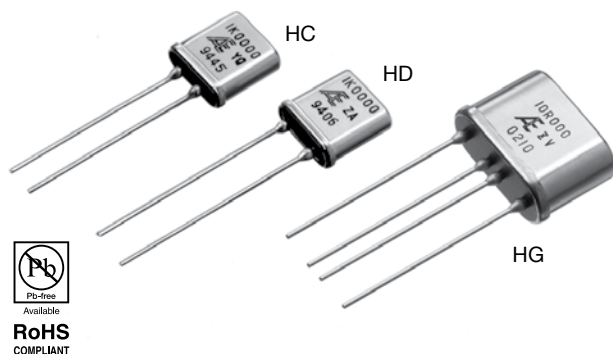


Ultra Precision Resistor (Hermetically Sealed)

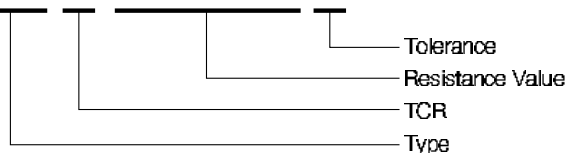


RoHS
COMPLIANT

COMPOSITION OF TYPE NUMBER

Example:

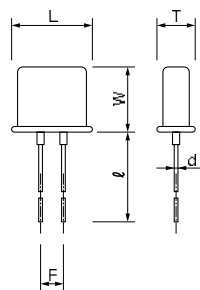
HC Y 30K000 T



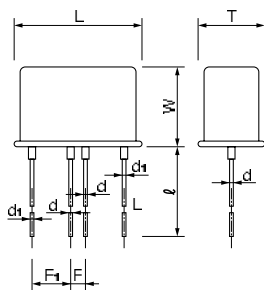
Resistance value, in ohm, is expressed by a series of six characters, five of which represent significant digits. The sixth R or K is a dual-purpose letter that designates both the value range (R for ohmic; K for kilo-ohm) and the location of decimal point.

CONFIGURATION (DIMENSIONS IN mm)

HC, HD Type



HG Type



Type	HC	HD	HG
L	10.7±0.3		19.0±0.3
W	10.7±0.3		12.8±0.3
T	4.3±0.3		8.8±0.3
F	3.81±0.25	5.08±0.25	2.54±0.25
F1			5.08±0.25
l	30±10		
d	Dia. 0.65±0.05		
d1	Dia. 0.8±0.05		

TCR, RESISTANCE RANGE, TOLERANCE, RATED POWER

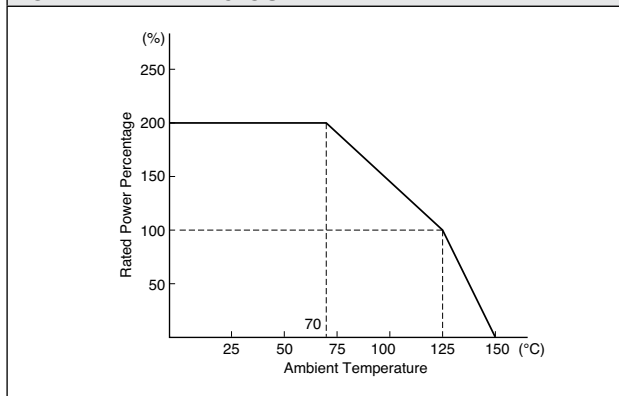
Type	TCR (ppm/°C) -55°C to +125°C*	Resistance Range (Ω)	Resistance Tolerance (%)†‡	Rated Power (W) at 125°C
HC HD	0±15 (W)	1 to 5	±0.5 (D) ±1 (F)	0.3
	0±5 (X)	5 to 30	±0.1 (B) ±0.5 (D) ±1 (F)	
	0±5 (X) 0±2.5 (Y) 0±1 (Z)**	30 to 120k	±0.005 (V) ±0.01 (T) ±0.02 (Q) ±0.05 (A) ±0.1 (B) ±0.5 (D) ±1 (F)	
HG	0±2.5 (Y) 0±1 (Z)**	1 to 10	±0.01 (T) ±0.02 (Q) ±0.05 (A) ±0.1 (B) ±0.5 (D) ±1 (F)	
		10 to 10k	±0.005 (V) ±0.01 (T) ±0.02 (Q) ±0.05 (A) ±0.1 (B) ±0.5 (D) ±1 (F)	

* Symbols in parentheses are for type number composition.

† Resistance figures are obtained by measuring the leads at point 12.7±3.2 mm away from the base for type HC and HD, but, in case of resistance below 10 ohm, the value at 1.6±0.6 mm away from the base for all types.

