

**FEATURES**

- Resistances from 0.005Ohm to 10Ohms
- Power Rating to 15Watt
- Resistance Tolerances to  $\pm 0.1\%$
- TCR to  $\pm 2\text{ppm/K}$
- Load Stability to 0.1%
- TO-220 Housing
- Convenient SMD D2Pak Available



Pb-free  
Available  
**RoHS\***  
COMPLIANT

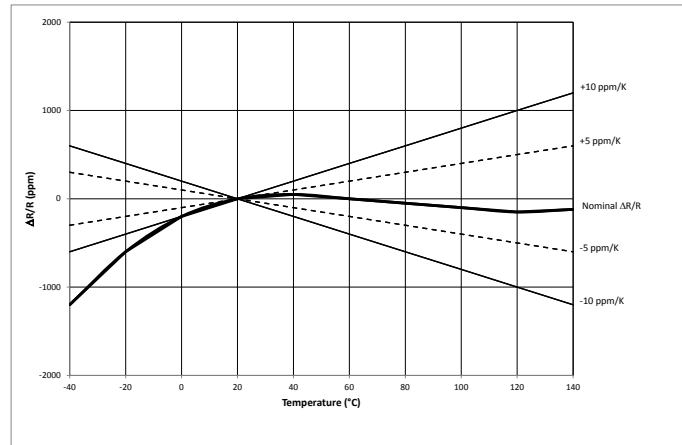
TABLE 1 – SPECIFICATIONS			
TYPE		SPR 4-T220	SPR 4-T221
Resistance Range		0.005 to 10 Ohms	
Power Rating	Free air 70°C	1.5 W	
	With heatsink	15 W	
Tolerances from 0.005 Ohms from 0.01 Ohms		1% / 2% / 5% 0.1% / 0.25% / 0.5% / 1% / 2% / 5%	
Thermal Resistance		4.8 K/W	
Stability (1000h)		0.1% / 0.2% / 0.5% (depends on stress)	
Temperature Coefficient Standard (N) Option (M) Option (L) upon request for selected values		$\pm 10\text{ppm/K}$ (20 to 60°C) $\pm 5\text{ppm/K}$ (20 to 60°C) $\pm 2\text{ppm/K}$ (20 to 60°C) other specifications upon request	
Voltage Proof		300 VDC	
Maximum Current		50 A	
Thermal EMF		$< 1\mu\text{V/K}$	
Operating Temperature Range		-40 to 130°C	
Resistor Material		CuMnSn-Foil	
Substrate		Anodized aluminium / Copper	
Housing		PPS	
Connector Material		Cu / tinned	
Terminals		4	
Max. Torque		1 Nm	0.8 Nm

**ORDERING INFORMATION**

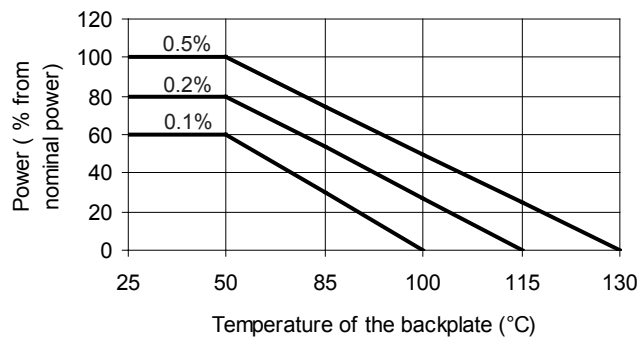
Part Number - Resistance - Contact - Tolerance - TCR

SPR 4-T220 0R010 C 0.1% M

**FIGURE 1 – TEMPERATURE COEFFICIENT**



**FIGURE 2 – DERATING**



**Power Rating Notes -**

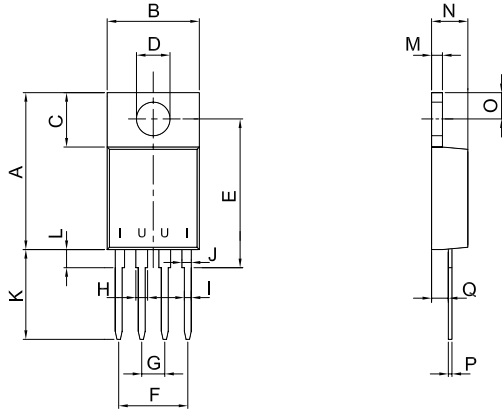
The SPR Series Resistors must be attached to a suitable heat-sink. The maximum internal resistor temperature is 130°C. To specify an appropriate heatsink use the following formula :

$$R_{\theta H} = \frac{T_{MAX} - (P \times R_{\theta R}) - T_A}{P}$$

Where:  $R_{\theta H}$  = Thermal Resistance of Heatsink ( K/W )  
 $R_{\theta R}$  = Thermal Resistance of Resistor ( K/W )  
 $T_{MAX}$  = Maximum Temperature of Resistor  
 $T_A$  = Ambient Temperature of Heatsink ( °C )  
 $P$  = Power Through Resistor ( W )

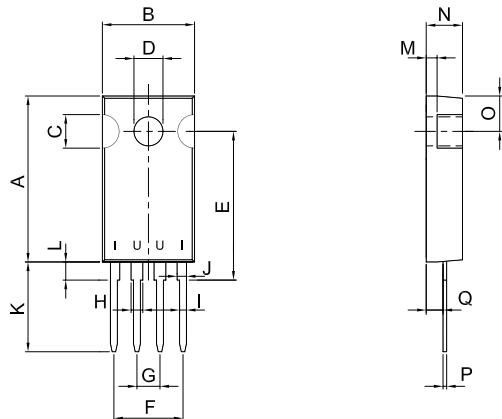
**FIGURE 3—DIMENSIONS** in mm (inches)

