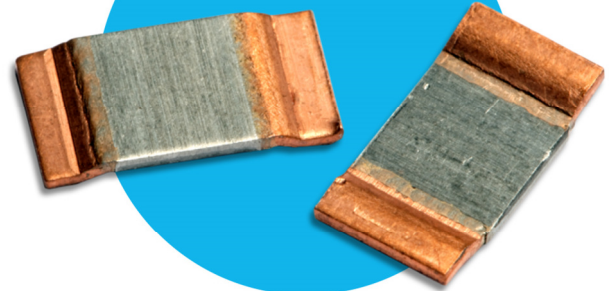


### LRMAP3920

- Resistance range 0.2mΩ to 2mΩ
- Excellent long-term stability
- High power up to 5W
- Current sensing for power electronics
- AEC-Q200 qualified
- RoHS compliant & halogen free



All parts are Pb-free and comply with EU Directive 2011/65/EU (RoHS2)

## Electrical Data

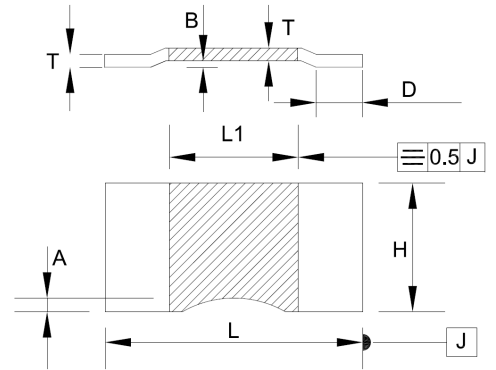
	LRMAP3920								
Alloy type	A	B					C		
Resistance value	mΩ	0.2	0.3	0.5	0.7	1	1	1.5	2
Power rating, Pr <sup>1</sup>	W	5				4	5	4.5	4
Overload rating (5s)	W	25				20	25	22.5	20
Resistance tolerance	%	1, 5							
TCR (20 to 60°C)	ppm/°C	±200	±150	±70	±60	±50			
Thermal EMF	μV/°C	<2							
Ambient temperature	°C	-55 to 170							
Maximum terminal temperature at full power	°C	120							

Note 1: Mounted on a high Tg 4"X2" FR4 test board with 2 ounce inner and outer Cu planes. Terminal temperature maintained at <120°C, air temperature 25°C. See Power Derating Curve and Mounting.

## Physical Data

Dimensions in mm and weight in mg								
Type	L ±0.3	L1 +0.2 -0.3	H +0.3 -0.2	A max	D ±0.5	B ±0.1	T nom	Wt. nom
LRMAP3920A-R0002	10.0	4.0	5.2	0.6	2.0	0.5	1.50	694
LRMAP3920B-R0003		5.0					1.43	608
LRMAP3920B-R0005							0.85	380
LRMAP3920B-R0007							0.62	271
LRMAP3920B-R001							0.43	188
LRMAP3920C-R001							1.36	542
LRMAP3920C-R0015							0.90	361
LRMAP3920C-R002							0.67	277

The technical drawing illustrates the LRMAP3920 component in two views. The top view shows a rectangular component with a central shaded rectangular area. Dimensions labeled include L (total length), L1 (length of the central area), B (width of the central area), T (thickness), and D (distance from the right edge to the center of the central area). The side view shows the component's profile with dimensions A (height of the central area), H (total height), and J (radius of the bottom curve). A detail callout shows a cross-section of the bottom curve with a radius dimension of 0.5 J.



## Marking

The component is laser marked with the ohmic value and tolerance.

## Solvent Resistance

The component is resistant to all normal industrial cleaning solvents suitable for printed circuits.

## Construction

The component is formed from a continuous band of E-beam welded (EBW) precision resistive strip. Various alloys are used based on the resistance value.

