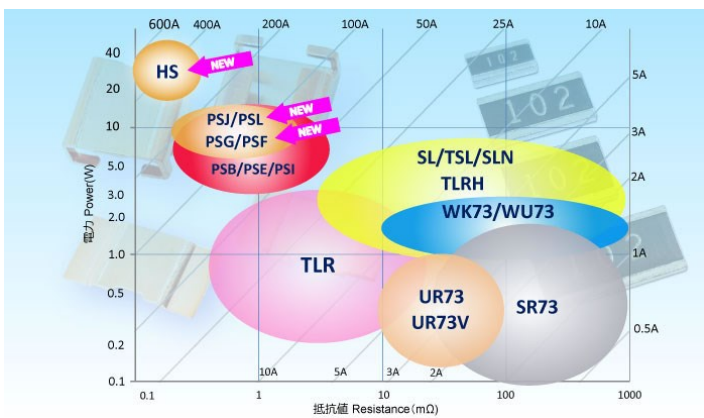




Mit Passiven in die Technik-Zukunft

**KOA's Current Sense Resistors / Low Ohm Resistors**

KOA's wide product lineup of low resistance shunt resistors that enable current sensing indispensable for power management. The products include large current metal plate type power shunt resistors, small size and high power wide terminal resistors, thick film low resistance resistors and small type for low current purposes. **Find the best product for your application.**



Power Rating and Resistance Distribution of Current Sense Shunt / Low Ohm Resistors

**Large Current Sense Shunts**

**HS Series** NEW

**Features**

- Power Rating: 18W, 36W
- Resistance Values: 100μΩ, 200μΩ
- Tolerance: +/-5%
- Excellent T.C.R. achieved (50±25 x 10<sup>-6</sup>/K)
- Size: 40 x 15 x 2(1) mm
- Correct electric current detection by a voltage pins
- Bus bar and cable can be screwed on
- 2D code means individual resistance information



Motor control up to 600A and extremely large current sensing of DC-DC converters and battery management.

Series	Size (mm)	Resistance (Ω)	Power Rating (W)	T.C.R. (x10 <sup>-6</sup> /K)
<span style="background-color: red; color: white; padding: 2px;">NEW</span> HSAN2P4015	40 x 15	0.1m	36	50+/- 25
		0.2m	18	

High current sensing possible even at low resistance 0.1mΩ, by voltage detecting terminals. Custom configuration available by various way of attachment.



## Mit Passiven in die Technik-Zukunft

### Metal Plate Power Shunts

#### PSJ2/PSL2/PSG4/PSF4 NEW

##### PSJ2/PSL2

- **PSJ2:** 244 A- 0.2 mΩ to 54 A-2 mΩ
- **PSL2:** 163 A-0.3 mΩ, 126 A-0.5mΩ
- Sizes: 3920 (PSJ2), 2512 inch (PSL2)
- 2 terminal configurations
- Excellent long-term stability and pulse withstanding performance
- Robust copper terminations
- EU-RoHS compliant
- AEC-Q200 qualified

##### PSG4/PSF4

- **PSG4:** 2715 inch, 140A-0.5mΩ, 89A-1mΩ
- **PSF4:** 2016 inch, 100A-0.5mΩ. 54A-1mΩ
- Kelvin terminal construction
- T.C.R. +/-50ppm/K (+25°C to +125°C)
- Ultra-low resistance, suitable for large current detection
- Excellent long-term stability and pulse withstanding performance
- Robust copper terminations
- EU-RoHS compliant
- AEC-Q200 qualified

##### Application Examples

- High current automotive applications
- DC/DC converter
- Inverter power supplies
- Frequency converters
- Intelligent power modules



Series	Size (mm)	Resistance (Ω)	Power Rating (W)	T.C.R. (x10 <sup>-6</sup> /K)
PSL2*	6.3 x 3.15	0.3m	8	+/- 175
		0.5m		+/- 115
PSJ2	10 x 5.2	<span style="color: red; font-weight: bold;">NEW</span> 0.2m	12	+/- 200
		<span style="color: red; font-weight: bold;">NEW</span> 0.5m	10	+/- 100
		1m	8	+/- 75
		2m*	6	+/- 75
<span style="color: red; font-weight: bold;">NEW</span> PSF4 (4-terminal)	3.0 x 3.8	0.5m	5	+/- 50
		1m	3	
PSG4 (4-terminal)	6.9 x 6.6	0.5m	10	+/- 50
		1m	8	

\*Under Development

Power rating 12W max. achieved. Both 2- and 4- terminal constructions in KOA's new product lineup. PSG4 and PSF4, 4-terminal construction type, enables high precision performance by T.C.R. +/- 50x10<sup>-6</sup>/K.



