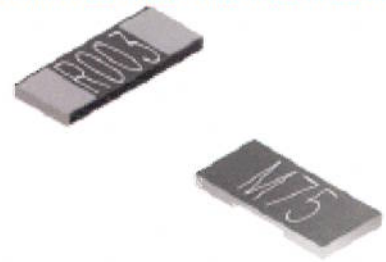


Metal Strip Current Sense Resistors Surface Mount

PROVISIONAL

ULR Series

- ULR1, ULR2, ULR3 all 2512 sizes
- ULR1S 1206 size, ULR15S 2010 size
- Resistance R0005 (0.5mΩ) to R01 (10mΩ)
- Low TCR, Low inductance
- Designed for current sensing in power electronic systems
- RoHS compliant



Electrical Data

		ULR1S	ULR1	ULR15S	ULR2	ULR25	ULR3
Power rating at 80°C	watts	1.0	1.0	1.5	2.0	2.5	3.0
Resistance range ¹	ohms	R001 to R01	R0005 to R01	R001 to R01	R0005 to R01	R0035 to R006	R0005 to R003
Isolation voltage	volts	200V	200V	200V	200V	200V	200V
TCR	ppm/°C	50	50, 75, 100, 150 See table below	50	50	50	50, 75, 100 See table below
Resistance Tolerance	%	1(F), 5(J)					
Protective coating ²		Green	Black	Green	Black/Green	Green	Green
Standard Values		See table below for available values					
Ambient temperature range	°C	-55 to +170					

Note 1: For values above 0R01 refer to our LR / LRF Series

Note 2: Colour of coating relates to solder process suitability, see Construction

Standard values available (non-standard values may be available to order - consult factory)

Value	ULR1S		ULR1		ULR15S		ULR2		ULR25		ULR3	
	Colour	TCR	Colour	TCR	Colour	TCR	Colour	TCR	Colour	TCR	Colour	TCR
R0005			Black	50			Black	50			Green	100
R00075			Black	50			Black	50			Green	100
R001	Green	50	Black	50	Green	50	Black	50			Green	50
R0015	Green	50	Black	50	Green	50	Black	50			Green	50
R002	Green	50	Black	50	Green	50	Black	50			Green	50
R0025	Green	50	Black	150	Green	50					Green	75
R003	Green	50	Black	150	Green	50					Green	75
R0035	Green	50	Black	150	Green	50			Green	50		
R004	Green	50	Black	100	Green	50			Green	50		
R0045	Green	50	Black	100	Green	50			Green	50		
R005	Green	50	Black	100	Green	50			Green	50		
R0055	Green	50	Black	100	Green	50			Green	50		
R006	Green	50	Black	75	Green	50			Green	50		
R007	Green	50	Black	75	Green	50	Green	50				
R008	Green	50			Green	50	Green	50				
R009	Green	50			Green	50	Green	50				
R01	Green	50			Green	50	Green	50				

General Note

Welwyn Components reserves the right to make changes in product specification without notice or liability.
All information is subject to Welwyn's own test data and is considered accurate at time of print.

©Welwyn Components Limited

Welwyn Electronics Park, Bedlington, Northumberland, NE22 7AA, England. Tel: 01670 822181 Fax: 01670 829465 Web: www.welwyn-tt.com

Construction

Black type

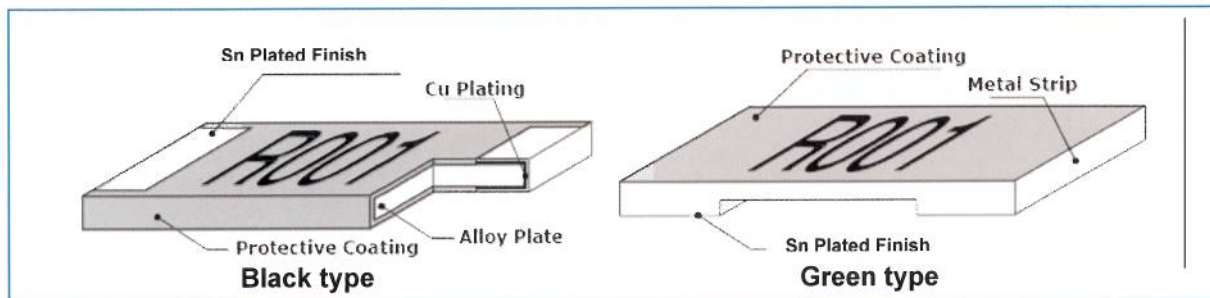
A low TCR resistance alloy plate, with plated connection bands is protectively coated and numerically marked with the resistance value. This part has standard plated end connections and is suitable for wave or IR reflow soldering.

