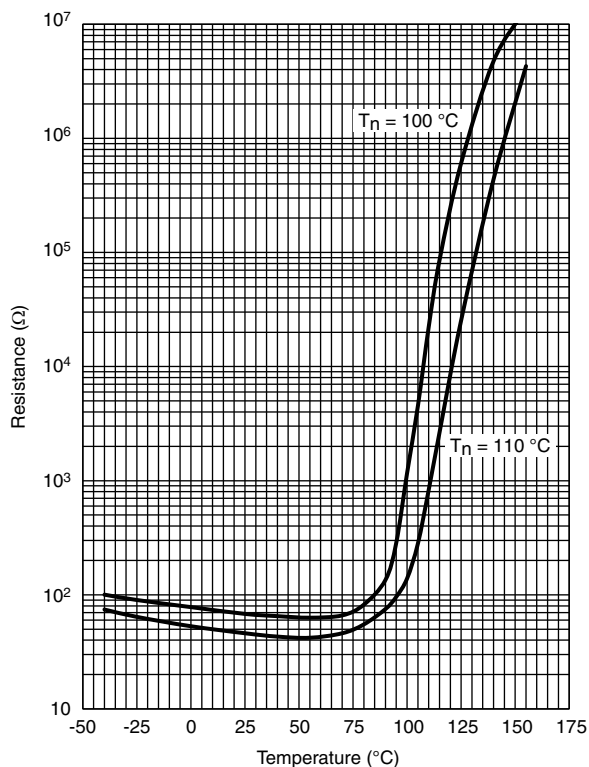
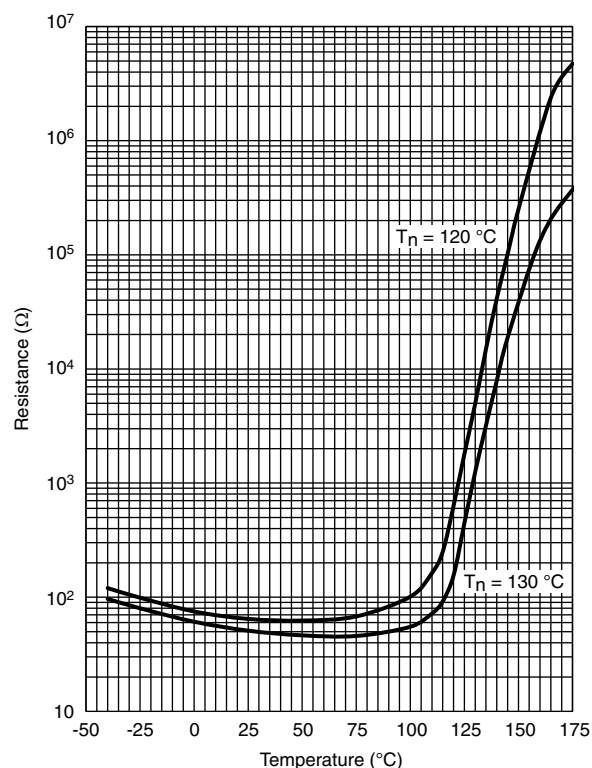
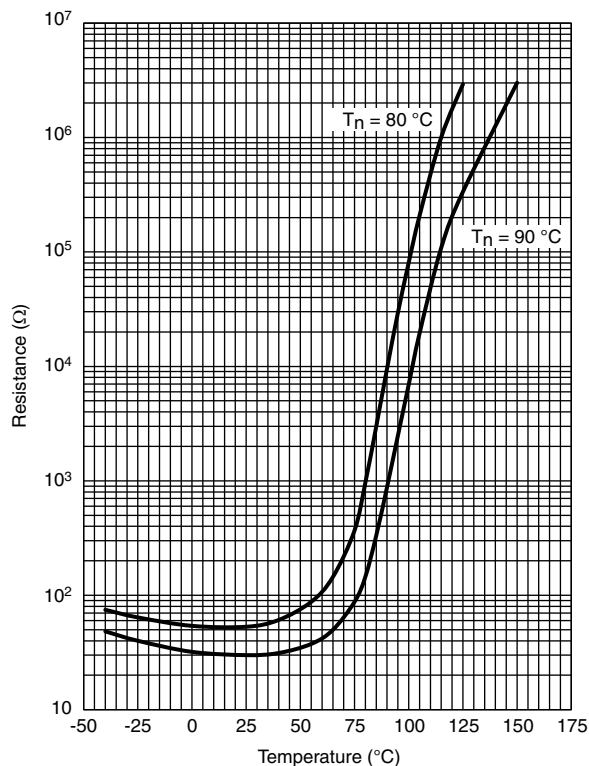
D	Body Diameter	4.0 max.
d	Lead Diameter	$0.5 \pm 0.05$
F	Lead to lead center distance	$2.5 + 0.5 / - 0.2$
H	Component seating plane to tape-center	$18.0 + 2.0$
H1	Component top to tape-center	25 max.
$\Delta h$	Component alignment	$0 \pm 2$
P, P0	Component pitch, sprocket hole pitch	12.7
T	Total thickness	3.0 max.
T1	Total thickness in line of tape	3.5 max.
W	Tape width	$18 + 1.0 / - 0.5$





## RESISTANCE vs. TEMPERATURE

Typical ( $\leq 5$  V<sub>DC</sub>)





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[PTCSL03T091DT1E](#) [PTCSL03T111DB1E](#) [PTCSL03T121DT1E](#) [PTCSL03T131DT1E](#) [PTCSL03T081DB1E](#)  
[PTCSL03T101DT1E](#) [PTCSL03T121DB1E](#) [PTCSL03T131DB1E](#) [PTCSL03T141DB1E](#) [PTCSL03T151DB1E](#)  
[PTCSL03T111DT1E](#)