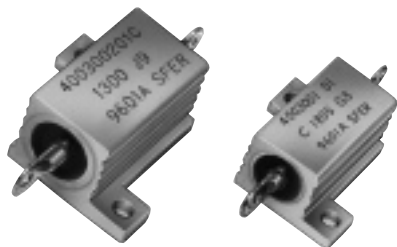




RH HR RER

Mount onto a heatsink
ESA SCC 4003

high reliability wirewound power resistors



Originally developed for space application, these resistors are housed in an aluminium body with a hard anodic coating.

These components are manufactured, selected and tested to ESA SCC 4003 specification.

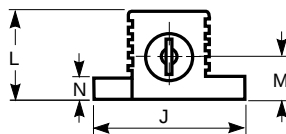
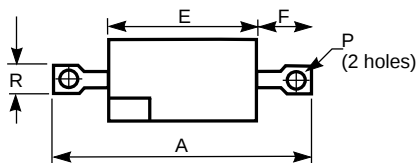
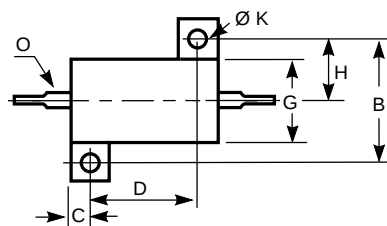
The variants offered differ only by the terminal sizes.

As defined in the ESA SCC specifications two test levels are proposed :

- level B with serialized components,
- level C without serialization.

Table 1

Series Dim.	RH 5 HR				RH 10 HR	
	VARIANT 01		VARIANT 03		VARIANT 01	
	min.	max.	min.	max.	min.	max.
A	27,01	30,15	27,01	30,15	33,36	36,50
B	12,20	12,70	12,20	12,70	15,63	16,13
C	1,19	2,77	1,19	2,77	1,60	3,18
D	11,03	11,23	11,03	11,23	14,02	14,52
E	13,67	16,81	13,67	16,81	17,43	20,62
F	5,19	8,33	5,19	8,33	6,35	9,49
G	6,91	10,05	6,91	10,05	9,56	12,7
H	5,43	7,01	5,43	7,01	7,13	8,71
J	15,62	17,20	15,62	17,20	19,83	21,41
ØK	2,23	2,49	2,23	2,49	2,26	2,52
L	7,34	8,92	7,34	8,92	9,52	11,10
M	1,81	4,95	1,81	4,95	3,59	6,73
N	0,86	2,44	0,86	2,44	1,60	3,18
ØP	1,14	1,40	2,03	2,29	2,03	2,29
Q	1,20	1,40	1,95	2,15	1,95	2,15
R	2,16	–	3,56	–	3,56	–



Dimensions in mm

Fig. 1

SPECIFICATIONS

Table 2

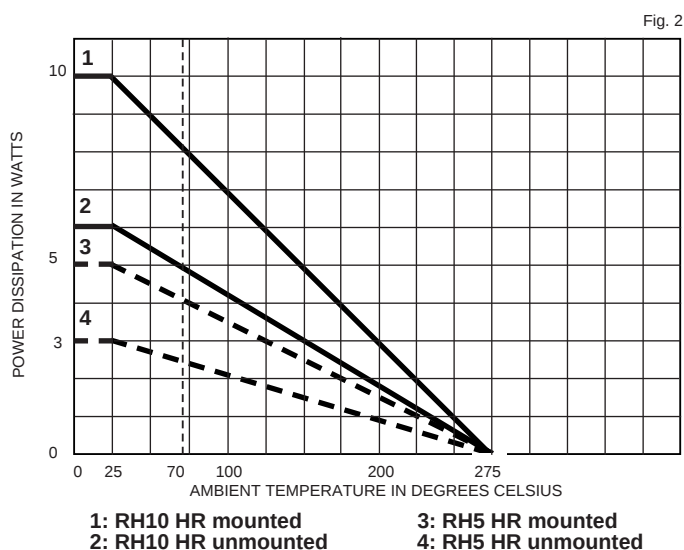
SFERNICE DESIGNATION		RH 5 HR		RH 10 HR	
ESA DESIGNATION		RER 60		RER 65	
ESA SPECIFICATION APPLIED		4003/001		4003/002	
POWER RATING AT	+70°C	4 W mounted	2,4 W unmounted	8 W mounted	4,8 W unmounted
	+25°C	5 W mounted	3 W unmounted	10 W mounted	6 W unmounted
LIMITING ELEMENT VOLTAGE		160 V		250 V	
TEMPERATURE COEFFICIENT		0,05 Ω ≤ R < 1 Ω 1 Ω ≤ R < 20 Ω R ≥ 20 Ω		±100 ppm/°C ± 50 ppm/°C ± 30 ppm/°C	Code 4 Code 3 Code 9
QUALIFIED OHMIC RANGE		1 Ω to 1 kΩ		1 Ω to 2 kΩ	
TOLERANCE		± 0,5 % to ±1 %			
TEMPERATURE RANGE		−55°C ... +275°C			