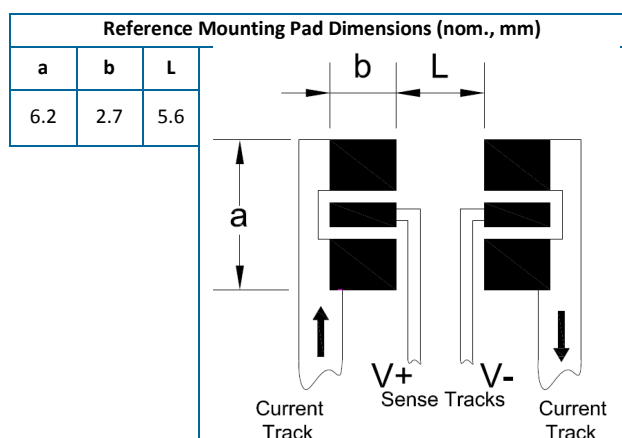
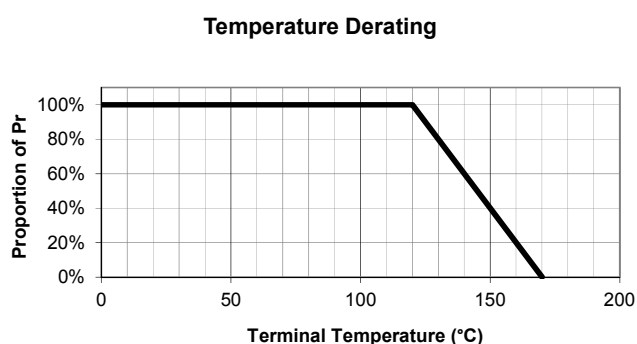
### General Note

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## Performance Data

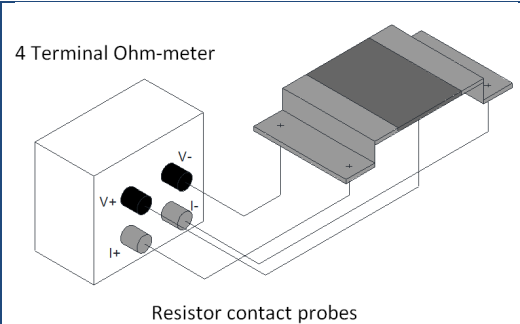
Test	Method	$\Delta R$	
		Typical	Maximum
Load Life	1000 hours, rated power, $T_{\text{terminal}} = 120^{\circ}\text{C}$	$\pm 0.5\%$	$\pm 1.0\%$
Short Term Overload	5 seconds, 5 x rated power	$\pm 0.1\%$	$\pm 0.5\%$
High Temperature Exposure	1000 hours, $170^{\circ}\text{C}$	$\pm 0.3\%$	$\pm 1.0\%$
Mechanical Shock	MIL-STD-202 Method 213	$\pm 0.1\%$	$\pm 0.5\%$
Bias Humidity	1000 hours, $85^{\circ}\text{C}$ , 85%RH	$\pm 0.2\%$	$\pm 1.0\%$
Moisture Resistance	MIL-STD-202 method 106	$\pm 0.1\%$	0.2%
Temperature Cycle	1000 cycles, $-55$ to $+125^{\circ}\text{C}$ , 15 minute dwell	$\pm 0.1\%$	$\pm 0.5\%$
Resistance to Solder Heat	MIL-STD-202 Method 210	$\pm 0.3\%$	$\pm 0.5\%$
Vibration	MIL-STD-202 Method 204	$\pm 0.1\%$	$\pm 0.2\%$
Low Temperature Storage	1000 hours, $-55^{\circ}\text{C}$	$\pm 0.1\%$	$\pm 0.2\%$
Resistance to Solvents	MIL-STD-202 Method 215	no damage	
Solderability	J-STD-002	>95% coverage	

## Power Derating Curve & Mounting



## Measurement

Resistance testing for the LRMAP3920 is performed on the underside of the copper contacts using the following method.