## Mit Passiven in die Technik-Zukunft

### Milliohm Metal Plate Shunts

#### TLR Series

Indispensable for current sensing of high speed operating inverters and CPU. Excellent high frequency characteristics.

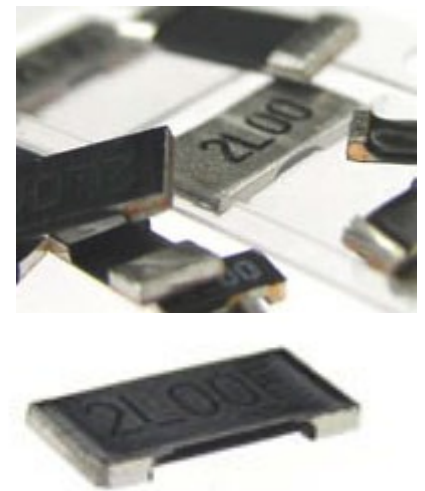
#### Low Resistance Shunts

- Ultra low resistance values for large current detection
- Resistance range: 0.5mΩ to 20mΩ
- No hot spot due to special trimming
- Ultra low T.C.R +/-50, +/-75, +/-100
- Power ratings up to 3W (TLR2A: 0805 = 1W)
- Sizes: 0402 to 2512
- Tolerance: +/- 1%, +/-2%, +/- 5%

#### NEW

- TLR 2BP 1206 1.5W, 0.5mΩ to 20mΩ
- TLRZ 1E 0402 Jumper 10A
- TLRZ 1J 0603 Jumper 26A
- TLRZ 2A 0805 Jumper 31.6A
- TLRZ 2B 1206 Jumper 40A

Series	Size (inch)	Resistance Range (Ω)	Power Rating (W)
TLR 2BN	1206	1m to 20m	0.5
TLR 2B			
TLR2BW	1206	1m to 20m	1.0
TLR2BP	1206	1m to 20m	1.0
TLR 2H	2012	1m to 10m	1.0
TLR2HW	2012	1m to 10m	2.0
TLR 3A	2512	1m to 4m	1.0
TLR 3AW	2512	0.5m to 10m	2.0
<b>NEW</b> TLR 3AP	2512	0.5m to 10m	3.0
TLR 3APS	2512	2m, 3m	3.0



The manufacturing process of resistors includes "trimming" process where the partial resistive body is cut to adjust the resistance. This trimming process would not cause any problem in the normal circuit, while it does cause various problem in the high speed circuit under large current, like CPU power supplies of PCs. TLR series adjusts the resistance without trimming.



## Mit Passiven in die Technik-Zukunft

### High Temperature - Molded

#### SL Series

High reliable resistors under high temperature.

#### Features

- Molded with flame retardant resin UL94 V-0
- Enhanced thermal shock capability
- Operating temperature: up to +180°C
- Increased power rating e.g.:  
SLW07(2010) = 1W  
SLW1(2512) = 1,5W  
SLN5(4527) = 7W
- Resistance range: 3mΩ to 22MΩ
- Tolerance: +/- 0,5%; +/- 1%; +/- 2%, +/- 5%
- T.C.R.: +/- 50 to +/- 200 ppm/K

#### Jumper SLZ1

- Maximum resistance of 0,5mΩ
- Current rating: 44A



Series	Size (mm)	Resistance Range (Ω)	Power Rating (W)
SL07	5.0 x 2.5	5m - 100m	0.75
SLW07	5.0 x 2.5	5m - 100m	1.0
TSL1	6.3 x 3.1	5m - 100m	1.0
SL1	6.3 x 3.1	3m - 22M	1.0
SLW1	6.3 x 3.1	5m - 100m	1.0
SL2	11.5 x 7.0	3m - 22M	2.0
SLN2	11.5 x 7.0	5m - 200m	2.0
SLN3	11.5 x 7.0	5m - 110m	3.0
SLN5	11.5 x 7.0	3m - 200m	7.0



## Mit Passiven in die Technik-Zukunft

### Flat Chip Resistors for High Voltage (Automotive)

#### HV73 Series

The HV73 Series is a special chip resistor designed for high working voltages, offering a higher working voltage than standard thick film devices.

Excellent heat and moisture resistance are ensured by the use of metal glaze thick film. The series is available in sizes from 0603 to 2512 in the operating temperature range from -55°C to +155°C.

KOA's new high voltage type chip resistor HV73V Series for automotive applications achieves max. working voltage 2.5 times higher than general-purpose type chip resistors.

#### Features

- Resistance Value: 10kΩ to 51MΩ
- Size: 0603, 0805 and 1206
- AEC-Q200

### For Automotive Electronics

#### Current Sensing Resistors

**Series:** TLR, PS, SL, HS, WK73S, UR73V, SR73

Please do not hesitate to contact us, if you would like to have further information, application advice or samples. We will be happy to help you.

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