

## Data Sheet

**Customer:**

**Product:** Chip Shunt Resistor — LRS Series

**Sizes.:** 0630/1050/1575

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## Chip Shunt Resistor



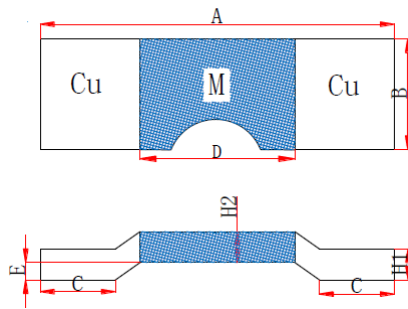
### ■ Features

- Resistance value from 0.2mΩ–5mΩ
- Electron beam welding, stable performance
- RoHS compliant
- Excellent long term stability

### ■ Applications

- Switching Power Supply
- Voltage Regulation Module
- PDA and Cell Phone
- Power Module
- Frequency Converters
- DC-DC Converter, Adapter, Battery Pack, Charger
- Current Sensor for Power Hybrid Sources
- High Current Handling for Automotive Engine Controls and Power Management

### ■ Construction



### ■ Dimensions

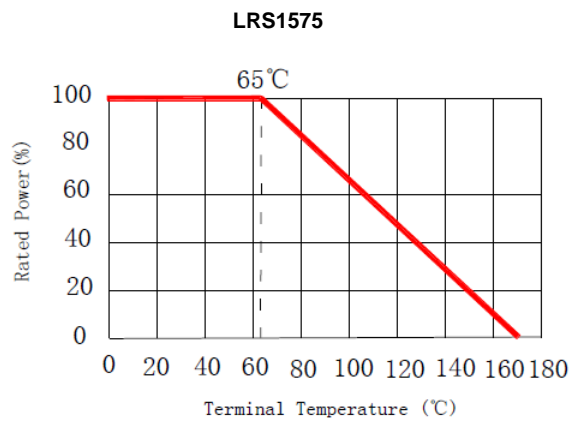
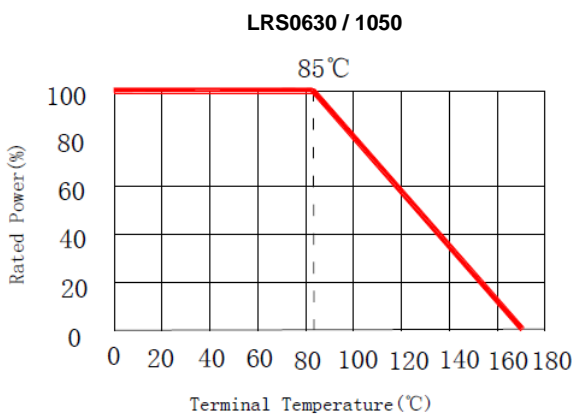
Type	Resistance (mΩ)	Material	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	H1 (mm)	H2 (mm)
LRS0630	0.3	Manganin	6.35±0.3	3.05±0.3	1.14±0.3	3.0±0.3	0.35	0.95	0.95
	0.5	Manganin	6.35±0.3	3.05±0.3	1.14±0.3	3.0±0.3	0.35	0.89	0.89
	0.9	Manganin	6.35±0.3	3.05±0.3	1.14±0.3	3.0±0.3	0.35	0.50	0.50
	1	Manganin	6.35±0.3	3.05±0.3	1.14±0.3	3.0±0.3	0.35	0.42	0.42
	2	Manganin	6.35±0.3	3.05±0.3	1.14±0.3	3.0±0.3	0.35	0.72	0.62
	3	NiCr alloy	6.35±0.3	3.05±0.3	1.14±0.3	3.0±0.3	0.35	0.48	0.42
	4	NiCr alloy	6.35±0.3	3.05±0.3	1.14±0.3	3.0±0.3	0.35	0.36	0.42
LRS1050	0.2, 0.3	Manganin	10.5±0.3	5.0±0.3	2.0±0.3	5.0±0.3	0.50	1.42	1.42
	0.5	Manganin	10.5±0.3	5.0±0.3	2.0±0.3	5.0±0.3	0.50	0.76	0.88
	1	Manganin	10.5±0.3	5.0±0.3	2.0±0.3	5.0±0.3	0.50	0.38	0.43
	2	NiCr alloy	10.5±0.3	5.0±0.3	2.0±0.3	5.0±0.3	0.50	0.69	0.64
	3	NiCr alloy	10.5±0.3	5.0±0.3	2.0±0.3	5.0±0.3	0.50	0.43	0.43
	4	NiCr alloy	10.5±0.3	5.0±0.3	2.0±0.3	5.0±0.3	0.50	0.32	0.32
	5	NiCr alloy	10.5±0.3	5.0±0.3	2.0±0.3	5.0±0.3	0.50	0.35	0.25
LRS1575	0.2	Manganin	15.2±0.3	7.5±0.3	4.0±0.3	5.0±0.3	0.50	1.42	1.42
	0.4	Manganin	15.2±0.3	7.5±0.3	4.0±0.3	5.0±0.3	0.50	0.76	0.74
	0.5	Manganin	15.2±0.3	7.5±0.3	4.0±0.3	5.0±0.3	0.50	0.56	0.56
	1	Manganin	15.2±0.3	7.5±0.3	4.0±0.3	5.0±0.3	0.50	0.84	0.84
	2	NiCr alloy	15.2±0.3	7.5±0.3	4.0±0.3	5.0±0.3	0.50	0.40	0.40
	3	NiCr alloy	15.2±0.3	7.5±0.3	4.0±0.3	5.0±0.3	0.50	0.27	0.27
	5	NiCr alloy	15.2±0.3	7.5±0.3	4.0±0.3	5.0±0.3	0.50	0.20	0.20

