

Specifications

Products Name	SMT Metal Bulk Current Sensing Chip Resistor
Product Series	WLR series
Classification	Generic specification

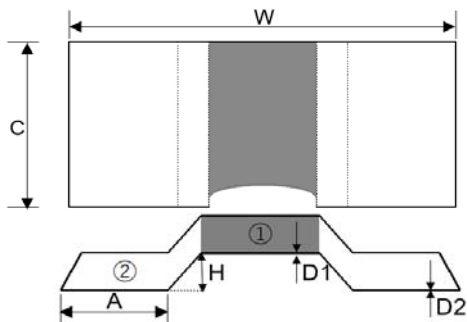
1. Scope

This is applied to WLR series SMT Metal Bulk Current Sensing Chip Resistor with Open Air.

2. Part number

WLR	****	M	****	F
Part Series	Size 6332 10050 15075	Material Properties M: CuMn K: NiCr	Resistance 0M30: 0.3mΩ 0M50: 0.5mΩ R001: 1.0mΩ	Tolerance F: ±1%

3. Structure/Dimension



No.	Sub-part	Material
①	Resistive	NiCr or CuMn Alloy
②	Termination	Cu

*NiCr or CuMn alloy metal plate as resistive trimmed to resistance value with overcoat, having Cu metal terminations welded.

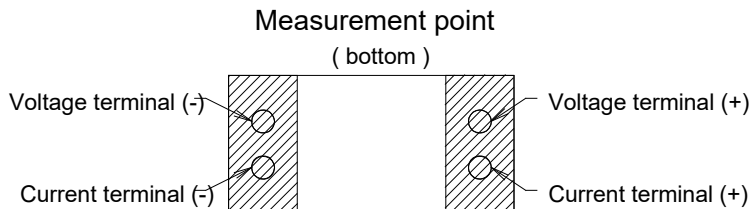
Unit: mm

Type	Resistance(mΩ)	W	C	A	H	D1	D2
WLR6332M	0.3	6.3±0.2	3.1±0.3	1.2±0.2	0.5±0.1	1.50	1.50
	0.5					0.88	0.88
	1					0.50	0.50
WLR6332K	2	6.3±0.2	3.1±0.3	1.2±0.2	0.5±0.1	0.65	0.65
	3					0.43	0.43
	4					0.30	0.30
	5					0.28	0.28
WLR10050M	0.2	10.0±0.2	5.1±0.4	2.2±0.2	0.5±0.1	1.66	1.66
	0.3					1.37	1.37
	0.5					0.83	0.83
	1					0.40	0.40
WLR10050K	1	10.0±0.2	5.1±0.4	2.2±0.2	0.5±0.1	1.16	1.16
	2					0.56	0.56
	3					0.37	0.37
	4					0.28	0.28
	5					0.28	0.28
WLR15075M	0.2	15.0±0.3	7.6±0.4	4.2±0.3	0.5±0.1	1.50	1.50
	0.3					0.98	0.98
	0.5					0.60	0.60
	0.75					0.41	0.41
WLR15075K	1	15.0±0.3	7.6±0.4	4.2±0.3	0.5±0.1	0.86	0.86
	2					0.40	0.40
	3					0.39	0.39

4. Marking

Ex) 0.3mΩ → R0003
 0.5mΩ → R0005
 1.0mΩ → R001

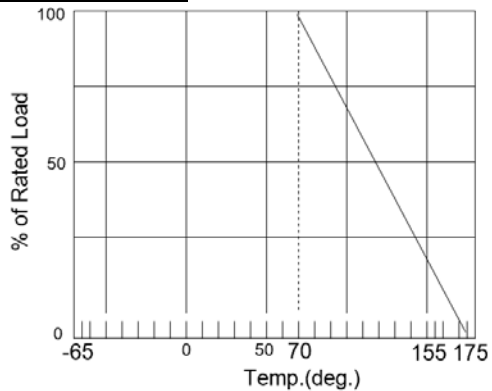
5. Schematic/Probing points
Schematic diagram



