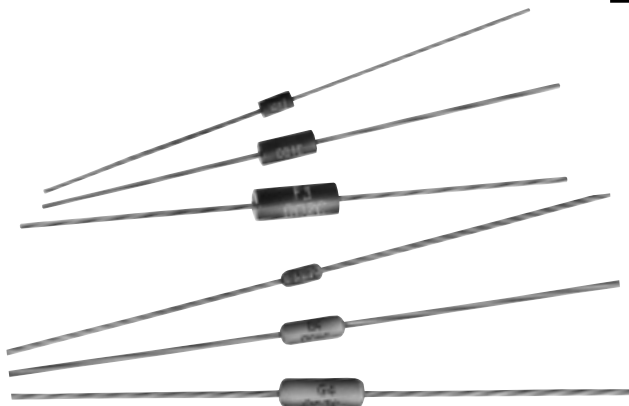




RLR/2H RNC/3H

ESA SCC 4001

high reliability metal film resistors



Originally developed for space application, these resistors are manufactured, selected and tested to ESA SCC 4001 specification.

Two kinds of presentation are offered:

- epoxy coating for the 2 H version,
- molded for the 3 H version.

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

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

RLR / 2H

RNC / 3H

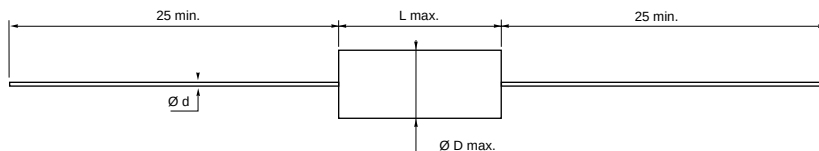


Fig. 1

Table 1

SFERNICE Designation	Ø D max.	L max.	Ø d max.	Max. weight in g
2 H 3	1,8	4,3	0,55	0,25
2 H 4	2,49	7,14	0,69	0,3
2 H 5	4,09	10,57	0,86	0,5

Dimensions in mm

Table 2

SFERNICE Designation	Ø D max.	L max.	Ø d max.	Max. weight in g
3 H 3	2,03	4,32	0,46	0,2
3 H 4	3,56	7,14	0,69	0,3
3 H 5	4,2	11,1	0,69	0,5
3 H 6	6,35	16,67	0,69	1,3

SPECIFICATIONS

Table 3

SFERNICE DESIGNATION	2 H 3	2 H 4	2 H 5
ESA DESIGNATION	RLR 05	RLR 07	RLR 20
ESA SPECIFICATION APPLIED	4001/005	4001/006	4001/007
POWER RATING AT +70°C	0,125 W	0,25 W	0,5 W
LIMITING ELEMENT VOLTAGE	200 V	250 V	350 V
TEMPERATURE COEFFICIENT	±100 ppm/°C		
QUALIFIED OHMIC RANGE	1 Ω to 1 MΩ	1 Ω to 4,7 MΩ	4,22 Ω to 4,7 MΩ
TOLERANCE	± 1%; ± 2%		
TEMPERATURE RANGE	-55°C ... +150°C		

Table 4

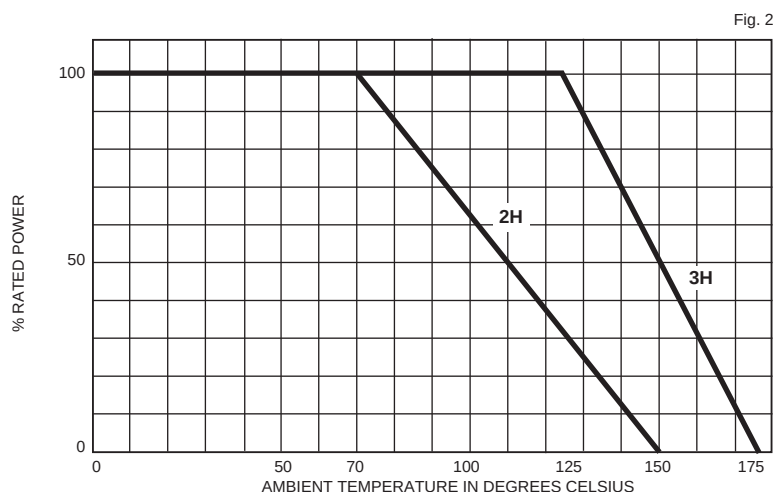
SFERNICE DESIGNATION	3 H 3	3 H 4	3 H 5	3 H 6
ESA DESIGNATION	RNC 50	RNC 55	RNC 60	RNC 65
ESA SPECIFICATION APPLIED	4001/009	4001/001	4001/002	4001/003
POWER RATING AT +125°C	0,05 W	0,1 W	0,125 W	0,25 W
LIMITING ELEMENT VOLTAGE	200 V	200 V	250 V	300 V
OHMIC VALUES VERSUS TEMPERATURE COEFFICIENT	±25 ppm/°C	49,9 Ω to 1 MΩ	10 Ω to 1 MΩ	10 Ω to 1 MΩ
	±50 ppm/°C	1 Ω to 1 MΩ	1 Ω to 4,7 MΩ	4,22 Ω to 4,7 MΩ
TOLERANCE	± 0,5%; ± 1%			
TEMPERATURE RANGE	-55°C ... +175°C			