**Chip Shunt Resistor**

**Part Numbering**

LRS	1050	F	T	W	H	0M50	M
Product Type	Dimensions	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Material Code
	0630: 6.35x3.05 1050: 10.5x5.0 1575: 15.2x7.5	F: ±1% J: ±5%	T: Taping Reel	D: ±50 1: ±60 W: ±75 E: ±100	S: 2W B: 2.5W R: 3W C: 3.5W H: 4W D: 5W I: 6W E: 7W	0M20: 0.2mΩ 0M30: 0.3mΩ 0M50: 0.5mΩ R001: 1mΩ R002: 2mΩ R003: 3mΩ R004: 4mΩ	M: Manganin N: NiCr alloy

**Derating Curve**



**Standard Electrical Specifications**

Type	Power Rating	Resistance Range(mΩ)		TCR (PPM/°C)
		±1%	±5%	
LRS0630	2.5W	4		±100
	3W	0.3, 0.5, 0.9, 1		±50
	3W	2, 3		±100
LRS1050	2W	5		±100
	2.5W	4		±100
	3W	3		±100
	4W	1		±60
	4W	2		±100
	4W	0.5		±75
	5W	0.2, 0.3		±75
LRS1575	3W	5		±100
	3.5W	3		±100
	4W	2		±100
	6W	0.5, 1		±100
	6W	0.4		±50
	7W	0.2		±50

