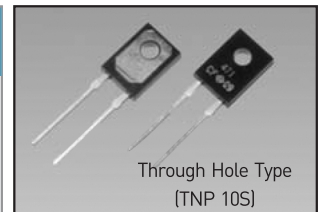


Power Thin Film Resistors (TO126)

A small, 20 Watt, 5.9 /W heat resistance(hot spot to flange), high power resistor in a TO-126 package. Non-inductive design is suitable for high speed SW power sources, high precision CRT and high speed pulse handling circuits. The thin style and small package is ideal for high density electronic instruments. Designed for superior vibration durability with heat sink mounting. Complete thermal flow designs are available. Applications include: VPS, Power units for machines, Motor control, drive circuits, automotive, measurements, industrial computers and high frequency electronics.

GENERAL SPECIFICATIONS

Model	Resistanc Range [Ω]	TCR [ppm/°C]	Tolerance(%)	Rating Power[W] (See Note 1)	Heat Resistance (See Note 2)
TNP10S	0,1 to 0,09	±250	J [±5]	20W 1W(at free air)	5.9°C/W
	0.1 to 9.1	±100	J [±5]		
	10 to 51K	±50	F [±1]		



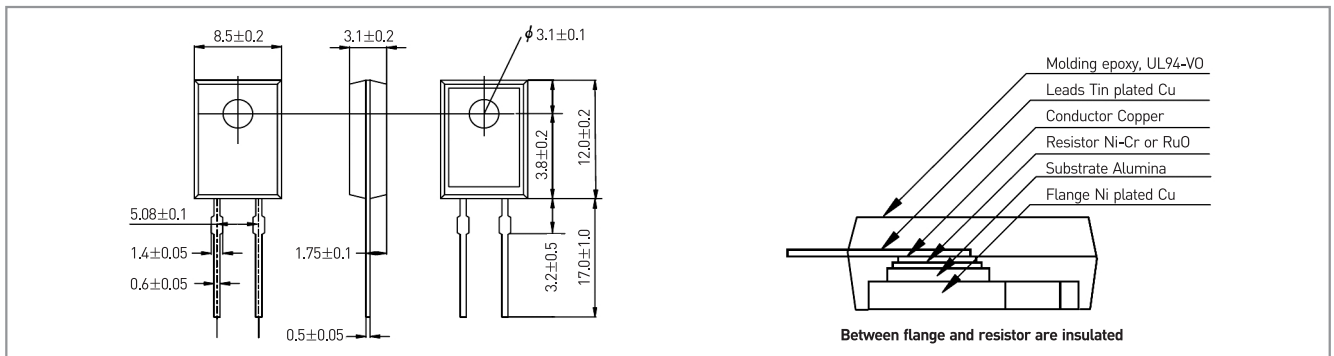
Note: 1) TNP 10S (TMP 10S) Rating power 20W: Flange Temperature of -55 to +25°C
2) From hot spot to Flange

