Thin Film Platinum RTDs, HRTS Series

Table 1. Specifications

Characteristic	Condition	Parameter
Alpha: R_0 = 1000 Ω R_0 = 100 Ω	0 °C	 0.00375 Ω/Ω/°C 0.00385 Ω/Ω/°C
Temperature range:	—	-70 °C to 260 °C [-94 °F to 500 °F]
Temperature accuracy: R_0 ±0.2% trim (standard) R_0 ±0.1% trim (optional)	—	 ±0.5 °C or 0.8% of temperature, whichever is greater ±0.3 °C or 0.6% of temperature, whichever is greater
Time constant, 1/e	metal surfaces	0.6 s typ.
Operating current	—	2 mA max. for self heating errors of 1 °C; 1 mA recommended
Self heating	—	0.3 mW/°C
Construction material: case leads	—	 alumina nickel-coated stranded copper, Teflon® insulated

Table 2. Constant Values (β = 0 and C = 0 for T > 0 °C)

Constant	1000 Ω	100 Ω
Alpha α (°C^{-1})	0.00375 ±0.000029	0.003850 ±0.000010
Delta δ (°C)	1.605 ±0.009	1.4999 ±0.007
Beta β (°C)	0.16	0.10863
A (°C^{-1})	3.81 x 10^{-3}	3.908 x 10^{-3}
B (°C^{-2})	-6.02 x 10^{-7}	-5.775 x 10^{-7}
C (°C^{-4})	-6.0 x 10^{-12}	-4.183 x 10^{-12}

Functional Behavior

$R_T = R_0(1 + AT + BT^2 - 100CT^3 + CT^4)$

Where:
R_T = Resistance (Ω) at temperature T (°C)
R_0 = Resistance (Ω) at 0 °C
T = Temperature (°C)

$A = \alpha + \frac{\alpha\delta}{100}$ $B = -\frac{\alpha\delta}{100^2}$ $C_{T<0} = -\frac{\alpha\beta}{100^4}$

Table 3. Accuracy vs Temperature

Temperature (°C)	Tolerance			
	Standard Trim (±0.2%)		Optional Trim (±0.1%)	
	±ΔR[1] (Ω)	±ΔT (°C)	±ΔR[1] (Ω)	±ΔT (°C)
-100	2.9	0.8	2.4	0.6
0	2.0	0.5	1.0	0.3
100	2.9	0.8	2.2	0.6
200	5.6	1.6	4.3	1.2
300	8.2	2.4	6.2	1.8
400	11.0	3.2	8.3	2.5
500	12.5	4.0	9.6	3.0
600	15.1	4.8	10.4	3.3

[1]1000 Ω RTD. Divide Δ by 10 for 100 Ω RTD.

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Figure 1. Resistance vs Temperature

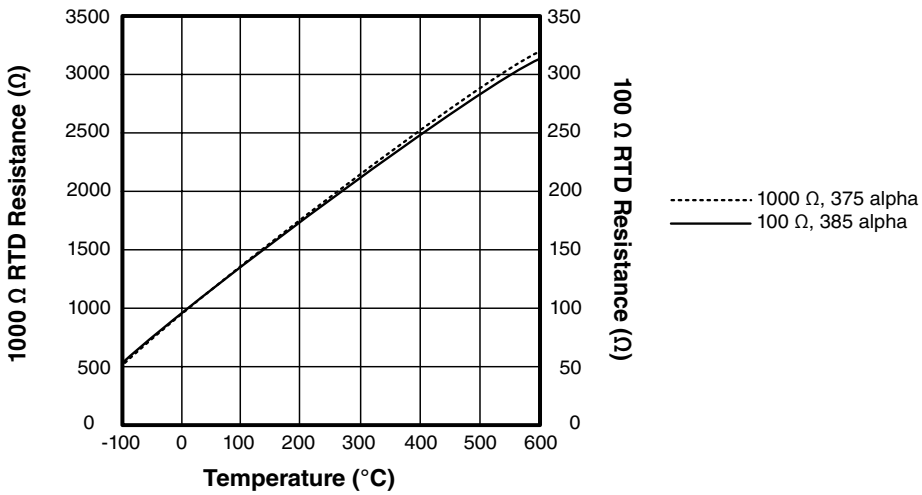
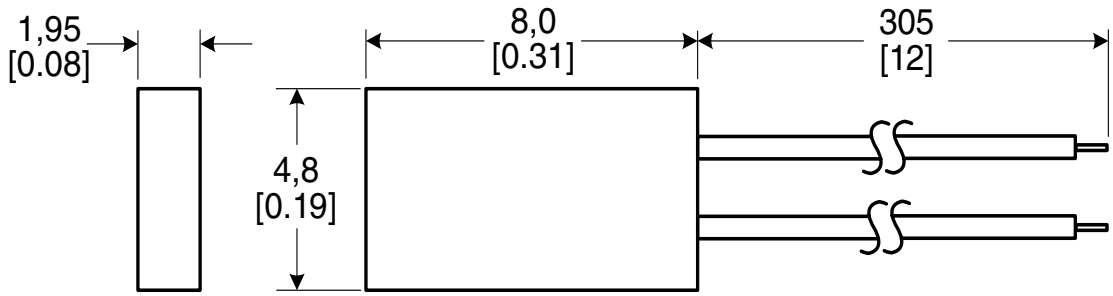


Figure 2. Mounting Dimensions (For reference only. mm/[in].)



CAUTION

PRODUCT DAMAGE

- Ensure proper ESD (Electrostatic Discharge) precautions are followed when handling this product.

Failure to comply with these instructions may result in product damage.

Table 4. Order Guide

Catalog Listing	Description
HRTS-5760-B-T-0-12	HRTS Series platinum thin film RTD with two, 28 gauge TFE Teflon®-insulated leadwires, a resistance and alpha of 100 Ω: 0.00385 Ω/Ω/°C, a standard ±0.2% trim resistance, and 305 mm [12 in] leadwires
HRTS-5760-B-T-1-12	HRTS Series platinum thin film RTD with two, 28 gauge TFE Teflon®-insulated leadwires, a resistance and alpha of 100 Ω: 0.00385 Ω/Ω/°C, an optional ±0.1% trim resistance, and 305 mm [12 in] leadwires
HRTS-5760-B-U-0-12	HRTS Series platinum thin film RTD with two, 28 gauge TFE Teflon®-insulated leadwires, a resistance and alpha of 1000 Ω: 0.00375 Ω/Ω/°C, a standard ±0.2% trim resistance, and 305 mm [12 in] leadwires
HRTS-5760-B-U-1-12	HRTS Series platinum thin film RTD with two, 28 gauge TFE Teflon®-insulated leadwires, a resistance and alpha of 1000 Ω: 0.00375 Ω/Ω/°C, an optional ±0.1% trim resistance, and 305 mm [12 in] leadwires