Green type

A low TCR resistance alloy plate is grooved to set the final resistance, the lower faces are solder plated for connections, and it is protectively coated and numerically marked with the resistance value. This part is ONLY suitable for IR reflow soldering.

Marking

For values which are integer numbers of milliohms, the marking is 4-character IEC62 code; e.g. "R002" for 2mΩ, "R010" for 10mΩ. For values including fractions of a milliohm the marking is 3 or 4-character code using "M" to indicate the decimal point, e.g. "M75" for 0.75mΩ, "1M50" for 1.5mΩ.



Termination Details:

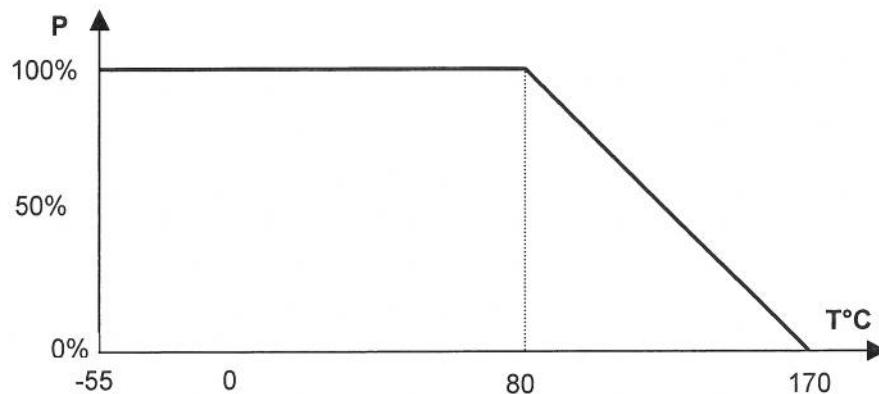
Material Matt tin plated finish over a barrier layer

Solderability 95% min coverage (MIL-STD 202F / 208H, 235°C 2 secs)

Performance Data

		Maximum
Load at rated power (1000hrs cyclic load at 70°C)	$\Delta R\%$	$\pm 1\% + 0.5\text{m}\Omega$ (Black): $\pm 1\%$ (Green)
De-rating from rated power at 80°C		See Graph
Short term overload (5 x rated power for 5s)	$\Delta R\%$	$\pm 0.5\% + 0.5\text{m}\Omega$ (Black): $\pm 1\%$ (Green)
Dry heat (96Hrs, no load, +155°C)	$\Delta R\%$	$\pm 1\% + 0.5\text{m}\Omega$ (Black): $\pm 1\%$ (Green)
Temperature rapid change (-55 / +150°C, 100 cycles)	$\Delta R\%$	$\pm 0.5\% + 0.5\text{m}\Omega$ (Black): $\pm 1\%$ (Green)
Resistance to solder heat (260°C for 10s)	$\Delta R\%$	$\pm 0.5\% + 0.5\text{m}\Omega$ (Black): $\pm 1\%$ (Green)

Power de-rating graph



General Note

Welwyn Components reserves the right to make changes in product specification without notice or liability. All information is subject to Welwyn's own test data and is considered accurate at time of print.

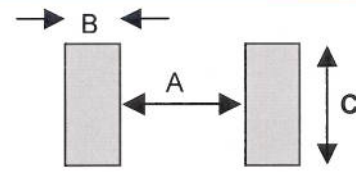
©Welwyn Components Limited

Welwyn Electronics Park, Bedlington, Northumberland, NE22 7AA, England. Tel: 01670 822181 Fax: 01670 829465 Web: www.welwyn-tt.com

Recommended Solder Pad Layout for precision current sensing.

