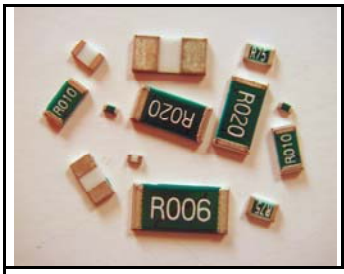
Thin Film Technology Corp.

Product Family: Current Sense Chip Resistor (Thin Film)

Part Number Series: RL Series



Construction:

- High Purity Alumina Substrate
- Thin-film resistive element
- Wrap around electrodes
- 100% matte tin over Ni terminations (RoHS compliant and Pb Free)

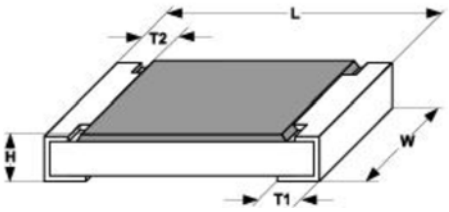
Features:

- 0402, 0603, 0805, 1206, 2010 and 2512 English sizes
- Tolerances down to 0.5%
- Resistance down to 10mΩ available
- High volume production suitable for commercial and special applications

Description:

These thin film low resistance chip resistors exhibit excellent performance in resistance, noise performance, surface heat distribution and a lower surface temperature. Useful in many current sensing applications. Available in power ratings of 1/8, 1/6, 1/4, 1/3, 1/2, 3/4 and 1 watt.

Product Dimensions:



Dimension	Resistance	L	W	H	T1	T2
RL0510 (0402)	R > 0.2Ω	0.039 ±0.002	0.020 ±0.002	0.014 ±0.004	0.010 ±0.004	0.006 ±0.004
	R ≤ 0.2Ω (Note 1)			0.014 +0.006 / -0.004	0.006 ±0.004	
RL0816 (0603)	R > 0.091Ω	0.063 ±0.004	0.032 ±0.004	0.018 ±0.004	0.010 ±0.008	0.008 ±0.006
	R ≤ 0.082Ω (Note 1)			0.018 +0.006 / -0.004	0.008 ±0.006	
RL1220 (0805)	R > 0.075Ω	0.079 ±0.008	0.049 ±0.008	0.016 ±0.004	0.016 ±0.008	0.016 ±0.008
	R ≤ 0.068Ω (Note 1)			0.016 +0.006 / -0.004		
RL1632 (1206)	All R values	0.126 ±0.008	0.063 ±0.008	0.020 ±0.006	0.039 ±0.006	0.020 ±0.008
RL2550 (2010)	All R values	0.197 ±0.008	0.098 ±0.008	0.020 ±0.006	0.067 ±0.006	0.067 ±0.008
RL3264 (2512)	All R values	0.252 ±0.008	0.126 ±0.008	0.020 ±0.006	0.079 ±0.006	0.082 ±0.008

Notes: All dimensions are shown in inches, but use metric size when ordering as shown in the part numbering section. English case sizes are shown in parenthesis.

Note 1: The resistive element is on both sides of the product.

Part Numbering: Ex: RL1220S1R0F-* (refer to table on following page for part numbering system for RL0816 Jumper Chip)

Product Designator	Metric Size W x L	Temp. Coefficient of Resistance (TCR)	Resistance Value	Resistance Tolerance
RL	0510 0816 1220 1632 2550 3264	±100ppm/°C (R) ±200ppm/°C (S) ±350ppm/°C (T) ±500ppm/°C (T)	For 1632, 2550 & 3264 sizes, use 4 digit code for all values. For all other sizes, use 3 digit code for values of 1Ω or greater and 4 digit code for values of less than 1Ω. "R" denotes decimal position as necessary	±0.5% (D) ±1.0% (F) ±2.0% (G) ±5.0% (J)

* Note : All part numbers will automatically have a "-C" or a "-LF" appended to the end of them to indicate RoHS compliance/Pb Free (RoHS 6/6). The RL1632, RL2550 and RL3264 will use the "-LF" and all other part sizes will use the "-C". This will be automatically assigned by TFT. This part series is no longer available in non-RoHS.

