Type HOLCO Series

Key Features

- Ultra Precision - Down To 0.05%
- Matched Sets Available To 2ppm/°C
- High Pulse Withstand
- Low Reactance
- Low TCR - Down To 5ppm/°C
- Long Term Stability
- Up To 1 Watt At 70°C
- Released To CECC 40101 004, 030 And 804



The Holco range of Precision Metal Film Resistors meets the requirement for economically priced components for industrial and military applications. The manufacturing facility utilises closely controlled production processes including the sputter coating of metal alloy films to ceramic substrates, and laser spiralling to achieve close tolerance and high stability resistors. An epoxy coating is applied for environmental and mechanical protection. Commercially the Series is available in two case sizes, from 1 ohm to 4M ohms, tolerances from 0.05% to 1% and TCR's from 5ppm/°C to 100ppm/°C. Offered with release to BS CECC 40101 004, 030 and 804 the H8 is available via distribution.

Characteristics - Electrical

	H4P	H4	H8	
BS CECC 40101 004				
Style:		K	H	J
Power Rating at 70°C:		0.25W	0.063W	0.125W
Temperature Rise (max):		32°C	14°C	28°C
Limiting Element Voltage:		250V	200V	200V
BS CECC 40101 030				
Style:		J	H	
Power Rating at 125°C:		0.125W	0.1W	
Temperature Rise (max):		30°C	30°C	
Limiting Element Voltage:		250V	200V	
BS CECC 40101 804				
Style:		B	A	
Power Rating at 125°C:		0.25W	0.125W	
Limiting Element Voltage:		250V	200V	
Commercial Ratings				
Power Rating at 70°C:	1.0W	0.5W	0.25W	
Temperature Rise:	70°C	55°C	40°C	
Limiting Element Voltage:	500V	350V	350V	

General Data

Lead Material:	Solderability to BS CECC 40101 004 Para 4.15.1
Encapsulation:	Conformal Epoxy Coating
Resistor Marking:	Legend printed in accordance with CECC 40000 Para 2.4
Solvent Resistance:	The epoxy coating and print will withstand the action of all commonly used industrial cleansing solvents

Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are standard equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

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Temperature Coefficient / Tolerance Ranges

TCR	H4P			H4			H8		
ppm/°C	0.05%	0.1%-0.25%	0.5%-1.0%	0.05%	0.1%-0.25%	0.5%-1.0%	0.05%	0.1%-0.25%	0.5%-1.0%
5	10R-500K	10R-500K	10R-500K	10R-500K	10R-500K	10R-500K	10R-500K	10R-500K	10R-500K
10	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0
15	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0	10R-1M0
25	10R-1M0	10R-2M0	10R-2M0	10R-1M0	10R-2M0	10R-2M0	10R-1M0	10R-2M0	10R-2M0
50	10R-1M0	10R-2M0	10R-4M0	10R-1M0	10R-2M0	10R-4M0	10R-1M0	10R-2M0	10R-4M0
100	10R-1M0	1R0-2M0	1R0-4M0	10R-1M0	1R0-2M0	1R0-4M0	10R-1M0	1R0-2M0	1R0-4M0

Approved Value Ranges 40101-004, 40101-030

Type	Style 004	Style 030	Z 100ppm	C 50ppm	D 25ppm	Y 15ppm
H4	K	J	10R-1M0	49R9-1M0	49R9-1M0	49R9-1M0
H8	HJ	H	10R-1M0	49R9-1M0	49R9-1M0	49R9-1M0

Tolerances 0.1%, 0.25%, 0.5%, 1%

40101-804

Type	Style	C 50ppm	D 25ppm	T 15ppm
H4	B	49R9-1M0	49R9-1M0	49R9-1M0
H8	A	49R9-1M0	49R9-1M0	49R9-1M0

Tolerances 0.1%, 0.25%, 0.5%, 1%

Characteristics - Electrical

	Typical Data	Reference
Voltage Coefficient of Resistance (Between 10% and Full Rated Voltage)	Less Than 5ppm/Volt Applied	n/a
Insulation Resistance at 500 Volts	Greater Than 10^{12} Ohms	n/a
Resistance to Soldering Heat (260°C for 10 Secs.)	Less Than 0.05%	BS CECC 40101 004 Para 4.15.2
Short Term Overload (6.25 Times Rated BS CECC Wattage for 5 Seconds)	Less Than 0.06%	BS CECC 40101 004 Para 4.11
Ambient Temperature Range	-55°C to +155°C	BS CECC 40101 004, BS CECC 40101 030 & Commercial
Rapid Change of Temperature (-55°C to +155°C, 5 cycles)	Less Than 0.04%	BS CECC 40101 004 Para 4.16
Shelf Life (at Normal Room Temp.)	Less Than 0.05% Per Annum	n/a
Vibration (10-500 HZ,Amplitude 0.75mm, or Acceleration 98m/s2 which is less severe, sweep duration 6 hours)	Less Than 0.04%	BS CECC 40101 004 Para 4.19
Vibration (55-2000 Hz Simple Harmonic Motion, Max.Acceleration 98m/s2, Duration 35±5 Minutes)	Less Than 0.04%	MIL STD 202 METHOD 204-C
Bump (390m/s2, 4000 Bumps)	Less Than 0.03%	BS 2011 Part 2.1 Eb 1977 (1984)
Load Stability	See Graphs	n/a
Damp Heat Steady State	See Graph	BS CECC 40101 004 Para 4.21

