Thermal Ribbons

Omega offers a wide selection of point-sensitive Thermal Ribbons using thin-film RTD, Thermocouple, or Thermistor elements to meet specific non-invasive application requirements for installation and performance. Thermal Ribbon sensors can be installed virtually anywhere for accurate point temperature sensing and fast response in aerospace, medical, and industrial devices. The Thermal Ribbon sensing element offers advantages for each application. Select RTD elements to accurately monitor point temperatures with excellent repeatability, Patch-Style thermocouple for fast response surface sensing, and extremely sensitive Thermistors for applications with small temperature changes. All our flexible thermal ribbons feature quick and easy mounting with surface or pressure-sensitive adhesive (PSA), and polyimide, silicone rubber or polyester film insulation. They also feature waterproof constructions suitable for continuous immersion and standard PFA or silicone rubber insulated lead wire options as well as stainless steel braid over lead wires.

Features

- **Single-plane winding for faster response time**
- **Versatile sensor types (RTD, thermistor, thermocouple)**
- **Polyimide materials for low outgassing**
- **Lead wire or solder pad version to satisfy many applications**
- **Chemical resistance**
- **Optional lead wire insulations**

Typical applications:

- **Monitoring machines parts**
- **Production line equipment**
- **Enclosures**
- **Hot plates and dies**
- **Machinery**
- **Laminating equipment**

Specifications

Temperature range	-200 to 260°C (-328 to 500°F)
Lead wires	Depending on model, 0”, 12”, 36” or 144”
Lead wire configuration	2, 3, or 4 wire, depending on model
Ribbon thickness	0.010” nominal thickness
Sensor type	RTD, Thermistor or Thermocouple
Adhesive backing	PSA (pressuresensitive adhesive)

Table of Sensor Types (Thermal tab style)

Part Number Breakdown - [Model]-[Sensor Type]-[Element]- [Number of Wires] -[Cable Insulation]-[Lead Length]-[Adhesive Backing]

Example: TFPS-R-P4-PD-2-T-120-P, Polyimide, Platinum (0.00385 TCR) 100 Ω ±0.12% at 0°C (EN60751, Class B), 2 wire, PFA cable insulated, 120 in lead length, with PSA

Model	Element Options	Insulation	Temperature Range	Lead wire	Time Constant	Dimensions (W x L x T (max)
TFPS-R-PE-*	PD, PF	Polyimide with elastomer cover coat	-50 to 155°C -58 to 311°F	AWG 26, PFA insulated	0.8 sec.	0.20 x 0.50 x 0.08" (5 x 12 x 2 mm)
TFPS-R-P4-*	PD,PF PW,PS	Polyimide	-50 to 200°C -58 to 392°F	AWG 26, PFA or polyimide insulated	1.0 sec.	0.20 x 0.60 x 0.08" (5 x 15 x 2 mm)
TFPS-R-PF0-*	PD, PF	Polyimide film	-50 to 260°C -58 to 500°F	AWG 26, PFA or polyimide insulated	0.4 sec	0.20 x 0.60 x 0.08" (5 x 15 x 2 mm)
TFPS-R-SRE-*	PD, PF	Silicone rubberw/ foil backing	-50 to 155°C -58 to 311°	AWG 24, silicone insulated	1.3 sec.	0.20 x 0.60 x 0.12" (5 x 15 x 3 mm)
TFPS-R-PF5-*	PD, PF	Polyimide film	-50 to 200°C -58 to 392°F	AWG 26, PFA or polyimide insulated	0.6 sec.	0.20 x 0.60 x 0.045” (5 x 15 x 1.15 mm)
TFPS-R-PF4-*	PD, PF	Polyimide film	-50 to 200°C -58 to 392°F	AWG 22, PFA or polyimide insulated	1.2 sec.	0.30 x 0.60 x 0.10" (7 x 15 x 2.5 mm)
TFPS-R-PF3-*	PD, PF	Polyimide film	-50 to 200°C -58 to 392°F	AWG 26, PFA or polyimide insulated	0.9 sec.	0.40 x 0.80 x 0.08" (10 x 20 x 2 mm)
TFPS-TC-P4-*	J,K, T	Polyimide	-200 to 220°C -328 to 392°F	AWG 24, PFA or polyimide insulated	0.6 sec.	0.75 x 0.75 x 0.065” (19.1 x 19.1 x 1.7 mm)
TFPS-Th-PE-*	TF,TK	Polyimide with elastomer coating	-50 to 125°C -58 to 257°F	AWG 26, PFA insulated	0.8 sec	0.20 x 0.47 x 0.079” (5.0 x 12.0 x 2.0 mm)
TFPS-Th-SRE-*	TF,TK	Polyimide with elastomer coating	-50 to 125°C -58 to 257°F	AWG 26, silicone insulated	1.3 sec	0.20 x 0.60 x 0.118” (5.0 x 15.2 x 3.0 mm)

Sensor options charts

Element	Element Specifications	Available Models
PD	Platinum (0.00385 TCR) 100 Ω ±0.12% at 0°C (EN60751, Class B)	All except for TFPS-TC and TFPS-Th
PF	Platinum (0.00385 TCR) 1000Ω ±0.12% at 0°C	All except for TFPS-TC and TFPS-Th
PW	Platinum (0.00375 TCR) 1000 Ω ±0.12% at 0°C	TFPS-R-P4
PS	Platinum (0.00385 TCR) 10,000 Ω ±0.12% at 0°C	TFPS-R-P4
J	Type “J” thermocouple ±2.2°C or 0.75% of reading, whichever is greater	TFPS-TC-P4
K	Type “K” thermocouple ±2.2°C or 0.75% of reading, whichever is greater	TFPS-TC-P4
T	Type “T” thermocouple ±1.0°C or 0.75% of reading, whichever is greater	TFPS-TC-P4
TF	NTC thermistor 50kΩ ±1% at 25°C	TFPS-Th-PE, TFPS-Th-SRE
TK	NTC thermistor 10kΩ ±1% at 25°C	TFPS-Th-PE, TFPS-Th-SRE

Cable Insulation	Material
R	Silicone Rubber
T	PFA

Number of Wires*	Lead Length (inches)
2, 3, or 4	12, 36, 40, 120, 144, 240″ (60” max on models PE and SRE).

**Note: for thermocouple and thermistor, number is always “2-wire.” No code needed for thermocouple/thermistor.*

Adhesive Backing	Suffix
With out adhesive	No suffix
Wit h adhesive	-P