**Temperature characteristic Z is applicable for temperature range between 0°C and 60°C.

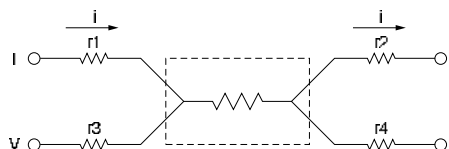
POWER DERATING CURVE



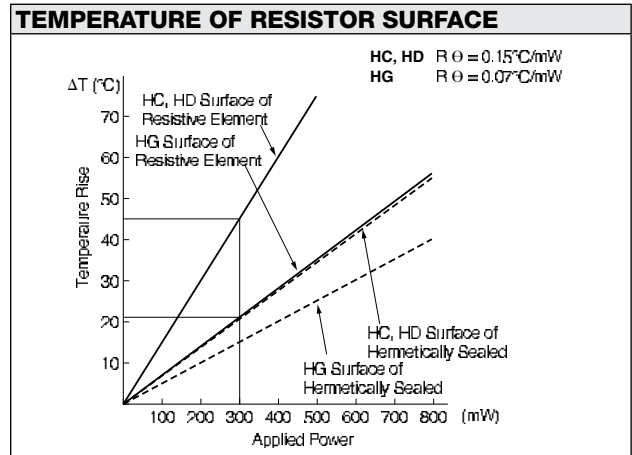
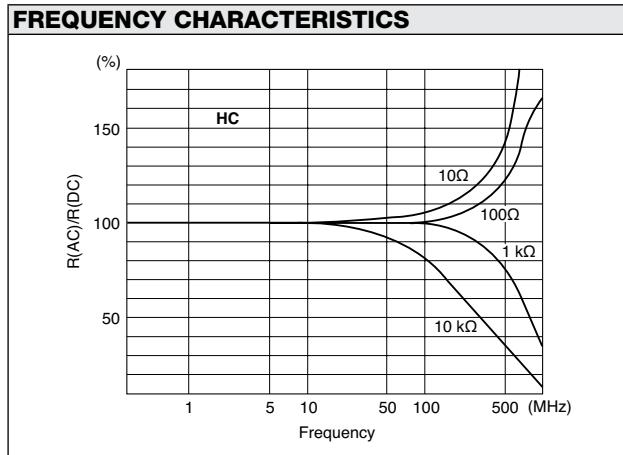
FOUR-TERMINAL (KELVIN) CONNECTION

For low ohmic resistor (less than 10 ohm), the resistance value and TCR of the copper lead increases overall resistance value. Four-terminal (Kelvin) connection is recommended per the following figure. Loading current at voltage and current terminals (V, I) causes measurement error.

Four-Terminal Resistor



PERFORMANCE			
Parameters	Test Condition	MIL-PRF-55182/9 Specification	ALPHA Typical Test Data
Maximum Rated Operating Temperature Working Temperature Range Maximum Working Voltage			125°C -65°C to +150°C 300V
Power Conditioning Thermal Shock Overload	125°C, Rated Power, 100 hrs. -65°C/30 min. ↔ +150°C/30 min., 5 cycles Rated Voltage x 6.25, 5 sec.	±(0.20% +0.01%) ±0.05% ±0.05%	±0.0025% ±0.0025% ±0.0025%
Solderability	Steam Aging 8 hrs., 245°C, 5 sec.	over 95% coverage	
Resistance to Solvents	① Isopropyl Alcohol + Mineral Spirits ② Water + Butyl Cellosolve + Monoethanolamine	no damage	
Low Temperature Storage Low Temperature Operation Terminal Strength	-65°C, 24 hrs. -65°C Rated Voltage, 45 min. 0.908 kg (2 pounds), 10 sec.	±0.05% ±0.05% ±0.02%	±0.0025% ±0.0025% ±0.001%
Dielectric Withstanding Voltage Insulation Resistance Resistance to Soldering Heat Moisture Resistance	Atom. Pres.: 300V rms. Baro. Pres. 8 mHg: 200V rms. DC 100V, 2 min. 260°C, 10 sec. ±2 sec. +65°C to -10°C, 90% RH to 98% RH, Rated Voltage, 10 cycles (240 hrs.)	±0.02% over 10,000 MΩ ±0.02% ±0.05%	±0.0025% over 10,000 MΩ ±0.0025% ±0.0025%
Shock (Specified Pulse) Vibration, High Frequency	100G, 6 ms, Sawtooth Wave, X, Y, Z, each 10 shocks 20G, 10 Hz to 2,000 Hz to 10 Hz, 20 min., X, Y, each 4 hrs.	±0.01% ±0.02%	±0.0025% ±0.0025%
Life	125°C, Rated Power, 1.5 hr. – ON, 0.5 hr. – OFF, 2,000 hrs.	±0.05%	±0.01%
70°C Power Rating	70°C, Rated Voltage x 2, 1.5 hrs. – ON, 0.5 hr. – OFF, 2,000 hrs.	±0.05%	±0.01%
Storage Life	15°C to 35°C, 15% RH to 75% RH, No Load, 10,000 hrs.	±0.005%	±0.0005%
High Temperature Exposure	175°C, No Load, 2,000 hrs.	±0.5%	±0.01%
Current Noise		-32 dB	-42 dB
Voltage Coefficient		0.0001%/V	0.00003%/V
Thermal EMF		1.0 μV/°C	0.1 μV/°C



PRECAUTION IN USING HC, HD OR HG RESISTORS

When soldering to mount HC, HD or HG on a board, keep the resistor over 10 mm away from the board surface by using an insulating tube.



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.

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.