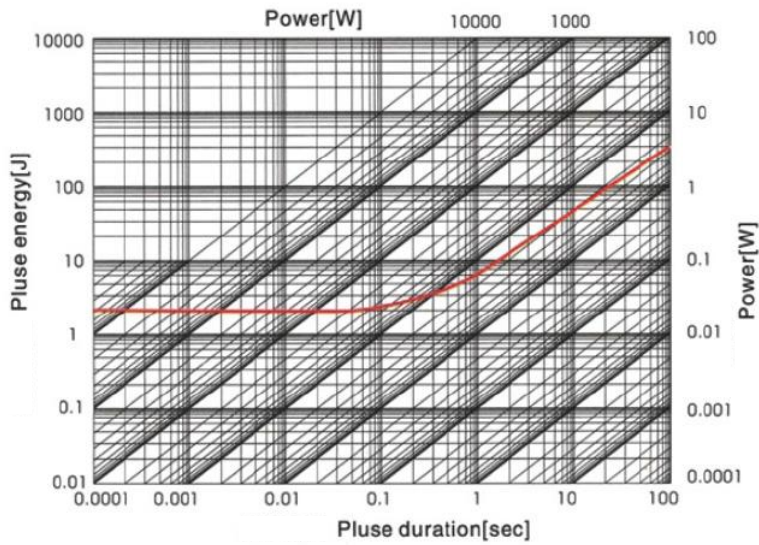
**Chip Shunt Resistor**

**Environmental Characteristics**

Item	Requirement	Test Method
Short time overload	$\Delta R \leq \pm 0.5\%R$	Rated Power $\times 5$ for 5 seconds
Load Life	$\Delta R \leq \pm 1.0\%R$	70°C, power rated for 1000 hours
Resistance to Soldering Heat	$\Delta R \leq \pm 0.5\%R$	260°C for 10 $\pm$ 1s
Thermal Shock	$\Delta R \leq \pm 0.5\%R$	-55°C/175°C, 30min, 5 cycles
Moisture Resistance	$\Delta R \leq \pm 1.0\%R$	-55°C ,93 $\pm$ 3%RH, 56d
High Temperature Exposure	$\Delta R \leq \pm 1.0\%R$	175°C for 1000 hours
Vibration	$\Delta R \leq \pm 0.5\%R$	10~200Hz, 98m/S <sup>2</sup> , 6hours

■ **Storage Temperature: 15~28°C; Humidity < 80%RH**

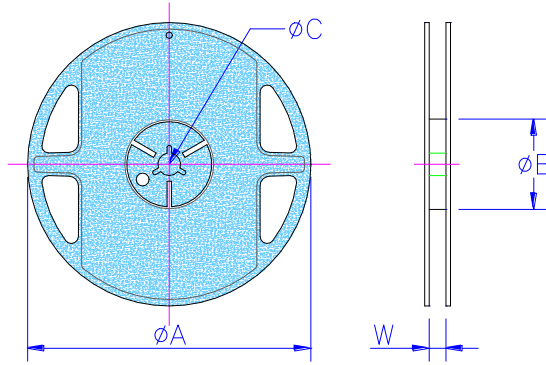
**Pulse Energy**



**Chip Shunt Resistor**

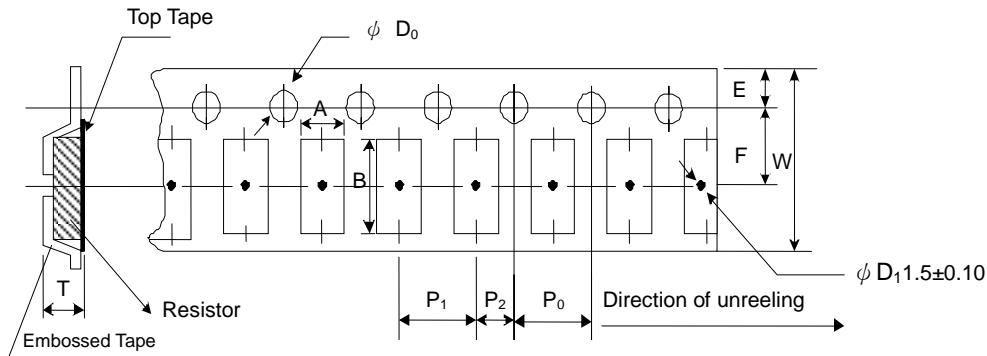
**■ Packaging**

Reel Specifications & Packaging Quantity



Type	Packaging Quantity		Tape Width	Reel Diameter	ΦA (mm)	ΦB (mm)	ΦC (mm)	W (mm)
LRS0630	Embossed	5K	16mm	13 inch	330.5±1.0	99.5±0.5	13.2+0.3/-0.2	17.4±0.5
LRS1050	Embossed	3K	24mm	13 inch	330.5±1.0	99.5±0.5	13.2+0.3/-0.2	25.4±0.5
LRS1575	Embossed	2K	24mm	13 inch	330.5±1.0	99.5±0.5	13.2+0.3/-0.2	25.4±0.5

Embossed Plastic Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P <sub>0</sub> (mm)	P <sub>1</sub> (mm)	P <sub>2</sub> (mm)	ΦD <sub>0</sub> (mm)	T (mm)
LRS0630	3.50±0.10	6.80±0.10	16.0±0.30	1.75±0.10	7.5±0.15	4.00±0.10	8.00±0.10	2.00±0.05	1.50+0.1, -0	1.45±0.10
LRS1050	5.70±0.10	11.20±0.10	24.0±0.30	1.75±0.10	11.5±0.15	4.00±0.10	8.00±0.10	2.00±0.10	1.50+0.1, -0	2.05±0.10
LRS1575	8.20±0.10	15.90±0.10	24.0±0.30	1.75±0.10	11.5±0.15	4.00±0.10	12.00±0.10	2.00±0.10	1.50+0.1, -0	2.05±0.10