Measurement current	1A (1.5-2.0m $\Omega$ ) 3A (0.2-1.49m $\Omega$ )	 <p>4 Terminal Ohm-meter</p> <p>Resistor contact probes</p>
Probe spacing along component length	8.80mm	
Probe spacing across component width	2.44mm	
Probe tip diameter	$\leq 0.5\text{mm}$	

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## Low Resistance Metal Alloy Power Resistors

## LRMAP3920 Series

## Processing

LRMAP3920 series resistors are suitable for IR reflow soldering. The recommended reflow profile for Pb-free soldering, for example using SAC387 alloy (Sn 95.5%, Ag 3.8%, Cu 0.7%), is as follows:

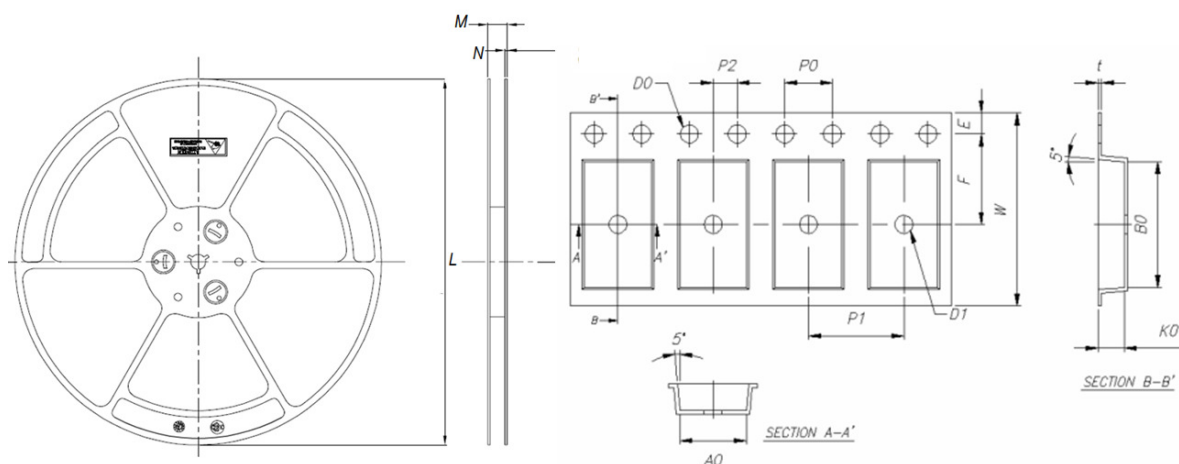
**Pre-heat:** 30s to 45s at 180°C

**Soldering:** 20s to 40s at 250°C

**Peak:** 260°C

## Packaging

LRMAP3920 resistors are packed in 16mm plastic tape, 3000 pieces per reel.



All Dimensions in mm

LRMAP3920 Type	L	M	N	W	E	F	D0	D1	P0	P1	P2	P0x10	t	A0	B0	K0
(B)-R001 (B)-R0007 (C)-R002	±1.00	±1.00	±0.30/ -0.10	±0.30	±0.10	+0.10	+0.10/ -0.0	+0.10/ -0.0	±0.10	±0.10	±0.10	±0.20	+0.15/ -0.10	+0.15/ -0.10	±0.12	±0.10
All remaining values	330	21.4	21.4	16.00	1.75	7.50	1.50	1.50	4.00	8.00	2.00	40.00	0.30	5.55	10.42	1.25
																2.20

## Ordering Procedure

Example: LRMAP3920C-R0015FT (1.5 milliohms ±1%, Pb-free)

L	R	M	A	P	3	9	2	0	C	-	R	0	0	1	5	F	T
1										2	3					4	5

1 Type	2 Alloy	3 Value	4 Tolerance	5 Packing
LRMAP3920	A	4 / 5 characters	F = ±1%	T = Plastic tape
	B	R = ohms	J = ±5%	3000/reel
	C			

## General Note

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