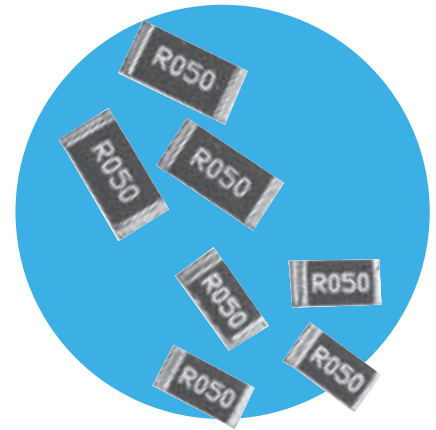


## Low Value Flat Chip Resistor

### 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 (RoHS2)

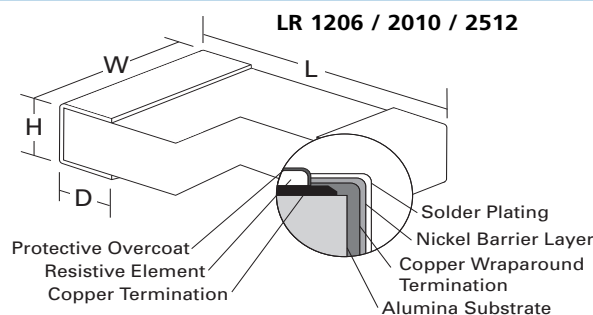
### Electrical Data

		LR1206	LR2010	LR2512
Power rating @70°C	watts	0.5	1	2
Resistance range <sup>1</sup>	ohms	R003 to 1R0		
Resistance tolerance <sup>1</sup>	%	<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 <sup>2</sup>		
Temperature rise at rated power	°C	40	80	90
Pad / trace area <sup>3</sup>	mm <sup>2</sup>	30	100	300

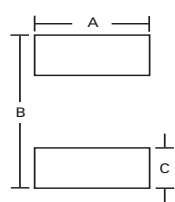
Note 1: Contact factory for value – tolerance combinations outside this range. Note 2: Many values = N x R001 and N x R005 up to N=10 are also available. Note 3: Recommended minimum pad & adjacent trace area for each termination for rated dissipation on FR4 PCB

### Physical Data

Dimensions (mm)				
Size	L	W	H (max)	D
LR1206	3.20±0.305	1.63±0.20	0.8	0.48±0.25
LR2010	5.23±0.38	2.64±0.25	0.84	0.48±0.25
LR2512	6.50±0.38	3.25±0.25	0.84	0.48±0.25



Recommended Solder Pad Dimensions (mm)			
	A	B	C
LR1206	2.0	4.0	1.25
LR2010	3.05	6.5	1.5
LR2512	3.7	7.75	1.5

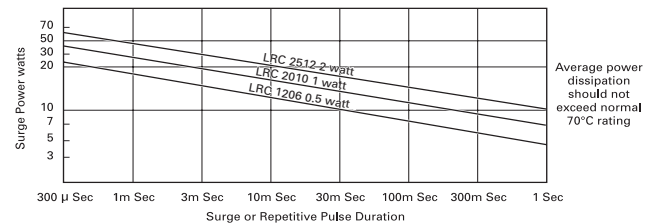
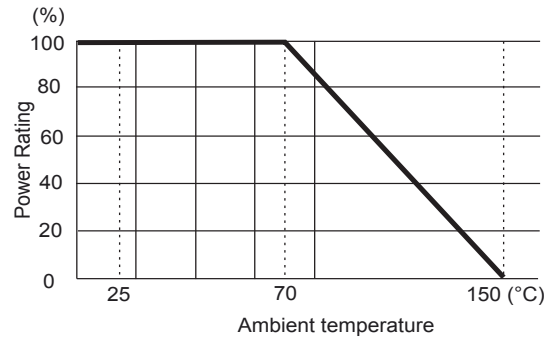


#### General Note

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LR Series

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



Note:

- 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 European Part Numbers at ohmic values ≥R01.

## Ordering Procedure

This product has two valid part numbers:

**European (Welwyn) Part Number: LRF1206-R02FW** (1206, 20 milliohms ±1%, Pb-free)

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

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

**USA (IRC) Part Number: LRC-LRF1206LF-01-R020-F** (1206, 20 milliohms ±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	2	3	4	5	6	7	Packing		
Family	Model	Size	Termination	TCR	Value	Tolerance			
LRC	LR = Conventional orientation (values >R025)	1206 2010	Omit for SnPb LF = Pb-free	01 = standard (±100ppm/°C values ≥R05)	4 characters R = ohms	F = ±1% G = ±2%	Standard packing is tape & reel		
	LRF = Flip-chip orientation (values ≤R025)	2512				J = ±5%	1206 & 2010	3000/reel	Standard
							2512	1800/reel	Non-standard
								1000/reel	

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