PERFORMANCES

Table 3

TESTS	CONDITIONS	LIMIT DRIFTS
INSULATION RESISTANCE	$U_T = 500 \text{ V}$	10 G Ω min.
SOLDERING (thermal shocks)	$T = + 260^\circ\text{C}$ $t < 10 \text{ s}$	$\pm (0,3 + \frac{0,05 \Omega}{R} \times 100) \%$
SHORT TIME OVERLOAD (chassis mounted)	$U = \sqrt{5 \times P_n \times R_n}$ $t + 5 \text{ s}$	$\pm (0,3 + \frac{0,05 \Omega}{R} \times 100) \%$
TERMINAL STRENGTH	CEI 68-2-21 Tests Ua	$\pm (0,2 + \frac{0,05 \Omega}{R} \times 100) \%$
RAPID TEMPERATURE CHANGE	CEI 68-2-14 5 cycles	$\pm (0,5 + \frac{0,05 \Omega}{R} \times 100) \%$
VIBRATION	CEI 68-2-6 10 / 2000 Hz 20 g	$\pm (0,2 + \frac{0,05 \Omega}{R} \times 100) \%$
CLIMATIC SEQUENCE	SCC 4003 and CEI 68-2- .. -55°C / + 275°C / 5 cycles	$\pm (1 + \frac{0,05 \Omega}{R} \times 100) \%$ Insulation resistance $\geq 10^3 \text{ M}\Omega$
LOAD LIFE	2000 h at rated power at + 25°C, 90' / 30' cycle	$\pm (1 + \frac{0,05 \Omega}{R} \times 100) \%$

POWER RATING CHART



NON INDUCTIVE STYLE

On request, non inductive wiring RH HR can be manufactured (non inductive wiring Ayrton Perry type).
Please, consult SFERNICE for extended range and feasibility.

MARKING

The SCC component number is print marked on the aluminium body. It shows: the number of the detail specification which refers to the generic specification of the resistor, the SCC variant number, the testing level B or C, the ohmic value (4 digit code), the tolerance (letter code) D: $\pm 0,5\%$, F: $\pm 1\%$, G: $\pm 2\%$, J: $\pm 5\%$; the temperature coefficient (1 digit) 9 for $\pm 30 \text{ ppm}/^\circ\text{C}$, 3 for $\pm 50 \text{ ppm}/^\circ\text{C}$ and 4 for $\pm 100 \text{ ppm}/^\circ\text{C}$; the manufacturing date code (4 digits: two for the year and two for the week), the identification lot, the manufacturer logo.

EXTENDED RANGE

Please consult SFERNICE for ohmic values and tolerances outside of the qualified range.

PACKAGING

Resistors are packaged in transparent blister pack:
for RH5 HR type: 20 resistors per blister pack,
for RH10 HR type: 15 resistors per blister pack.
On the blister, information printed is: SFERNICE designation, ESA/SCC detail specification, testing level, ohmic value, tolerance and manufacturing date code.

ORDERING PROCEDURE

SFERNICE SERIES	ESA DESIGNATION	SCC VARIANT	TESTING LEVEL	OHMIC VALUE	TOLERANCE
RH5 HR	4003/001	03	B	100 Ω	$\pm 1\%$