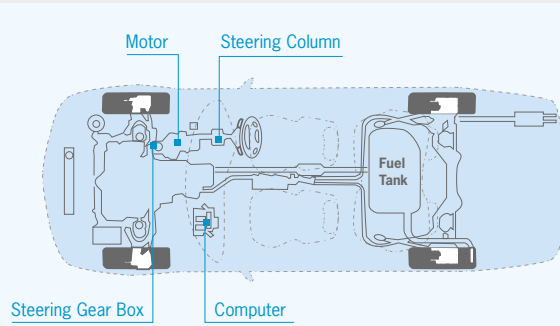
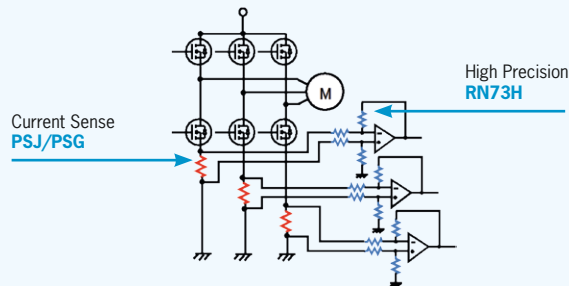


Electric Power Steering

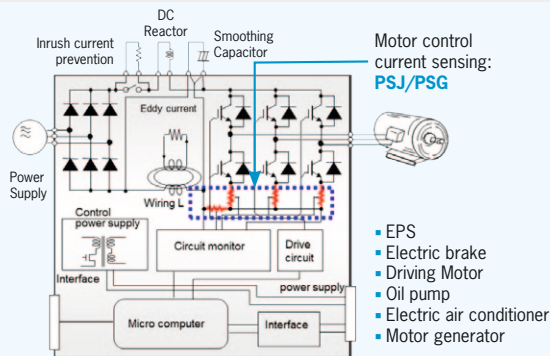


Example of Current Detection Circuit of 3-Phase Motor



Control Circuit Example of Motor

High Voltage PWM Inverter



KOA Corporation

Founded 1940 in Japan, KOA Corporation is a leading, innovative manufacturer of passive components with ~4,000 employees and 24 manufacturing plants. KOA supplies products to all of the world's leading electronics manufacturers and in every market that uses passives, with focus on automotive and industrial equipment. The KOA company philosophy requires each and every employee to make "Quality 1st" and customer satisfaction the top priority. KOA is certified by DIN EN ISO9001:2008, DIN EN ISO/TS 16949:2009, ISO 14001:2004 and most of the KOA products are also tested acc. to AEC-Q200 requirements.

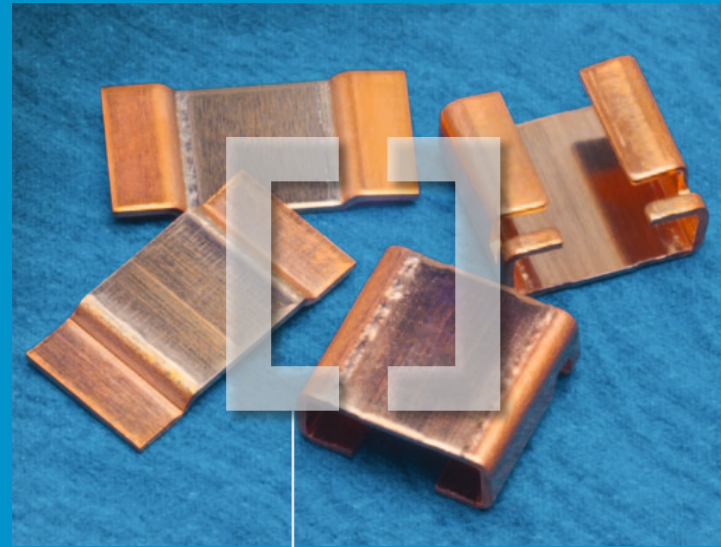
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Metal Plate Power Shunt

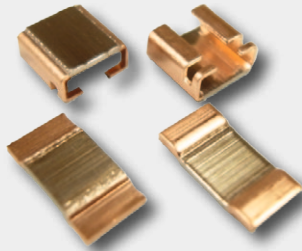
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High Current Metal Plate Shunt Resistors

Shunt resistors are used to measure or sense electric current. When using a current-shunt resistor it is important to keep the resistance value as small as practically possible to keep the voltage drop and power dissipation low. For very high currents KOA introduces their new PSG4 and PSJ2 metal plate power shunts, which are able to measure currents up to 140A.