6. Parameters

Parameter	Specification
Resistance Value	0.2 to 5mΩ (possible state of Value)
Resistance Tolerance	±1.0% (F)
Inductance	<3nm
Working Voltage	$\sqrt{P \times R}$
Operating Temperature Range	-65 ~ +175°C
Rated Ambient Temperature	+70°C (Derating Curve···Figure-1)

Figure-1 Derating curve



Type	Resistance(mΩ)	Power Rating(W)	TCR(ppm/°C)
WLR6332M	0.3	6	175
	0.5	6	115
	1	5	100
WLR6332K	2	5	50
	3	4	50
	4	3	50
WLR10050M	5	3	50
	0.2	12	200
	0.3	10	150
WLR10050K	0.5	9	70
	1	7	50
	1	8	50
	2	6	50
WLR15075M	3	5	50
	4	5	50
	5	4	50
WLR15075K	0.2	15	100
	0.3	10	100
	0.5	10	75
	0.75	10	75
WLR15075K	1	9	50
	2	7	50
	3	7	50

7. Reliability

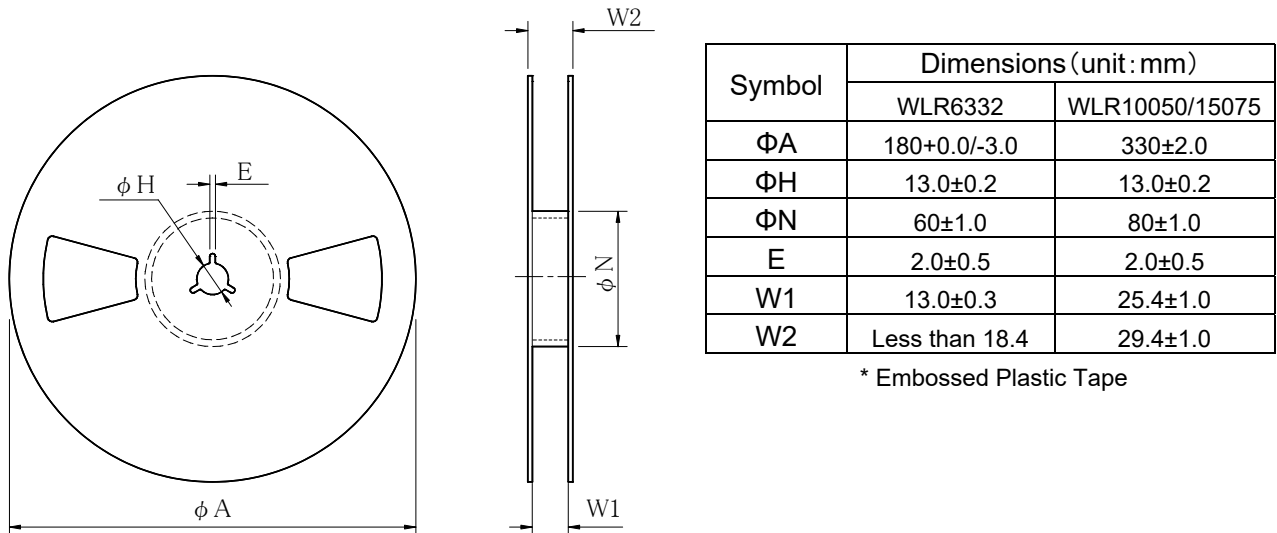
Item	Test Condition	Criteria
Short Time Overload	Prat x 5 times for 5 sec	$\pm(1.0\%+0.0005\Omega)$
Load Life	At $70\pm 3^{\circ}\text{C}$, Prt cycles 90min on and 30 min off 1,000hrs.	$\pm(1.0\%+0.0005\Omega)$
THB test	At $60\pm 2^{\circ}\text{C}$, 90~95%RH, Vrat cycles 90min and 30 off 1,000hrs.	$\pm(2.0\%+0.0005\Omega)$
Thermal Shock	[-55°C30min→RT 3min→ +155°C30min→RT 3min] cycles	100cycles
		1000cycles
Resistance to soldering heat	At $260\pm 5^{\circ}\text{C}$ molten bath, soaked for $10\pm 1\text{sec}$	$\pm(0.5\%+0.0005\Omega)$
Termination Strength	Gap between fulcrums : 90mm Bending Depth : 2mm Test PC board : FR4 t=1.6mm	$\pm(1.0\%+0.0005\Omega)$
Solderability	At $245\pm 5^{\circ}\text{C}$ molten bath, soaked for 3+1/-0sec	Coverage goes 90% area of terminations