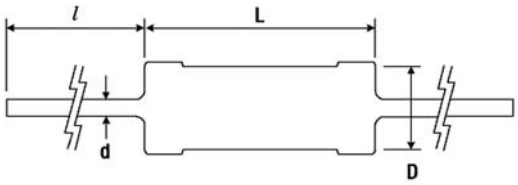
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Type HOLCO Series

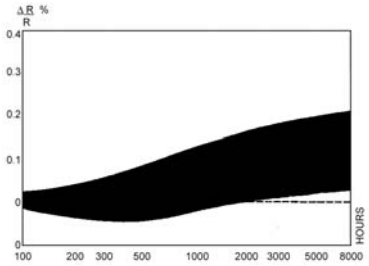
Dimensions

To prevent damage to the components conformal coating, the leads should be adequately supported during the forming process

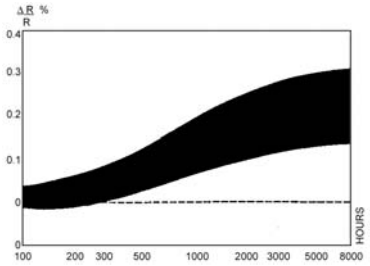


	H4P	H4	H8
Body Length (L) maximum:	10.0 mm	10.0 mm	7.20 mm
Body Diameter (D) maximum:	3.70 mm	3.70 mm	2.50 mm
Lead Diameter (d) maximum:	0.60 mm	0.60 mm	0.60 mm
Lead Length (l) nominal:	30.0 mm	30.0 mm	30.0 mm
Recommended Mounting Pitch:	12.7 mm	12.7 mm	10.2 mm
Weight (g/100 resistors)	40	40	24

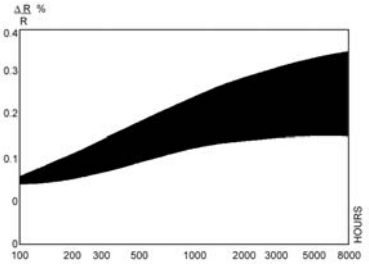
Characteristics - Long Term Stability



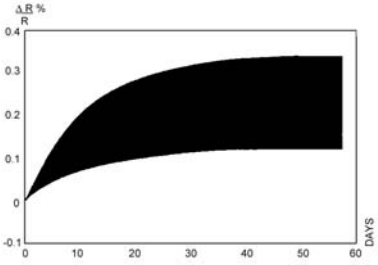
Long Term Stability
BS CECC 40101 004
Ratings at 70°C
H4 - 0.25 W
H8 - 0.125 W



Long Term Stability
BS CECC 40101 030
Ratings at 125°C
H4 - 0.125 W
H8 - 0.1 W



Long Term Stability
Commercial
Ratings at 125°C
H4P - 1W
H4 - 0.5 W
H8 - 0.25 W



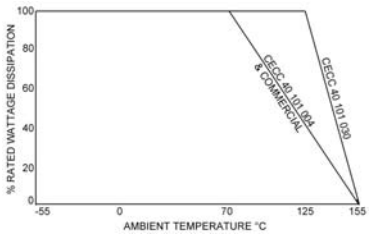
Damp Heat Steady State
93% RH at 40°C

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Type HOLCO Series

Derating Graph - Approved and Commercial Ratings



How to Order

H8	100R	B	Y	B
Common Part	**Resistance Value**	**Tolerance**	**T.C.R. Code**	**Release**
H4P H4 H8	1.0 ohm (1000 milli ohms) 1R0 10 ohm (10 ohms) 10R 100 ohm (100 ohms) 100R 1K 0hm (1000 ohms) 1K0 10K ohm (10000 ohms) 10K 100K ohm (100000 ohms) 100K 1M ohm (1000000 ohms) 1M0	A - 0.05% B - 0.1% C - 0.25% D - 0.5% F - 1.0%	A - 5ppm B - 10ppm Y - 15ppm D - 25ppm C - 50ppm Z - 100ppm	A - Part can only be sold with Commercial or C of C release. B - Part can be sold to BS CECC 40101 004, BS CECC 40101 030 D - Part can be sold to BS CECC 40101 804

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