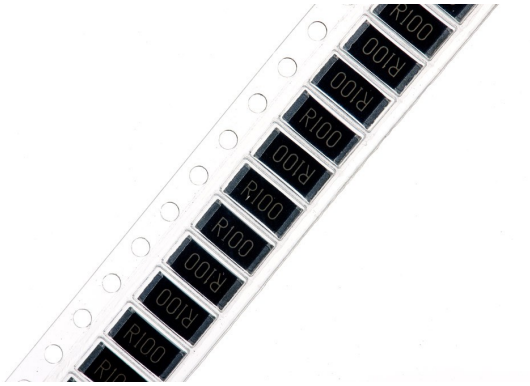
Low Value Current Sense Surface Mount Chip Resistors

LRCS Series



Features:

- 0402, 0603 & 0805 sizes*
- Resistance from R02 to 1R0
- Compact current sensing

* For larger sizes see LR Series

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

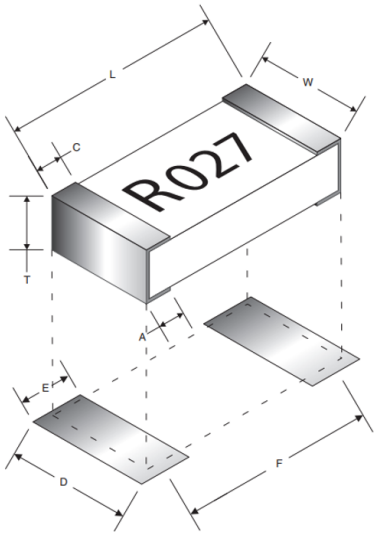
Electrical Data

		LRCS0402	LRCS0603	LRCS0805
Legacy type		LVC0402	LVC0603	LVC0805
Power rating @70°C	W	0.063	0.1	<R10: 0.125, ≥R10: 0.25
Resistance range	ohms	R05 - 1R0	R02 – 1R0	
Resistance tolerance	%	1, 5		
TCR	ppm/°C	≤R10: 400, >R10 – R50: 300, >R50: 200	≤R05: 600, >R05 - R10: 400, >R10 – R50: 300, >R50: 200	
Isolation voltage	V	50	100	200
Standard values		E24 preferred		
Ambient temperature range	°C	-55 to 155		

Physical Data

Dimensions in mm and weight in mg Tolerances ±0.1 unless stated

Type	L	W	T	C	A	Wt.	D	E	F
LRCS0402	1 ±0.05	0.5 ±0.05	0.32	0.25	0.2	0.7	0.65		0.9
LRCS0603	1.6	0.8	0.45	0.3 ±0.2	0.3 ±0.2	2	1	0.9	1.6
LRCS0805	2 ±0.15	1.25 ±0.15	0.55		0.4 ±0.25	5.3	1.4	0.95	2



Construction

A thick film 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.

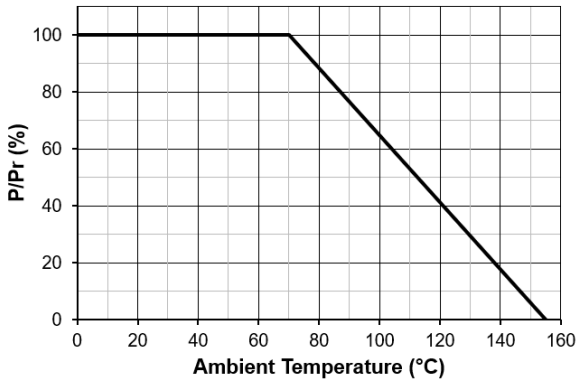
Marking

LRCS0402 is not marked, LRCS0603 is marked with 3 characters and LRCS0805 with 4 characters. E.g. 100mΩ is marked as R10 (3-character) and R100 (4-character) and 35mΩ is marked as 035 (3-character) or R035 (4-character).

Performance Data

		Maximum (+R05)
Load at rated power: P_r for 1000 hours at 70°C	±ΔR%	1
Short term overload: 6.25xP_r for 5s	±ΔR%	0402, 0603 & 0805 <R10: 0.5, 0805 ≥R10: 1
Dry heat: 155°C for 96 hours	±ΔR%	0.5
Temperature rapid change: 100 cycles, -55/150°C	±ΔR%	0.5
Damp heat steady state: 56 days, 40°C, ≥90% RH	±ΔR%	0.5
Resistance to solder heat: 260°C for 10s	±ΔR%	0.5
Low temperature operation	±ΔR%	0.5
Insulation resistance: 100V for 60s		>1G0
Solderability: MIL-STD-202F/208H, 235°C for 2s		≥95% coverage

Temperature Derating



Packaging

The standard packing for LRCS parts is on 8mm wide paper tape wound on 178mm diameter reels. For dimensional details see https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Application-Note/PS001-Packing-of-General-Purpose-Chip-Resistors.pdf.

Ordering Procedure

Global Part Number Example: 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	F = ±1%	T10	0402	10,000/reel
	0603	R = ohms	J = ±5%	T5	0603, 0805	5000/reel
	0805					

Legacy Part Numbers

This product has a legacy part number format. This is still available for ordering, but for new designs use of the Global Part Number is recommended.

Legacy Part Number Example: 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 = 4 characters R = ohms	F = ±1%	0402	10,000/reel
		0603			J = ±5%	0603, 0805	5000/reel
		0805					