CHARACTERISTICS

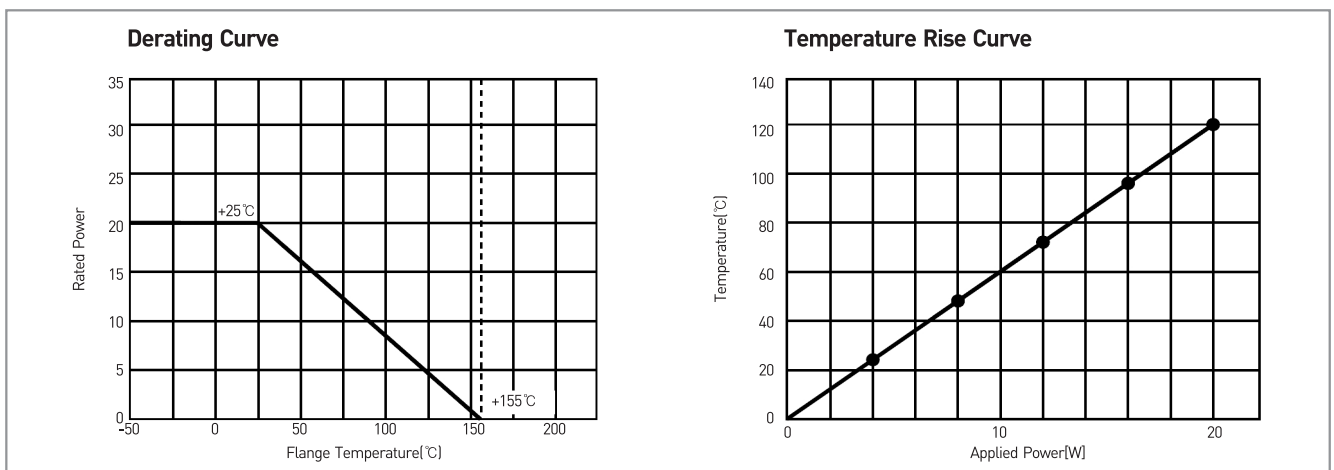
Values in [] mean change in Ω after test

Temperature Range		-55°C to +155°C
Insulation Resistance	[Over 1000MΩ]	Between terminals and flange
Dielectric Withstanding Voltage	[AC 2000V]	For 60seconds Between terminals and flange
Moisture Resistance	±[1.0 %+0.05Ω]	40°C, 90 to 95%RH, DC 0.1 x Power rating, 1000hours
Soldering Heat	±[1.0 %+0.05Ω]	350±5°C, 3seconds
Solderability	[Over 95% of surface]	230±5°C, 3seconds
Vibration	±[0.25 %]	IEC 60068-2-6
Load Life	±[1.0 %+0.05Ω]	25°C, 90 minutes on, 30minutes off, 1000hours

