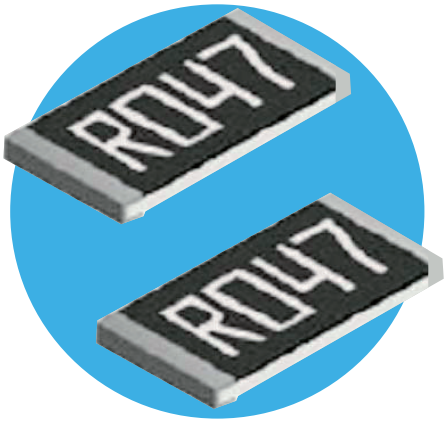
Resistors

Low Value Current Sense Surface Mount Chip Resistors

LRCS / LVC 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



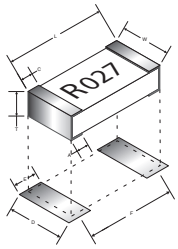
All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

		LRCS/LVC0402	LRCS/LVC0603	LRCS/LVC0805
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

Dimensions (mm) & weight (mg)									
	L	W	T	C	A	Weight	D	E	F
LRCS/LVC 0402	1 ±0.05	0.5 ±0.05	0.32 ±0.10	0.25 ±0.10	0.2 ±0.10	0.7	0.65	0.65	0.9
LRCS/LVC 0603	1.6 ±0.10	0.8 ±0.10	0.45 ±0.10	0.3 ±0.20	0.3 ±0.20	2.0	1	0.9	1.6
LRCS/LVC 0805	2 ±0.15	1.25 ±0.15	0.55 ±0.10	0.3 ±0.20	0.4 ±0.25	5.3	1.4	0.95	2



Construction
A resistor element is applied to an alumina substrate. The product is adjusted to the 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)

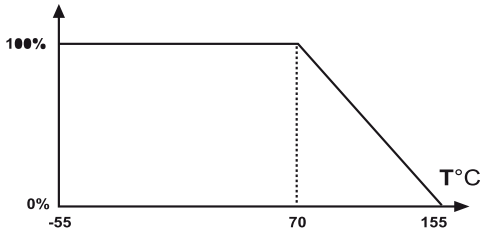
Marking

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 35mΩ is marked as 035 (3digit) or R035 (4digit)

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 (100V, 60s)		>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

This product has two valid part numbers:

European (Welwyn) Part Number: LRCS0603-R027FT5 (0603, 27 milliohms ±1%, Pb-free)

L	R	C	S	0	6	0	3	-	R	0	2	7	F	T	5
1				2					3				4	5	

1 Type	2 Size	3 Value	4 Tolerance	5 Packing		
LRCS	0402	E24 = 3/4 characters R = ohms	F = ±1%	Tape & reel		
	0603		J = ±5%	T10	0402	10,000/reel
	0805			T5	0603, 0805	5000/reel

USA (IRC) Part Number: LVC-LVC0603LF-R027-F (0603, 27 milliohms ±1%, Pb-free)

L	V	C	-	L	V	C	0	6	0	3	L	F	-	R	0	2	7	-	F
1				2			3				4			5					6

1 Family	2 Model	3 Size	4 Termination	5 Value	6 Tolerance	Packing	
LVC	LVC	0402	LF = Pb-free	E24 = 3/4 characters R = ohms	F = ±1%	Tape & reel	
		0603			J = ±5%	0402	10,000/reel
		0805				0603, 0805	5000/reel