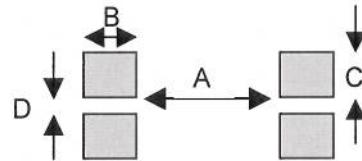
2-wire pad layout.

Mounting Type	A	B	C
2512	4.75	1.8	3.6
2010	3.8	1.44	3.12
1206	2.375	0.9	1.95



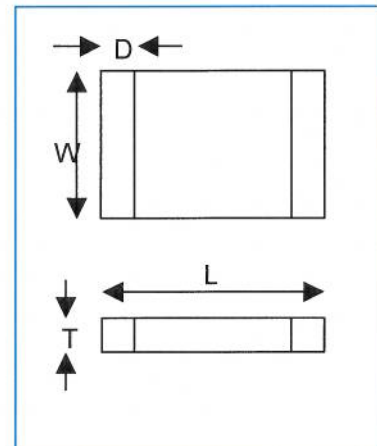
4-wire pad layout.

Mounting Type	A	B	C	D
2512	4.75	1.8	3.6	0.7
2010	3.8	1.44	3.12	1.16
1206	2.375	0.9	1.95	0.725



Dimensions (mm)

Size	Type	Values (mΩ)	L	W	T	D	Nom. Wt. (g)
2512	Green	0.5 mΩ - 0.75mΩ	6.35	3.18	1.00	1.93	0.09
2512	Green	1mΩ - 22mΩ	6.35	3.18	0.60	1.93	0.08
2512	Black	0.5mΩ	6.35	3.18	1.40	1.30	0.06
2512	Black	0.75mΩ	6.35	3.18	1.00	1.30	0.06
2512	Black	1mΩ	6.35	3.18	0.80	1.30	0.06
2512	Black	1.5mΩ	6.35	3.18	0.65	1.30	0.06
2512	Black	2mΩ	6.35	3.18	0.50	1.30	0.06
2512	Black	2.5mΩ	6.35	3.18	1.00	1.30	0.06
2512	Black	3mΩ	6.35	3.18	0.70	1.30	0.06
2512	Black	3.5mΩ	6.35	3.18	0.71	1.30	0.06
2512	Black	4mΩ	6.35	3.18	0.60	1.30	0.06
2512	Black	4.5mΩ	6.35	3.18	0.58	1.30	0.06
2512	Black	5mΩ	6.35	3.18	0.50	1.30	0.06
2512	Black	5.5mΩ	6.35	3.18	0.47	1.30	0.06
2512	Black	6mΩ	6.35	3.18	0.50	1.30	0.06
2512	Black	7mΩ	6.35	3.18	0.45	1.30	0.06
2010	Green	1mΩ - 10mΩ	5.08	2.54	0.6	1.67	TBA
1206	Green	1mΩ - 10mΩ	3.2	1.6	0.6	0.98	TBA



Flammability

The resistor will not burn or emit incandescent particles under any condition of applied temperature or overload.

Solvent resistance

The body protection and marking are resistant to all normal industrial solvents suitable for printed circuits.

Packaging

The standard packing for ULR parts is on a 2000 piece reel of size 12mm tape

General Note

Welwyn Components reserves the right to make changes in product specification without notice or liability. All information is subject to Welwyn's own test data and is considered accurate at time of print.

©Welwyn Components Limited

Welwyn Electronics Park, Bedlington, Northumberland, NE22 7AA, England. Tel: 01670 822181 Fax: 01670 829465 Web: www.welwyn-tt.com

Ordering Procedure

Example: ULR2 at 2.5 milliohms and 1% tolerance on reel of 2000 pieces:

U L R 2 - R 0 0 2 5 F T 2

Type _____

Value (use IEC62 code) _____

Tolerance (use IEC62 code) _____

F	1%
J	5%

Packing _____

T2	Tape	2512	2000 / reel
		2010	
		1206	

General Note

Welwyn Components reserves the right to make changes in product specification without notice or liability.
All information is subject to Welwyn's own test data and is considered accurate at time of print.

©Welwyn Components Limited

Welwyn Electronics Park, Bedlington, Northumberland, NE22 7AA, England. Tel: 01670 822181 Fax: 01670 829465 Web: www.welwyn-tt.com