Examples:

Part Number	Size (English)	TCR	Resistance (ohms)	Tolerance
RL0816SR091G	0816 (0603)	±200ppm/°C (S)	0.091 (R091) <1Ω = 4 digit	±2.0% (G)
RL1220S3R3F	1220 (0805)	±200ppm/°C (S)	3.3 (3R3) 1Ω or greater = 3 digit	±1.0% (F)

Electrical Specifications:

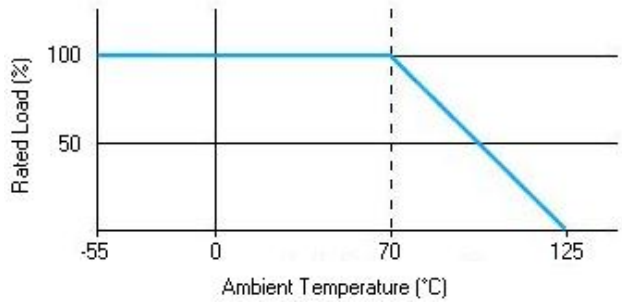
Type	RL0510 (Old RP1005 included)			RL0816 (Old RP1608 included) Jumper chip also available - see below			RL1220 (Old RP2012 included)			
English Size	0402			0603			0805			
Power	1/8 Watt	1/6 Watt		1/4 Watt	1/5 Watt		1/4 Watt		1/3 Watt	
Tolerance% (code)	±1.0(F) ±2.0(G)	±0.5(D) (note 1) ±1.0(F) ±2.0(G)	±1.0(F) ±2.0(G) ±5.0(J)	±1.0(F) ±2.0(G) ±5.0(J)	±1.0(F)	±1.0(F) ±2.0(G) ±5.0(J)	±1.0(F) ±2.0(G) ±5.0(J)			
Resistance Range (Ω)	0.05~0.091	0.1~4.7	5.1~47	0.01~0.091	0.1~6.8	7.5~68	0.01~0.039	0.043~0.091	0.1~10	11~100
Resistance Offering	E-24 Values									
TCR ppm/°C	0~350	0~200		0~200 0~350	0~100 0~200	0~200	0~350	0~200 0~350	0~100 0~200	0~200
Operating Temp. Range	-55°C ~ 125°C									
Rated Voltage	√Power x Resistance									
Packaging	10,000 pcs/reel			5,000 pcs/reel						

Type	RL1632				RL2550				RL3264				
English Size	1206				2010				2512				
Power	1/2 Watt				3/4 Watt				1 Watt				
Tolerance% (code)	±2.0 (G)		±1.0 (F) ±2.0(G)	±0.5(D) ±1.0(F)	±2.0(G)		±1.0(F) ±2.0(G)	±0.5(D) ±1.0(F)	±2.0(G)		±1.0(F) ±2.0(G)	±0.5(D) ±1.0(F)	
Resistance Range (Ω)	0.010~ 0.016	0.018~ 0.025	0.027~ 0.030	0.033~ 0.047	0.050~ 4.7	0.010~ 0.015	0.018~ 0.025	0.027	0.033~ 0.047	0.050~ 4.7	0.010~ 0.015	0.018~ 0.025	0.027	0.033~ 0.047	0.050~ 4.7
Resistance Offering	E-24 Values (plus 25mΩ, 40mΩ, 50mΩ, 250mΩ, 500mΩ)					E-12 Values (plus 25mΩ, 40mΩ, 50mΩ, 250mΩ, 500mΩ)					E-12 Values (plus 25mΩ, 40mΩ, 50mΩ, 250mΩ)				
TCR ppm/°C	0~500	0~350		0~200	0~100 (note 2)	0~500	0~350		0~200	0~100	0~500	0~350		0~200	0~100
Operating Temp. Range	-55°C ~ 125°C														
Rated Voltage	√Power x Resistance														
Packaging	1,000pcs/reel or 5,000pcs/reel														

Notes: 1) Consult factory for availability of 0.5% tolerance for products in this resistance range
2) Consult factory for tighter TCR offering down to 75ppm/°C for resistance values between 0.510Ω and 4.7Ω

Type	RL0816 Jumper Chip
English Size	0603
Resistance @ 0°C	< 10 milliohms
Current Rating	3.5 amps Max.
Power Rating @70°C	1/16 Watt
Operating Temp. Range	-40°C ~ 125°C
Packaging	5,000 pcs/reel
Part number for Ordering	RL0816-JMP

Power Derating Curve:



Reliability Specifications:

Test	Test Method	Specification
Short Time Overload	Applied voltage: 2.5X rated voltage or 2X maximum operating voltage, whichever is less. Test duration: 5 seconds	±0.5% +0.05Ω
Load Life	Test Temperature: 70°C Applied voltage: rated voltage Test period: 1000 hours with power cycling as follows: 90 min. power ON/30 min. power OFF,	±0.5% +0.05Ω
Moisture Load Life	Test Condition: 60°C/95% RH Applied voltage: rated voltage Test period: 1000 hours with power cycling as follows: 90 min. power ON/30 min. power OFF	±0.5% +0.05Ω
Temperature Cycle	Repeat 5 cycles as follows: -55°C(30 min.) / Room temp (2 min) / +125°C(30 min.) / Room temp (2 min)	±0.5% +0.05Ω