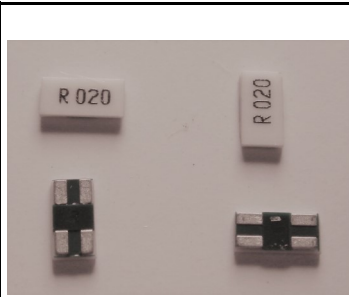




Product Family: [Current Sense Chip Resistor \(4 Terminal\)](#)

Part Number Series: [WRL-L4 Series](#)



Construction:

- 4-terminals, separate voltage and current terminals
- High Purity Alumina Substrate
- Wrap around electrodes
- AEC-Q200 qualified
- Anti-sulfur
- 100% matte tin over Ni terminations (RoHS compliant and Pb Free)

Features:

- 1206, 2010 and 2512 English sizes
- Power ratings of 1/2W, 3/4W and 1W
- Tolerances down to 0.5%
- Resistance down to 3mΩ
- High sensing accuracy

Description:

These four-terminal, low resistance chip resistors are of superior quality and provide separate voltage and current terminals for high precision, reliability and at a great price. Constructed with a bottom side element to reduce any terminal parasitics and better accuracy versus top side element competitors. The resistive foil element used is a proprietary alloy of Nickel and Copper making it impervious to environmental conditions as the element is anti-corrosive and anti-sulfur. This element exhibits ultra load life stability over time and industry leading heat dissipation making it suitable for automotive, battery pack or harsh environment use as the derating covers the -55°C to +155°C.

Product Dimensions and Schematic:

V=Voltage Terminal
I=Current Terminal

Dimension	L	W	T	A	B
WRL1206	0.126 ±0.008	0.063 ±0.008	0.024 ±0.008	0.039 ±0.008	0.022 ±0.008
WRL2010	0.197 ±0.008	0.098 ±0.008	0.020 ±0.006	0.067 ±0.008	0.035 ±0.008
WRL2512	0.252 ±0.008	0.126 ±0.008	0.020 ±0.006	0.083 ±0.008	0.047 ±0.008

Note: All case sizes and dimensions are shown in inches.

Part Numbering: Ex: WRL1206L4R010F-*

Product Designator	English size	4 Terminal Indicator	Resistance Value	Resistance Tolerance	Automotive Grade
WRL	1206 2010 2512	L4	Use 4 digit code for all values. "R" denotes decimal position.	±0.5% (D) ±1.0% (F)	A= Automotive AEC-Q200 Leave Blank for Non AEC-Q200

* Note : All part numbers will automatically have a "-T#-LF" appended to the end of them. The "-T#" indicates the taped quantity per reel and will be assigned by us based on the quantity ordered. The "-LF" is used to indicate RoHS compliance/Pb Free (RoHS 6/6). These parts are no longer available in non-RoHS.

Examples:

Part Number	Product Designator	Size	4 Terminal Indicator	Resistance (milliohms)	Tolerance	Automotive Grade
WRL1206L4R010F*	WRL	1206	L4	R010 (0.010 ohm)	F (±1.0%)	
WRL2010L4R470DA*	WRL	2010	L4	R470 (0.470 ohm)	D (±0.5%)	A
WRL2512L4R005F*	WRL	2512	L4	R005 (0.005 ohm)	F (±1.0%)	

Electrical Specifications:

Type	WRL 1206	WRL2010	WRL2512
English Size	1206	2010	2512
Power	1/2 Watt	3/4 Watt	1 Watt
Tolerance% (code)	±0.5(D) ±1.0(F)		
Resistance Range (mΩ)	10~500mΩ		
Resistance Offering	E-24 Values plus 50mΩ, 500mΩ		
Terminal Resistance	10~47mΩ = ≤5mΩ 50mΩ~500mΩ = ≤20mΩ		
TCR ppm/°C	±50		
Operating Temperature	-55°C to +155°C (refer to derating curve)		
Packaging	5,000 pcs/reel		

Reliability Testing:

Short Time Over Load	P= 2.5Pr ; T=25±2°C , t = 5sec.	±(1.0%+0.5mΩ) IEC60115-1 4.13
High Temp. Exposure	T = +170±2°C ; t = 1000h	±(1.0%+0.5mΩ) IEC60115-1 4.25
Low Temp. Storage	T = -55±2°C ; t = 1000h	±(1.0%+0.5mΩ) IEC60115-1 4.25
Moisture Load Life (60°C、95%RH)	Vtest = Vmax ; T=60±2°C ; RH=95% ; t= 90min ON , 30min OFF , 1000h	±(2.0%+0.5mΩ) IEC60115-1 4.25
Thermal Shock	[-55°C 30min. → R.T. 3min. → +150°C 30min. → R.T. 3min], 100 Cycles	±(1.0%+0.5mΩ) IEC60115-1 4.19
Load Life at 70°C	Vtest = Vmax ; T=70±2°C ;t= 90min ON , 30min OFF,1000h	±(2%+0.5mΩ) IEC60115-1 4.25
Solderability	Dip into solder at T = 245±5°C , t = 3±0.5sec.	The covered area >95% IEC60115-1 4.17
Resistance to Solder Heat	Through Reflow T= 275±5°C , t =20±1sec.	±(1.0%+0.5mΩ) IEC60115-1 4.18
Mechanical Shock	a =100G , t =11ms, 5 times shock	±(1.0%+0.5mΩ) IEC60115-1 4.21
Substrate Bending	Span between fulcrums : 90mm ; Bend Width : 2mm ; Test board Glass-Epoxy Board Thickness =1.6mm	±(1.0%+0.5mΩ) IEC60115-1 4.33

Power Derating Curve: