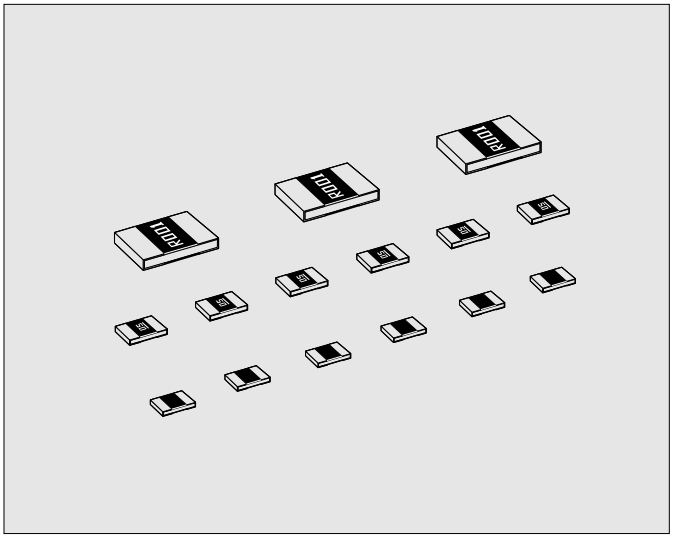
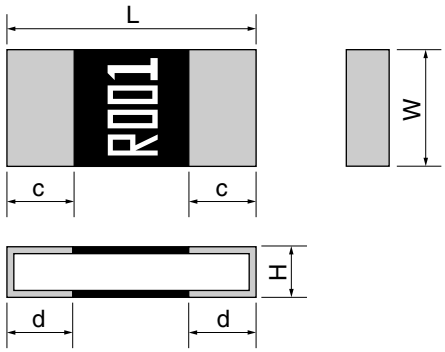
RLP,MLP

●Features

1. New Lineup, 0603, 1206 inch size, 5mΩ, 10mΩ, 15mΩ.
2. Suitable for current sensing of battery pack, mother board and power supply.
3. Pb*1, Halogen*2 and Antimony*3 free product
   *1 Pb≤1000ppm
   *2 Cl or Br≤900ppm, Cl+Br≤1500ppm
   *3 Sb_2O_3≤900ppm
4. Stability Class: 5%



●Dimensions



Rated Resistance is marked on the over coating.
Please refer to Rated Resistance Table on next page.

Unit : mm

Style	Metric	Inch	Rated Resistance	L	W	H	c	d	*Unit weight/pc.
NEW RLP16	1608	0603	10mΩ	1.6±0.1	0.8±0.1	0.3 ±0.1	0.2 ±0.1	0.3 ±0.1	2mg
NEW RLP32	3216	1206	5mΩ	3.2±0.15	1.6±0.15	0.35±0.10	1.0 ±0.25	1.0 ±0.25	11mg
			10mΩ			0.28±0.10	0.5 ±0.25	0.5 ±0.25	9mg
			15mΩ			0.22±0.10			6mg
RLP63	6332	2512	1mΩ	6.3±0.25	3.2±0.25	0.38±0.15	2.2 ±0.25	2.2 ±0.25	50mg
			5mΩ		3.1±0.25	0.34±0.15	1.95±0.25	1.95±0.25	43mg
			10mΩ			0.23±0.15	1.75±0.25	1.75±0.25	30mg
			15mΩ				0.95±0.25	0.95±0.25	26mg
NEW MLP63			2mΩ			0.58±0.15	2.2 ±0.25	2.2 ±0.25	77mg
			3mΩ			0.48±0.15			63mg
			4mΩ			0.37±0.15			48mg
			5mΩ			0.51±0.15	1.1 ±0.25	1.1 ±0.25	64mg

*Values for reference

●Part Number Description

Example

Style: RLP | 63 — K — R005 — F — TE

Product Type
RLP
MLP

Size		
Code	Metric	Inch
16	1608	0603
32	3216	1206
63	6332	2512

Temperature Coefficient of Resistance	
–	±150×10^{-6}/°C
K	±100×10^{-6}/°C
N	±70 ×10^{-6}/°C

Rated Resistance
e.g.: R001=1mΩ R010=10mΩ

Tolerance on Rated Resistance	
F	±1%

* Packaging & Standard Qty. (Min.)			
TP	Paper Tape	5,000pcs.	RLP16 RLP32
TE	Embossed Tape	4,000pcs.	RLP63 MLP63

*Refer to Tape and Packaging information on page 54 and 55.

NEW METAL-PLATE CHIP RESISTORS; LOW OHM RLP,MLP

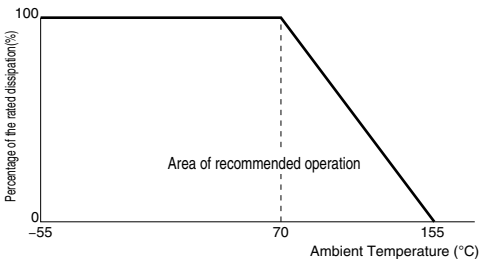
●Ratings

Style	Size Metric (Inch)	Rated Dissipation at 70°C W	Rated Current Range A	Combination of Rated Resistance Range and Temperature Coefficient of Resistance			Tolerance on Rated Resistance	Isolation Voltage V	Category Temperature Range °C
				Rated Resistance Range	Temperature Coefficient of Resistance				
					Code	10^{-6}/°C			
RLP16	1608 (0603)	0.33	5.74	10mΩ	K	±100	F(±1%)	100	−55～+155
					N	±70			
RLP32	3216 (1206)	1	8.16、10、14.1	5mΩ、10mΩ、15mΩ	K	±100			
					N	±70			
RLP63	6332 (2512)	2	44.7	1mΩ	-	±150			
					N	±70			
		1	8.16、10、14.1	5mΩ、10mΩ、15mΩ	K	±100			
					N	±70			
MLP63		2	20、22.3、25.8、31.6	2mΩ、3mΩ、4mΩ、5mΩ	K	±100			
					N	±70			

Note1. Rated Current = $\sqrt{\text{(Rated Dissipation)/(Rated Resistance)}}$
Note2. Rated Voltage = $\sqrt{\text{(Rated Dissipation)}\times\text{(Rated Resistance)}}$. (d.c. or a.c. r.m.s. Voltage)
Note3. Please contact Kamaya Sales Dept. for any other resistance values.

●Derating Curve

The derated values of dissipation for temperatures in excess of 70°C shall be indicated by the following Curve.

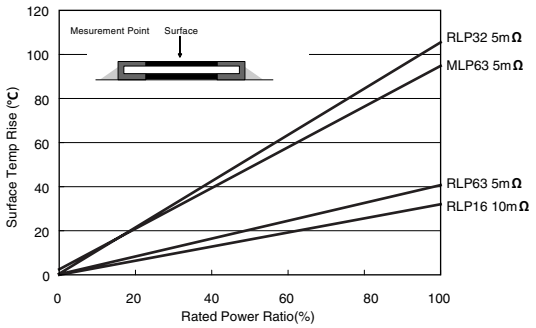


●Climatic Category

55/155/56

Lower Category Temperature	−55°C
Upper Category Temperature	+155°C
Duration of the Damp heat, Steady-State Test	56 days

●Surface Temperature Rise (Reference)

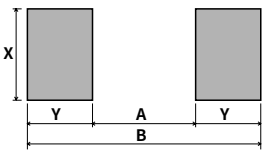


*Because values are different, please contact Kamaya salesdepartment for the details about deployment condition and terms of use.

●Rated Resistance

Style	Resistance	Marking
RLP63	1mΩ	R001
MLP63	2mΩ	R002
	3mΩ	R003
	4mΩ	R004
RLP16	10mΩ	Please contact Kamaya for Marking.
RLP32	5mΩ	05
	10mΩ	10
	15mΩ	15
RLP63	5mΩ	R005
	10mΩ	R010
	15mΩ	R015

●Recommended land Pattern



Unit : mm

Style	Metric	Inch	Rated Resistance	A	B	X	Y
RLP16	1608	0603	10mΩ	1.0	2.2	0.8	0.6
RLP32	3216	1206	5mΩ	1.4	3.9	1.7	1.25
			10mΩ	2.1			0.9
			15mΩ	2.1			
RLP63	6332	2512	1mΩ	2.0	7.6	3.5	2.8
			5mΩ	2.4			2.6
			10mΩ	4.0			1.8
			15mΩ				
MLP63			2mΩ	1.8			2.9
			3mΩ				
			4mΩ				
			5mΩ	4.0			1.8

*Values for reference

●Performance Characteristics JIS C 5201-1 : 1998

Description	Requirements	Test Methods
Voltage proof	No breakdown or flashover R≥1G ohm	Clause 4.7 100Va.c.,60s
Variation of resistance with temperature	See Ratings Table	Clause 4.8 Measuring temperature : +20°C/+155°C/+20°C
Overload	ΔR≤±1% No visible damage, legible marking	Clause 4.13 The applied voltage shall be 2.5 times of Rated Voltage, or equivalent current 2s.
Solderability	In accordance with Clause 4.17.4.5	Clause 4.17 235°C, 2s
Resistance to soldering heat	ΔR≤±1%	Clause 4.18 After immersion into the flux, the immersion into solder shall be carried out in Solder bath at 260°C for 5s.
Rapid change of temperature	ΔR≤±1% No visible damage	Clause 4.19 5 cycles between −55°C and +155°C.
Climatic sequence	ΔR≤±5% No visible damage	Clause 4.23 Dry/Damp heat(12+12h cycle), first cycle/ Cold/Damp heat(12+12h cycle), remaining cycle./ D.C.Load.
Damp test, steady state	ΔR≤±5% No visible damage, legible marking	Clause 4.24 40°C, 95%R.H., 56 days, test a) of Clause 4.24.2.1
Endurance at 70°C	ΔR≤±5% No visible damage	Clause 4.25.1 Rated current, 1.5h "ON", 0.5h "OFF", 70°C, 1,000h.
Endurance at the upper category temperature	ΔR≤±5% No visible damage	Clause 4.25.3 155°C, no-load, 1,000h.
Adhesion	No visible damage	Clause 4.32 5N, 10s
Bend strength of the face plating	ΔR≤±1%	Clause 4.33 RLP16, RLP32 Amount of bend : 3mm RLP63, MLP63 Amount of bend : 1 mm

●Precautions of use

Resistance value will be changed by soldering condition.
Please design products in consideration of this change of resistance value.