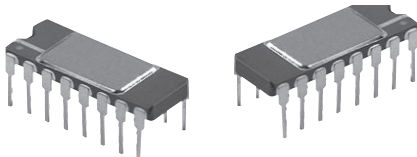


## Hermetic, Dual-In-Line Thin Film Resistor, Through Hole Network (Custom)

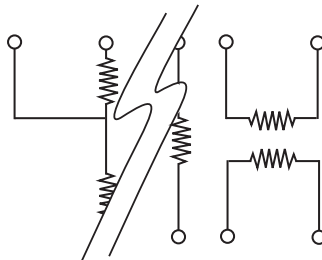


Designed to meet or exceed MIL-PRF-83401 characteristic "C"

The most advanced thin film technology is put to work in the manufacture of exceptionally stable, precision thin film resistor networks in a variety of popular hermetic-type packages. These networks are based on the utilization of a resistive film possessing outstanding stability throughout board assembly and equipment life.

Manufacturing is performed under rigid process control by a team of specialists having many years experience in the design, fabrication and automatic laser adjustment of several hundred different precision thin film resistor networks. Circuits are designed for specific customer requirements and manufactured according to highly standardized procedures. Testing is conducted in one of the most completely equipped laboratories in the industry.

### SCHEMATIC



Custom schematics available.  
Please consult factory.

### FEATURES

- True hermetic construction
- Standard 8 pins, 14 pins, 16 pins, 18 pins, 20 pins packages
- Chip and wire construction
- Exceptional stability over time and temperature (500 ppm at + 70 °C at 2000 h)
- Military/aerospace
- Hermetically sealed
- Ideal for military/aerospace applications
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition



**RoHS\***  
COMPLIANT  
HALOGEN  
**FREE**

### Note

\* Pb containing terminations are not RoHS compliant, exemptions may apply

### TYPICAL PERFORMANCE

	ABSOLUTE	TRACKING
<b>TCR</b>	<b>10</b>	<b>2</b>
	ABSOLUTE	RATIO
<b>TOL.</b>	<b>0.02</b>	<b>0.01</b>

### STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS		CONDITIONS
<b>Material</b>	Passivated nichrome	Tantalum nitride <sup>(1)</sup>	-
<b>Pin/Lead Number</b>	8 to 20		-
<b>Resistance Range</b>	50 Ω to 1500 kΩ (total)	50 Ω to 300 kΩ (total)	-
<b>TCR: Absolute</b>	± 10 ppm/°C to ± 25 ppm/°C		- 55 °C to + 125 °C
<b>TCR: Tracking</b>	± 2 ppm/°C (typical less 1 ppm/°C equal values)		- 55 °C to + 125 °C
<b>Tolerance: Absolute</b>	± 0.02 % to ± 1.0 %		+ 25 °C
<b>Tolerance: Ratio</b>	± 0.01 % to ± 0.5 %		+ 25 °C
<b>Power Rating: Resistor</b>	100 mW (per element (typical))		+ 25 °C
<b>Power Rating: Package</b>	-		-
<b>Stability: Absolute</b>	500 ppm		2000 h at + 70 °C
<b>Stability: Ratio</b>	150 ppm		2000 h at + 70 °C
<b>Voltage Coefficient</b>	< 0.1 ppm/V		-
<b>Working Voltage</b>	100 V		-
<b>Operating Temperature Range</b>	- 55 °C to + 125 °C		-
<b>Storage Temperature Range</b>	- 55 °C to + 150 °C		-
<b>Noise</b>	< - 30 dB		-
<b>Thermal EMF</b>	< 0.10 μV/°C		-
<b>Shelf Life Stability: Absolute</b>	ΔR ± 0.01 %		1 year at + 25 °C
<b>Shelf Life Stability: Ratio</b>	ΔR ± 0.002 %		1 year at + 25 °C

### Note

<sup>(1)</sup> Tantalum nitride film is custom

<b>DIMENSIONS AND IMPRINTING</b> in inches and millimeters			
	DIMENSION	INCHES	MILLIMETERS
	A	0.295	7.49
	B	0.310 ± 0.010	7.88 ± 0.25
	C	0.035 ± 0.010	0.89 ± 0.25
	D	0.100 non-accum.	2.54
	E	0.018 ± 0.002	0.46 ± 0.05
	F	0.130 typical	3.30
	G	0.130 max.	3.30
	H	0.300 typical	7.62
	I	0.010 typical	0.25
	L (8 Pins)	0.528	13.41
	L (14 Pins)	0.710	18.03
	L (16 Pins)	0.810	20.57
	L (18 Pins)	0.910	23.11
L (20 Pins)	1.010	25.65	

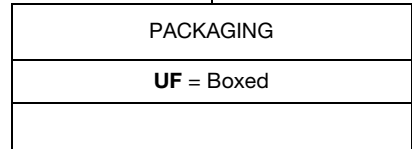
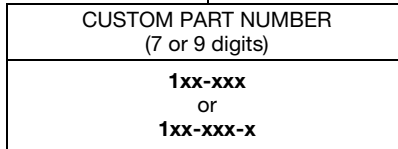
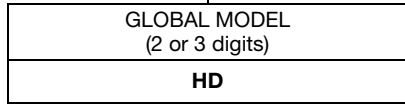
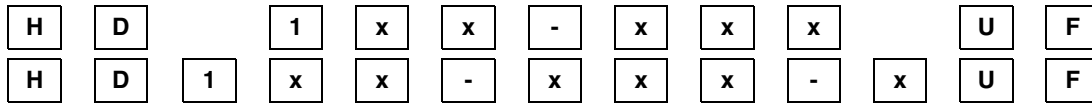
<b>MECHANICAL SPECIFICATIONS</b>	
<b>Resistive Element</b>	Passivated nichrome or tantalum nitride
<b>Substrate Material</b>	Alumina
<b>Body</b>	Ceramic
<b>Terminals</b>	Copper alloy
<b>Tin/Lead Option</b>	Sn63
<b>Lead (Pb)-free Option</b>	Sn96.5, Ag3.0, Cu0.5
<b>Tin/Lead and Lead (Pb)-free Finish</b>	Hot solder dip

<b>ORDERING INFORMATION CHECK LIST</b>	
Special requirements should be identified in advance, but as a minimum, you should have the following information ready.	
ELECTRICAL	MECHANICAL
<ol style="list-style-type: none"> <li>Resistors, by value and tolerance</li> <li>Reference resistor(s) and matching of which resistors to which reference resistors</li> <li>Resistance by ratio</li> <li>Absolute temperature coefficient of resistivity</li> <li>Temperature tracking of subordinate resistors to reference resistor(s)</li> <li>Maximum operating voltage</li> <li>Resistor power ratings</li> <li>Operating temperature range</li> </ol>	<ol style="list-style-type: none"> <li>Maximum allowable seated height (from PC board to top of network)</li> <li>Special marking concerns</li> <li>Schematic pin out of package</li> <li>Specify if lead (Pb)-free</li> </ol>
For additional assistance refer to Vishay Dale Thin Film's guide to understanding Thin Film precision. Resistor networks or application engineering. All standard products may be ordered directly from Vishay Dale Thin Film.	

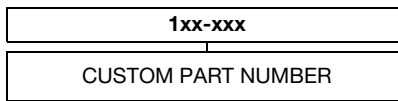


**GLOBAL PART NUMBER INFORMATION**

New Global Part Numbering: HD1xx-xxxUF



Historical Part Number example: 1xx-xxx (for reference purposes only)





## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay 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.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. 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. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.