PSG4 | 2725 – 4 Terminal
PSJ2 | 3920 – 2 Terminal

High current metal plate shunt resistors from KOA are well suited for precise sensing in power applications.

KOA's new PS metal plate shunt series are ideal for high current measurements up to 140 A. The rated power dissipation is 10 W for 0.5 mΩ versions and 8 W for 1 mΩ types at a maximum +75 °C terminal part temperature. The full copper construction of the terminals ensures good heat stress and excellent temperature cycling characteristics. With a resistance tolerance of $\pm 1\%$ and a T.C.R. of $\pm 50/\pm 75$ ppm/K, these PS type resistors allow very high accuracy high current measurements. For applications which need a more precise measurement and an excellent T.C.R., the PSG with its 4-terminal Kelvin configuration should be used.

Features & Benefits

- 0.5 mΩ and 1 mΩ
- 10 W (0.5 mΩ) & 8W (1 mΩ)
- $\pm 1\%$ tolerance
- PSJ2: ± 100 ppm/K (0.5 mΩ) & ± 75 ppm/K (1 mΩ) (+25 °C to +125 °C)
- PSG4: ± 50 ppm/K (+25 °C to +125 °C)
- PSG4: Kelvin terminal construction
- Operating temperature range: -65 °C to +175 °C
- Terminal temperature up to +75 °C under rated load
- Low inductance
- EU-RoHS compliant
- AEC-Q200 qualified

Application Examples

High current sensing in automotive and industrial applications, high frequency and pulse applications, power modules, etc.

Automotive:

- ECU (Motor control etc.)
- Current sensing in other automotive electronics (EPS, etc.)
- DC/DC converter
- Frequency converters
- Inverter power supplies
- Intelligent power modules
- Battery management

Performance

Test	Conditions of Test	Test Limits
Long term		
High temp. exposure	+175°C / 1000 hrs	$\pm 1.0\% \Delta R$
Rapid change of temp.	-55 to 150°C / 1000Cy / 30minCycle	$\pm 0.5\% \Delta R$
Moisture resistance	MIL-STD-202	$\pm 0.5\% \Delta R$
	+85% / 85%RH / 10%Bias / 1000 hrs	$\pm 0.5\% \Delta R$
Load life	Terminal Temp. +75°C / Rated Power / 1000 hrs	$\pm 1.0\% \Delta R$
Low temp. operation	-65°C / 1000 hrs	$\pm 0.5\% \Delta R$
Short term		
Dimensions	–	Within spec.
Resistance	–	Tol. $\pm 1.0\%$
T.C.R.	+25 / +125°C	Within spec.
Vibration	5G / 10 to 2000Hz / 20min / 3 directions: 4hrs / each	$\pm 0.5\% \Delta R$
Mechanical shock	100G / 6msec / 6 directions: 5 times / each	$\pm 0.5\% \Delta R$
Solderability	+245 ± 5 °C / 5 ± 0.5 sec Dip	$\geq 95\%$ Cover
Resistance to soldering heat	+260 ± 5 °C / 15 ± 1 sec (Reflow)	$\pm 0.5\% \Delta R$
Short time overload	0.5mΩ: 30W / 5sec 1mΩ: 20W / 5sec	$\pm 0.5\% \Delta R$
Bend / Adhesion	Adhesion: 5N / Hold for 10sec Bend width reaches 3mm and hold for 5sec	$\pm 0.5\% \Delta R$

Dimensions & Performance

Type	Product Dimensions (mm)								Pad Dimensions (mm)						
	R-value	L ±0.25	W ±0.25	d	H ±0.2	T ±0.05	Ws ±0.1	Wv ±0.1	A	B	C	D	E	F	G
PSJ2	0.5 mΩ	10	5.2	2.0 ±0.25	1.27	-	-	-	5.6	2.7	6.2	11.0	-	-	-
	1 mΩ				0.89	-	-	-							
PSG4	0.5 mΩ	6.9	6.6	2.0 ±0.1	3.05	0.4	1.0	0.7	5.6	0.9	0.8	3.7	9.4	3.5	7.8
	1 mΩ				2.80										