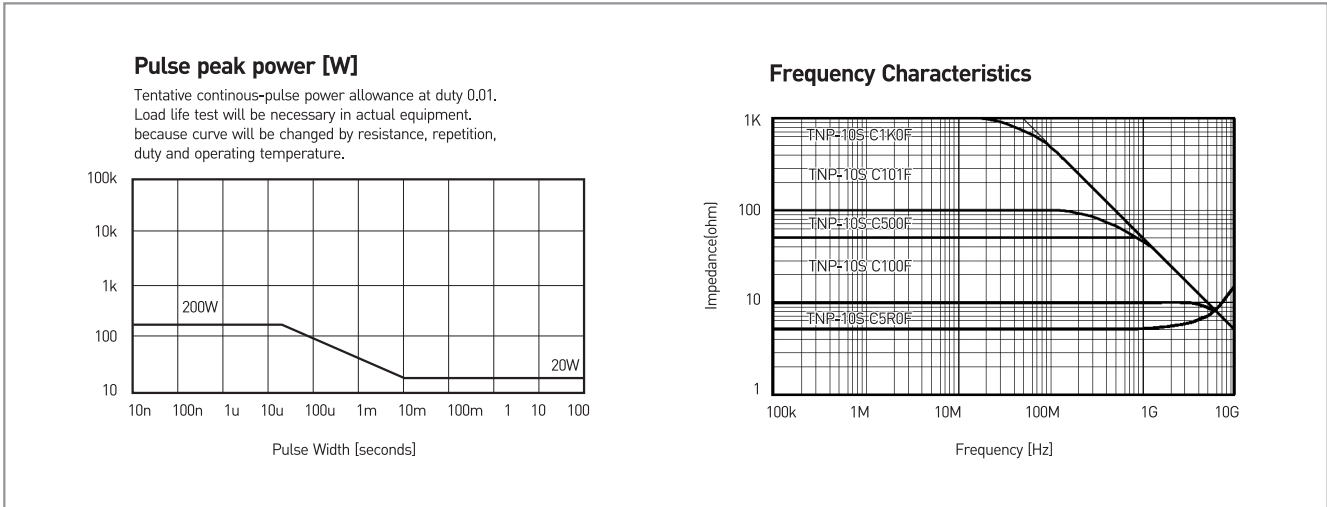
DIMENSIONS [mm] AND STRUCTURE



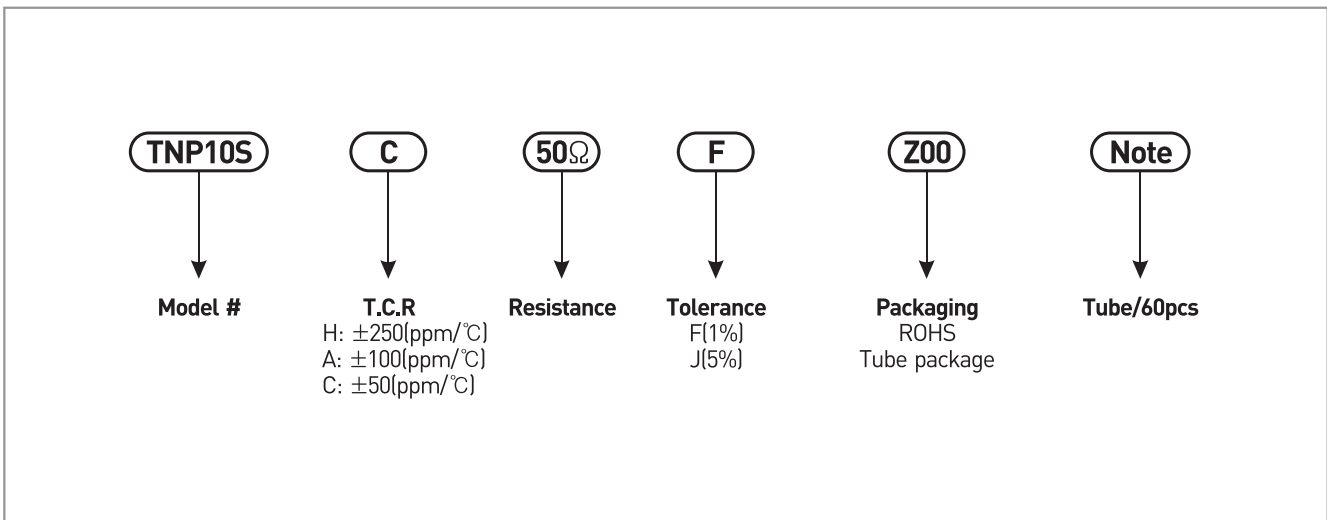
DERATING CURVE AND TEMPERATURE RISE CURVES



PULSE ENERGY DURABILITY AND FREQUENCY CHARACTERISTICS



ORDERING PROCEDURE EXAMPLE



Note:

- (1) Insulation material is unnecessary between flange and heat-sink, because flange and resistor are separated by alumina insulated substrate. When mounting resistor on heat-sink, screw, clip and pressure strip with using heat conduction grease on back side of resistor are recommended. Recommended screw torque is 0.5-0.6Nm.
- (2) Resistance measurement shall be made at a point 5.27mm±0.6mm from the resistor body.
- (3) TCR of low resistance will be increased as 300ppm/0.02ohm, 200ppm/0.05ohm, 140ppm/0.1ohm and 80ppm/0.2ohm typically. Testing point is at 5.27mm from bottom of molding of terminals.
- (4) Test method is IEC60068-2-6, and specification is sine sweep wave form, 100Hz-2000Hz, 10 cycles, amplitude 0.75mm or 100m/s², 90minutes. direction x-y-z, Amplitude 0.75mm will be applied under break point Frequency (about 60Hz) and 100m/s² over break point.
- (5) When mounting resistor on heat-sink by screw, clip and pressure strip with using heat conduction grease on back side of resistor are recommended. Recommended screw torque is 0.5-0.6Nm.
- (6) 0.1% tolerance resistors is available.