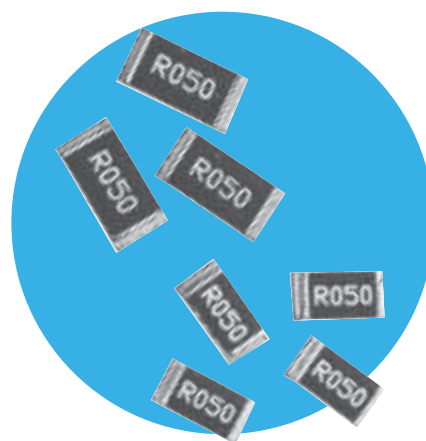


Low Value Flat Chip Resistor

LR Series

- Standard 2512, 2010 and 1206 sizes
- Resistance values down to 0.003 ohms
- Leach resistant solder-plated copper wrap-around termination
- AEC-Q200 Qualified
- RoHS compliant and SnPb variants



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

Electrical Data

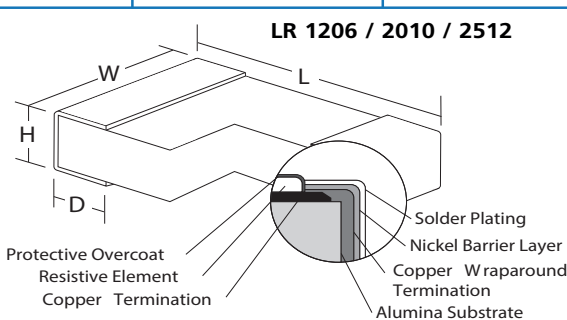
		LR(F)1206	LR(F)2010	LR(F)2512
Power rating @70°C	watts	0.5	1	2
Resistance range ¹	ohms	R003 to 1R0		
Resistance tolerance ¹	%	<R01: 5, ≥R01: 1, 2, 5		
TCR	ppm/°C	≥R05: ±100, R025–R047: <+200, R015–R024: <+300, R01–R014: <+500, <R01: <+900		
Dielectric withstand	volts	200		
Ambient temperature range	°C	-55 to +150		
Values		E24 preferred ²		
Temperature rise at rated power	°C	40	80	90
Pad / trace area ³	mm ²	30	100	300

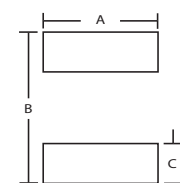
Note 1: Contact factory for value – tolerance combinations outside this range. Note 2: Many values = N x R001 and N x R005 up to N=10 are also available. Note 3: Recommended minimum pad & adjacent trace area for each termination for rated dissipation on FR4 PCB

Physical Data

Dimensions (mm)				
Size	L	W	H (max)	D
LR(F)1206	3.20±0.305	1.63±0.20	0.8	0.48±0.25
LR(F)2010	5.23±0.38	2.64±0.25	0.84	0.48±0.25
LR(F)2512	6.50±0.38	3.25±0.25	0.84	0.48±0.25

LR 1206 / 2010 / 2512



Recommended Solder Pad Dimensions (mm)				
	A	B	C	
LR(F)1206	2.0	4.0	1.25	
LR(F)2010	3.05	6.5	1.5	
LR(F)2512	3.7	7.75	1.5	

General Note

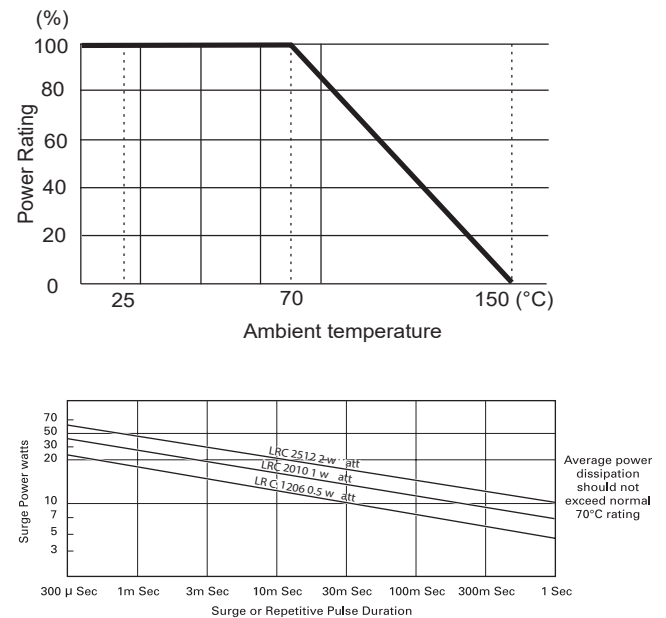
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Performance Data

