Silicon PTC

Thermistors

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Features

- High Temperature Coefficient
- Multiple Configurations
- High Reliability

Options

- DO7 Glass Encapsulation
- Molded Epoxy Encapsulation
- Radial Leads
- Axial Leads
- SMD

Applications

- Telemetry
- Thermometry
- Temperature Regulation
- Over temperature Protection
- Amplifiers

Description

The positive temperature coefficient of resistance is very large: approximately 0.7%/°C, making these units ideal for use in temperature compensating and sensing applications. Applications include amplifiers, power supplies, transducers, telemetry, computers, magnetic amplifiers, thermometry, meteorology, temperature regulation and over-temperature protection.

Silicon PTC Specifications

Style	Wattage Rating @ 100°C (Watts)	Resistance Range (ohms)	Thermal Time Constant (Sec. Max)	Operational Ambient Temperature Range (°C)	Temp. vs. Coefficient of Resistance Table
DS125	0.125	10 to 39,000	34.8	-65 to +150	A
DS200	0.250	10 to 39,000	34.8	-65 to +150	A
DS250	0.250	10 to 39,000	54	-65 to +150	A
DG125	0.125	10 to 10,000	60	-65 to +125	B
DC125	0.125	10 to 10,000	54	-65 to +125	B
DU100	0.125	10 to 10,000	9	-65 to +125	B
RTH22ES	0.250	10 to 10,000	34.8	-65 to +150	A
RTH42ES	0.125	10 to 10,000	60	-65 to +125	B

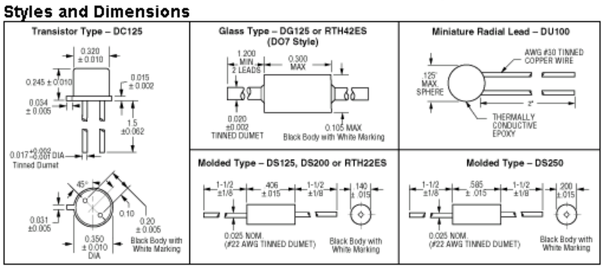
MIL-Approved Series

RTI Electronics' PTC thermistors are designed and built to withstand all environmental conditions required by the most stringent Mil specs. They meet or exceed all requirements of MIL-T-23648 for positive temperature coefficient thermistors.

RTH42ES - Per MIL-T-23648/19. Glass, hermetically sealed type, similar to DG125 series.

RTH22ES - Per MIL-T-23648/9. Molded style, similar to DS200 series.

Styles and Dimensions



Temperature vs Coefficient of Resistance Tables

Table A

TEMP. °C	Resistance Ranges @25°C					
	10 to 75	82 to 160	180 to 620	680 to 1800	2000 to 12,000	15,000 to 39,000
-55	0.615	0.582	0.560	0.550	0.515	0.481
-15	0.790	0.770	0.755	0.740	0.730	0.712
0	0.863	0.847	0.838	0.835	0.825	0.814
25	1.000	1.000	1.000	1.000	1.000	1.000
50	1.160	1.170	1.180	1.200	1.230	1.210
75	1.350	1.370	1.400	1.420	1.450	1.430
100	1.545	1.584	1.623	1.656	1.670	1.670
125	1.750	1.800	1.860	1.920	1.960	N/A

Standard Resistance Values (Ohms)			
10	56	390	2,200
12	68	470	2,700
15	82	500	3,300
18	100	560	3,900
22	120	680	4,700
27	150	820	5,000
33	180	1,000	5,600
39	220	1,200	6,800
47	270	1,500	8,200
50	330	1,800	10,000

Table B

TEMP. °C	Resistance Ranges @ 25°C (ohms)					
	10 to 75	82 to 160	180 to 510	560 to 1300	1500 to 6200	6800 to 10,000
-55	0.615	0.582	0.560	0.550	0.515	0.510
-15	0.790	0.770	0.755	0.740	0.730	0.730
0	0.863	0.847	0.838	0.835	0.825	0.825
25	1.000	1.000	1.000	1.000	1.000	1.000
50	1.160	1.170	1.180	1.200	1.230	1.190
75	1.350	1.370	1.400	1.420	1.450	1.400
100	1.545	1.584	1.623	1.656	1.670	1.610
125	1.750	1.800	1.860	1.920	1.960	1.830

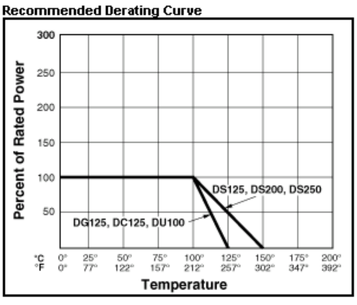
Table C

Tolerance at Temperatures Other Than 25°C		
Temp. (°C)	±5% (J)*	±10% (K)*
-55	± 20	± 25
-15	± 13	± 18
0	± 7	± 12
50	± 7	± 12
75	± 9	± 14
100	± 12	± 17
125	± 15	± 20

*Tolerance@25°

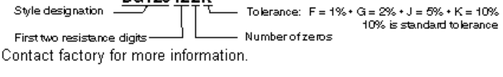
The tables above will give the resistance value ofthe thermistor for the listed temperatures (RT). To determine the resistance value of the thermistor at temperature (RT):
Find the temperature in the vertical column, "Temp. °C". Next find the resistance range of the thermistor at 25°C, (R25°C), in the appropriate vertical column. The intersection of the two columns will give the "coefficient of resistance", (Rc), of the thermistor at the desired temperature. Compute as follows:
RT = R25°C x Rc
Resistance tolerances for temperatures other than 25°C are shown in "Table C". For instance, the resistance tolerance at +50°C for a Silicon PTC Thermistor with a tolerance of ± 5% @ 25°C would be ± 7%.

Recommended Derating Curve



Ordering Information

RTI Electronics' part number consists of a multi-digit alphanumeric code. The example shown here:
DG125 122k is the DG125 with resistance value of 1200 ohms and a tolerance of ±10%



Contact factory for more information.