8. Packing

Packing quantity

WLR6332	1,000 pieces/180mm reel
WLR10050	2,500 pieces/330mm reel
WLR15075	2,000 pieces/330mm reel

Figure-2 Reel form



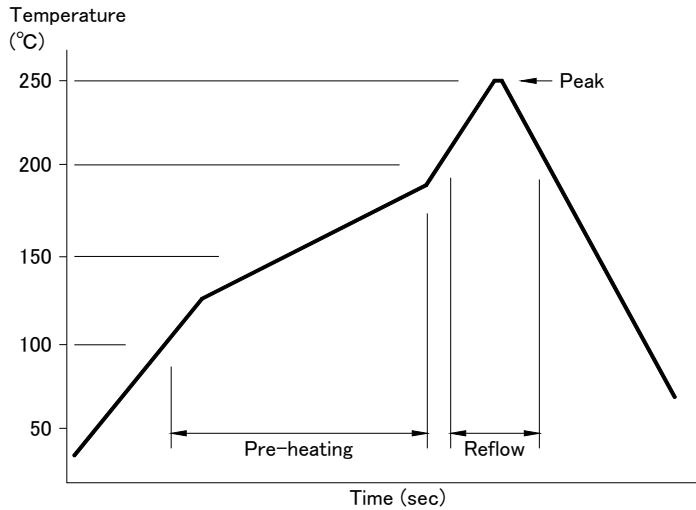
Label contents: The following items shall be printed on the reel label.

Figure-3 Label contents

WLR6332M0M30F	Part number
Q.T.Y 1,000 [PCS]	Quantity for each reel
INSPECTED g	Manufacturing month code
Y.E.D CO.,LTD.	Manufacturer
20101123	Inspection number (Lot number)
MADE IN JAPAN	The country of origin
-----	Double dashed line shows lead free

9. Reflow temperature profile

Twice reflows are allowed by the following temperature profile



Surface temperature of resistance and time

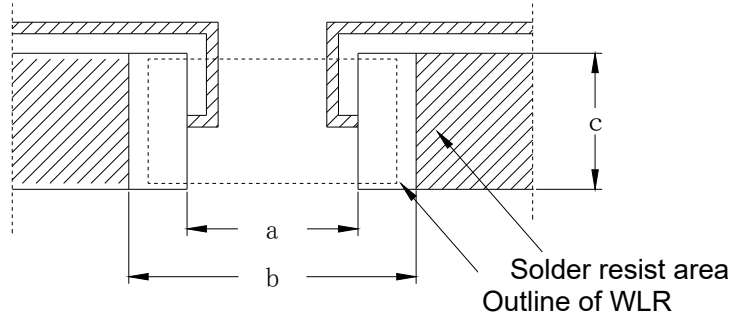
Pre-heating	130~180°C	60~90sec
Reflow	220°C Max	30~90sec
Peak	240~260°C	10sec Max

10. Recommended foot print

PC board : FR4

Thickness : 0.6mm

Cu clad(both sides) : 100um thickness



Resistance	Dimensions (mm)		
	a	b	c
WLR6332	3.40	7	3.40
WLR10050	5.60	11	6.20
WLR15075	5.60	16	8.75

11. Country of origin and Location

Country of origin : Japan

Location : Shin-Yokohama, Kouhoku-Ku, Yokohama-city, 222-0033 Japan

12. Storage note

- (1) To maintain good solderability, Store the components in the temperature and humidity controlled room.
Temperature: 5~35°C Humidity: 45~85% RH
- (2) Store the components at the place avoiding moisture, dust and corrosive harmful gas (hydrogen chloride, sulfuric acid gas and hydrogen sulfide) that may cause the decrease in solderability.
- (3) Store the components at the place avoiding direct sunlight.