PERFORMANCES

Table 5

TESTS	CONDITIONS		LIMIT DRIFTS	
	RLR / 2 H	RNC / 3H	RLR / 2H	RNC / 3H
SOLDERING (Thermal shocks)	+ 260°C during 10"	+ 260°C during 10"	$\pm(0,5 + \frac{0,05\Omega \times 100}{R})\%$	$\pm(0,1 + \frac{0,01\Omega \times 100}{R})\%$
TERMINAL STRENGTH	Pulling test CEI 68 - 2 - 21 test Ua		$\pm(0,5 + \frac{0,05\Omega \times 100}{R})\%$	$\pm(0,25 + \frac{0,05\Omega \times 100}{R})\%$
RAPID TEMPERATURE CHANGE	-55°C +150°C 5 cycles CEI 68-2-14 test Na	- 55°C +175°C 5 cycles CEI 68-2-14 test Na	$\pm(0,5 + \frac{0,05\Omega \times 100}{R})\%$	$\pm(0,25 + \frac{0,05\Omega \times 100}{R})\%$
VIBRATION	Frequency range 10 à 2000 Hz amplitude 1,5 mm or 20 g CEI 68-2-6 tests Fc, B4		$\pm(0,5 + \frac{0,05\Omega \times 100}{R})\%$	$\pm(0,25 + \frac{0,05\Omega \times 100}{R})\%$
CLIMATIC SEQUENCE	Phase A : dry heat - Phase B : damp heat 1 cycle Phase C : cold -55°C - Phase D : low air pressure - Phase E : damp heat 5 cycles - Phase F : DC load		$\pm(1 + \frac{0,05\Omega \times 100}{R})\%$ Insulation res.: > 100 MΩ	$\pm(0,5 + \frac{0,05\Omega \times 100}{R})\%$ Insulation res.: > 100 MΩ
LOAD LIFE	2000 h at rated power at +70°C, 90' / 30' cycle	2000 h at rated power at +125°C, 90' / 30' cycle	$\pm(2 + \frac{0,05\Omega \times 100}{R})\%$	$\pm(0,5 + \frac{0,05\Omega \times 100}{R})\%$
HIGH TEMPERATURE EXPOSURE	2000 h no load at +150°C	2000 h no load at +175°C	Insulation resistance: > 1000 MΩ	Insulation resistance: > 1000 MΩ

POWER RATING CHART



MARKING

The SCC component number is print marked and includes:

- The number of the detail specification which refers to the generic specification of the resistor.
- The testing level: B or C.
- The ohmic value: 4 digits for tolerance < ±1% and values series E48, 3 digits code for tolerance ±2%.
- The tolerance letter code :
D: ±0,5 %, F: ±1%, G: ± 2%.
- The temperature coefficient (1digit):
2 for ±25 ppm/°C, 3 for ±50 ppm/°C and
4 for ±100 ppm/°C.

PACKAGING

Resistors are packaged in transparent blister pack. For component level B, 10 resistors per blister. For component level C, 20 resistors per blister. On the blister, information printed is: ESA designation, SFERNICE designation, ESA/ SCC detail specification, testing level, ohmic value, tolerance and manufacturing date code (4 digits), two for the year and two for the week.

EXTENDED OHMIC RANGE

You may consult SFERNICE for ohmic values and tolerances outside the qualified range.

TERMINATIONS

Standard terminations are in tinned copper.

ORDERING PROCEDURE

SERIES	GENERIC and DETAIL SCC REFERENCE ESA	TESTING LEVEL	OHMIC VALUE	TOLERANCE	TEMPERATURE COEFFICIENT
3 H 4	4001/001	B	100 kΩ	± 1%	± 25 ppm/°C