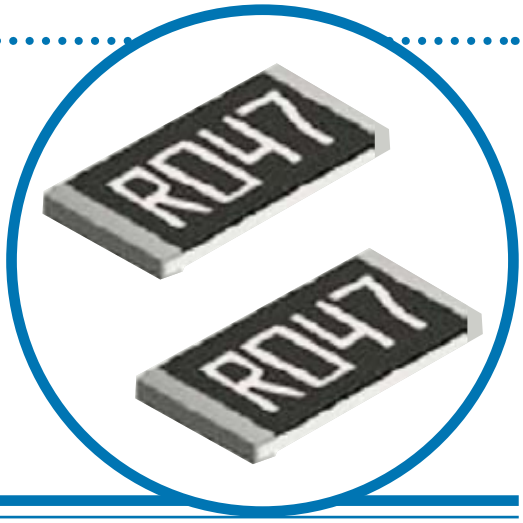
Low Value Current Sense Surface Mount Chip Resistor

LRCS Series

- **0402, 0603 and 0805 sizes (larger sizes refer to our LRF Series)**
- **Resistance R020 (20mΩ) to 1R0 (1000mΩ)**
- **Designed for current sensing in power electronic systems**
- **RoHS compliant**



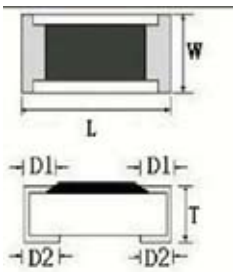
Electrical Data

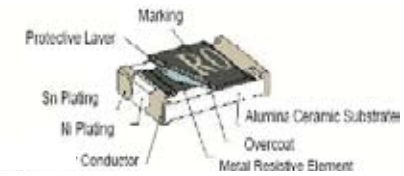
		LRCS0402	LRCS0603	LRCS0805
Power rating @70°C	watts	0.063	0.1	0.125: R02 to <R10 0.25: R10 to 1R0
Resistance range	ohms	R05 to 1R0	R02 to 1R0	R02 to 1R0
Isolation voltage	volts	50V	100V	200V
TCR	ppm/°C	±400: R05 – R10 ±300: R101 – R50 ±200: R501 – 1R0	±600: R02 – R05 ±400: R051 – R10 ±300: R101 – R50 ±200: R501 – 1R0	±600: R02 – R05 ±400: R051 – R10 ±300: R101 – R50 ±200: R501 – 1R0
Resistance tolerance	%	1(F), 5(J)		
Standard values		E24 preferred		
Ambient temperature range	°C	-55 to +155		

Physical Data

	L	W	T	D1	D2	Nom wt. (g)
LRCS0402	1.00 ±0.05	0.50 ±0.10	0.32 ±0.10	0.25 ±0.10	0.20 ±0.10	0.0007
LRCS0603	1.60 ±0.10	0.80 ±0.10	0.45 ±0.10	0.30 ±0.20	0.30 ±0.20	0.002
LRCS0805	2.00 ±0.15	1.25 ±0.15	0.55 ±0.10	0.30 ±0.20	0.40 ±0.25	0.005

All dimensions in mm unless stated.





Construction

A resistor element is applied to an alumina substrate. The product is adjusted to value and protected. Marking is applied to 0603 and 0805 sizes. A wraparound conductor is applied to join the top and bottom sides. The terminations are electroplated with a Ni barrier layer prior to plating with a Sn finish.

Solvent Resistance

The body protection and marking are resistant to all normal industrial solvents suitable for printed circuits.

Flammability

The resistor will not burn or emit incandescent particles under any condition of applied temperature or overload.

Solderability

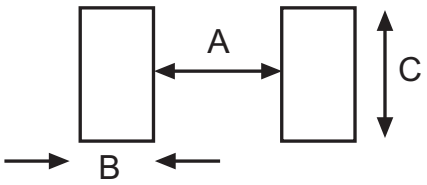
95% min coverage (MIL-STD 202F / 208H, 235C 2 secs)

Marking

The LRCS0402 is not marked, the LRCS0603 is marked with 3 digits and LRCS0805 with 4 digits.
e.g. 100mΩ is marked as R10 (3digit) and R100 (4digit) and 35 mΩ is marked as 035 (3digit) or R035 (4digit)

Mounting

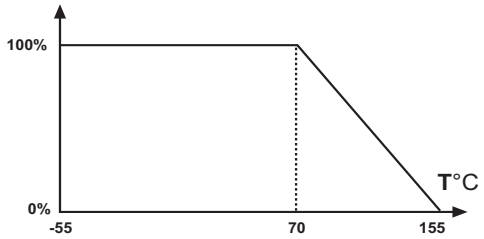
Type	A	B	C
LRCS0402	0.6	0.4	0.50±0.2
LRCS0603	1.0	0.7	1.00±0.2
LRCS0805	1.0	0.8	1.30±0.2



Performance Data

		Maximum
Load at rated power (1000hrs cyclic load at 70°C)	ΔR%	±1% + 0.05Ω
De-rating from rated power at 70°C		See Graph
Short term overload (6.25 x rated power for 5s)	ΔR%	±0.5% + 0.05Ω ±1% + 0.05Ω(0.25W LRCS0805 rating)
Dry heat (96Hrs, no load, +155°C)	ΔR%	±0.5% + 0.05Ω
Temperature rapid change (-55 / +150°C, 100 cycles)	ΔR%	±0.5% + 0.05Ω
Damp heat steady state	ΔR%	±0.5% + 0.05Ω
Resistance to solder heat (260°C for 10s)	ΔR%	±0.5% + 0.05Ω
Low Temperature Operation	ΔR%	±0.5% + 0.05Ω
Insulation Resistance		>1000MΩ

Power de-rating graph



Packaging

The standard packing for LRCS parts is on 8mm wide paper tape wound on 178mm diameter reels.

Ordering Procedure

Example: LRCS0603 at 25 milliohms and 1% tolerance on reel of 5000 pieces: **LRCS0603 – R025 F T5**

Type

Value (use IEC62 code)

Tolerance (use IEC62 code)

F	1%
J	5%

Packing

T10	Tape	0402	10,000 / reel
T5	Tape	0603	5,000 / reel
T5	Tape	0805	5,000 / reel