

#### **Type HOLCO Series**

**Key Features** 

**Ultra-Precision** 

- Down To 0.05%

Low TCR – Down To 5ppm/°C

Long Term Stability

Up To 1 Watt At 70°C



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 i 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.

#### **Characteristics – Electrical**

	Н4Р	H4	H8
Power rating @70°C	1W	0.5W	0.25W
Temperature Rise	70°C	55°C	40°C
Limiting Element	500v	350v	350v
Voltage			

#### **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



# **Resistance Range by TCR and Tolerance**

TCR	H4P		H4			Н8			
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-	10R-	10R-	10R-	10R-	10R-	10R-	10R-	10R-
,	500K	500K	500K	500K	500K	500K	500K	500K	500K
10	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -
10	1M0	1M0	1M0	1M0	1M0	1M0	1M0	1M0	1M0
15	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -
15	1M0	1M0	1M0	1M0	1M0	1M0	1M0	1M0	1M0
25	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -
25	1M0	2M0	2M0	1M0	2M0	2M0	1M0	2M0	2M0
50	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -
50	1M0	2M0	4M0	1M0	2M0	4M0	1M0	2M0	4M0
100	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -	10R -
	1M0	2M0	4M0	1M0	2M0	4M0	1M0	2M0	4M0

### **Performance Characteristics**

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



### **Dimensions**



	H4P	H4	Н8
Body Length (L) maximum:	10.50mm	10.50mm	7.20mm
Body Diameter (D) maximum:	3.70mm	3.70mm	2.70mm
Lead Diameter (d) maximum:	0.60mm	0.60mm	0.60mm
Lead Length (I) nominal:	30.0mm	30.0mm	30.0mm
Recommended Mounting Pitch:	12.70mm	12.70mm	10.2mm
Weight (g/100 resistors)	40	40	24

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

### **Long Term Stability**





Damp Heat Steady State 93% RH at 40°C



## **Derating**



#### **How To Order**

H8	100R	В	Υ	Α
<b>Common Part</b>	Resistance	Tolerance	TCR Code	Release
	Value			
H4P	1.0Ω- 1R0	A - 0.05%	A – 5ppm	A – Part can
H4	10Ω - 10R	B - 0.1%	B – 10ppm	only be sold
H8	1ΚΩ (1000	C - 0.25%	Y – 15ppm	with
	Ohms)- 1K0	D - 0.5%	D – 25ppm	commercial or
	10ΚΩ (10,000	F – 1.0%	C – 50ppm	C of C release
	ohms) – 10K		Z – 100ppm	

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