**FPR 4-T220**



Dimension	S-contact	C-contact
A ±0.2 (±0.008)	17.30 (0.68)	
B ±0.2 (±0.008)	10.16 (0.40)	
C ±0.1 (±0.004)	6.00 (0.24)	
D ±0.1 (±0.004)	Ø3.7 (Ø0.146)	
E ±0.2 (±0.008)	16.40 (0.65)	
F ±0.2 (±0.008)	7.62 (0.30)	
G ±0.1 (±0.004)	2.54 (0.10)	
H ±0.1 (±0.004)	1.30 (0.05)	
I ±0.1 (±0.004)	0.76 (0.03)	
J ±0.1 (±0.004)	1.03 (0.04)	
K ±0.2 (±0.008)	10.00 (0.39)	13.80 (0.54)
L ±0.1 (±0.004)	2.00 (0.08)	
M ±0.1 (±0.004)	1.20 (0.05)	
N ±0.1 (±0.004)	4.00 (0.16)	
O ±0.1 (±0.004)	2.90 (0.11)	
P ±0.1 (±0.004)	0.40 (0.02)	
Q ±0.1 (±0.004)	1.85 (0.07)	

**FPR 4-T221**



Dimension	S-contact	C-contact
A ±0.2 (±0.008)	18.30 (0.72)	
B ±0.2 (±0.008)	10.16 (0.40)	
C ±0.1 (±0.004)	3.70 (0.15)	
D ±0.1 (±0.004)	Ø3.2 (Ø0.126)	
E ±0.2 (±0.008)	16.40 (0.65)	
F ±0.2 (±0.008)	7.62 (0.30)	
G ±0.1 (±0.004)	2.54 (0.10)	
H ±0.1 (±0.004)	1.30 (0.05)	
I ±0.1 (±0.004)	0.76 (0.03)	
J ±0.1 (±0.004)	1.03 (0.04)	
K ±0.2 (±0.008)	10.00 (0.39)	13.80 (0.54)
L ±0.1 (±0.004)	2.00 (0.08)	
M ±0.1 (±0.004)	1.20 (0.05)	
N ±0.1 (±0.004)	4.00 (0.16)	
O ±0.1 (±0.004)	3.90 (0.15)	
P ±0.1 (±0.004)	0.40 (0.02)	
Q ±0.1 (±0.004)	1.85 (0.07)	



## Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Vishay Precision Group, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "VPG"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

The product specifications do not expand or otherwise modify VPG's terms and conditions of purchase, including but not limited to, the warranty expressed therein.

VPG makes no warranty, representation or guarantee other than as set forth in the terms and conditions of purchase. **To the maximum extent permitted by applicable law, VPG disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.**

Information provided in datasheets and/or specifications may vary from actual results in different applications and performance may vary over time. Statements regarding the suitability of products for certain types of applications are based on VPG's knowledge of typical requirements that are often placed on VPG products. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. You should ensure you have the current version of the relevant information by contacting VPG prior to performing installation or use of the product, such as on our website at [vpgsensors.com](http://vpgsensors.com).

No license, express, implied, or otherwise, to any intellectual property rights is granted by this document, or by any conduct of VPG.

The products shown herein are not designed for use in life-saving or life-sustaining applications unless otherwise expressly indicated. Customers using or selling VPG products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify VPG for any damages arising or resulting from such use or sale. Please contact authorized VPG personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

Copyright Vishay Precision Group, Inc., 2014. All rights reserved.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Powertron](#) manufacturer:*

Other Similar products are found below :

[USR 4-4020 0R100 D 1%](#) [FPR 4-T227 0R100 G 1% Q](#) [FPR 2-T218 2R000 C 1%](#) [NPS 2-T126B 10R00 S 1%](#) [KHR 2-T227 10K00 G 1%](#)  
[SHR 4-2321 0R005 S 1% M](#) [NPS 2-T126B 47R00 S 1%](#) [SPS 4-T220 0R100 S 1% M](#) [FPR 4-T227 0R010 G 1% Q](#) [FPS 4-T220 0R500 S 1% Q](#)  
[FPR 2-T218 3R000 C 1%](#) [SHR 4-3825 0R010 A 1% M](#) [USR 2-T220B 500R0 S 0.1%](#) [KHR 2-T227 100R0 G 1%](#) [USR 4-4020 1R000 D 1%](#)  
[USR 2-T220B 50R00 S 0.1%](#) [PCS 301 0R100 S 1%](#) [FPS 4-T220 0R005 S 1% Q](#) [FHR 4-2321 0R001 S 1% Q](#) [FHR 4-2321 0R005 S 1% Q](#)  
[FPR 4-T221 0R220 S 1% Q](#) [SHR 4-3825 0R100 A 1% M](#) [FHR 4-3825 0R001 A 1% Q](#) [FPR 2-T218 4R000 C 1%](#) [FPR 4-T227 0R001 G 1% Q](#)  
[KHR 2-T227 10R00 G 1%](#) [FPS 4-T220 0R010 S 1% Q](#) [SPR 4-T220 0R100 S 1% M](#) [FHR 4-3825 0R010 A 1% Q](#) [FHR 4-2321 0R010 S 1% Q](#)  
[NPS 2-T126B 50R00 S 1%](#)