AEC-Q200 Table 7		Method	Max. (add R05)	Typ. (@1R0)
ref	Test			
3	High Temp. Exposure	MIL-STD-202 Method 108	$\Delta R\%$ 0.5	0.2
4	Temperature Cycling	JESD22 Method JA-104	$\Delta R\%$ 0.25	0.1
6	Moisture Resistance	MIL-STD-202 Method 106	$\Delta R\%$ 0.5	0.2
7	Biased Humidity	MIL-STD-202 Method 103	$\Delta R\%$ 0.5	0.2
8	Operational Life (Cyclic Load)	MIL-STD-202 Method 108	$\Delta R\%$ 1	0.5
14	Vibration	MIL-STD-202 Method 204	$\Delta R\%$ 0.5	0.05
15	Resistance to Soldering Heat	MIL-STD-202 Method 210	$\Delta R\%$ 0.25	0.05
16	Thermal Shock	MIL-STD-202 Method 107	$\Delta R\%$ 0.25	0.1
18	Solderability	J-STD-002	>95% coverage	
21	Board Flex	AEC-Q200-005	$\Delta R\%$ 0.5	0.2
22	Terminal Strength	AEC-Q200-006	$\Delta R\%$ 0.25	0.1
Short Term Overload		6.25 x Pr for 2s	$\Delta R\%$ 0.5	
Low Temperature Storage		-65°C for 100 hours	$\Delta R\%$ 0.5	
Leach Resistance		Solder dip at 250°C	90s minimum	



Note:

1. Although 2010 and 2512 sizes have passed temperature cycling and thermal shock, it is in general not recommended that ceramic chips this large be used on FR4 in a severe temperature cycle environment due to the possibility of solder joint fatigue.

Full AEC-Q200 qualification applies only to ohmic values $\geq R01$.

Ordering Procedure

This product has two valid part numbers:

European (Welwyn) Part Number: LRF1206-R02FW (1206, 20 milliohms $\pm 1\%$, Pb-free)

L	R	F	1	2	0	6	-	R	0	2	F	W
1			2			3			4			5

1 Type	2 Size	3 Value	4 Tolerance	5 Termination & Packing
LR = Conventional orientation (values $\geq R025$)	1206 2010	E24 = 3/4 characters R = ohms	F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$	W Pb-free, standard packing T1 Pb-free, 1000/reel (non-standard) PB SnPb finish, standard packing
LRF = Flip-chip orientation (values $\leq R025$)	2512			Standard packing is tape & reel 1206 & 2010 3000/reel 2512 1800/reel

USA (IRC) Part Number: LRC-LRF1206LF-01-R020-F (1206, 20 milliohms $\pm 1\%$, Pb-free)

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

1 Family	2 Model	3 Size	4 Termination	5 TCR	6 Value	7 Tolerance	Packing		
LRC	LR = Conventional orientation (values $\geq R025$)	1206 2010	Omit for SnPb LF = Pb-free	01 = standard ($\pm 100\text{ppm}/^\circ\text{C}$ values $\geq R05$)	4 characters R = ohms	F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$	Standard packing is tape & reel		
	LRF = Flip-chip orientation (values $\leq R025$)	2512					Pb-free	All sizes	1000/reel
							SnPb	1206 & 2010	3000/reel
								2512	1800/reel

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