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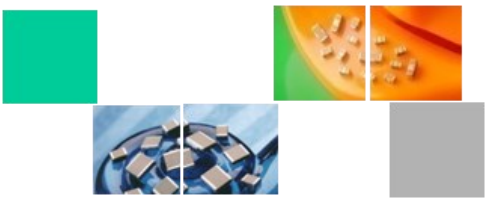

Strom-Messwiderstände / Shunts

Speziell niedrige Ohm-Werte, hohe Präzision mit engen Toleranzen, geringe Induktivität, hohe Temperaturstabilität und Leistung sind die wesentlichen Anforderungen an Strom-Messwiderstände.

Bei wts // electronic finden Sie ein breites Angebot an RoHS konformen Widerständen der Hersteller **KOA, NIC Components, Viking und Vishay Foil Resistors**. Erhältlich sind diese in SMT- und THT-Bauformen, in Folien-, Draht-, Metallschicht- oder Dickschichttechnik.

Introduction

Generally speaking, there is considerable overlapping in the use of the terms “shunts,” “current shunts,” and “current sensors.” Although these three terms are used interchangeably, there are some subtle differences that are worth noting and that may suggest a preference for one or another term as it relates to a particular application.

Current Sensor

A current sensor is a resistive device employed to sense levels of current. Current sensors are used in applications where the emphasis is on accuracy and repeatability under all conditions and less on high-current capability. Applications such as force-balance scales, E beam deflection systems, switching power supplies, all rely on current sensors to feed back and control the current.

Shunt

A shunt is a resistive device employed to divert most of the current in an electric circuit. The earliest shunts were meter shunts used as external accessories to ammeters allowing one meter to be used for a variety of current levels depending upon which shunt was chosen.
In addition to these measurement shunts, power shunts used for electric motor starting, braking, and speed control. Loading, neutral grounding, preheating and capacitor unloading are all applications in which a resistor is called upon to shunt large amounts of current.

Über wts // electronic

wts // electronic components GmbH konzentriert sich auf Grund ihrer technischen Erfahrung und Kompetenz auf den Vertrieb von passiven und elektromechanischen Bauelementen.

Durch unser ausgewähltes Herstellerportfolio haben wir die Weltmarktführer für Keramik-, Film- und Elektrolyt-Kondensatoren sowie Chip- und Melf-Widerstände im Programm und ergänzen diese durch am Markt technologisch führende Hersteller.

- *Widerstände (Dünnschicht, Präzision, Ultra-Präzision, Power)*
- *Kondensatoren (Keramik, Film, Elektrolyt)*
- *EMI-Filter*
- *Schalter & Taster*
- *Wickelgüter (Transformatoren, Übertrager)*
- *Schaltnetzteile (elektronische Transformatoren)*

Service:

Vielfach prämiert.

Produkte:

Einfach ausgezeichnet.

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Strom-Messwiderstände / Shunts

KOA Your Passive Solution

	Type		Series	Applications	Advantages
Shunt	Metal Plate Milliohm Shunt		TLR	Motor control units, **power supplies**, AC / DC-DC converter, metering, **CPU current sensing**, mobile devices charge controller, automotive, power steering (EPS)	Ultra low resistance values **0.5mΩ**..20mΩ for large current detection, **no hot spot**, power ratings up to 3W, 6 sizes from 0402 to 2512, standard tolerance ±1%, best TCR ±50ppm/K
	Metal Shunts		PSI PSE PSB	Intelligent power module **High power inverter power supply** Motor assist power steering module Electric brake system	Suitable for large current detection, non-inductive - low inductance, high **power rating** up to **7W,** resistance tolerance down to ±1%, resistance range down to **0.2mΩ**
	High Power Metal Shunts		PSG4 PSJ2	Automotive ECU (Motor control. etc.), current sensing in other automobile electronics (**EPS**, etc.), DC/DC converter, inverter power supplies, **intelligent power modules**	High power **(max. 10W)** metal plate resistors, low resistance value 0.5mΩ & 1mΩ, PSG4: 2726 inch, 4 terminals, TCR ±50ppm/K PSJ2: 3920 inch, 2 terminals, TCR ±75ppm/K

NIC Components Corp.

Bild	NIC Series	Type Temperature	Size	Resistance Range Tolerance %	Power Range	TCR ppm/°C
	NCSW	Thin Film Series Temp.: -55°C - +155°C	0603/0805/1206 2010/2512	100mR – 910mR 1%/2%/5%	up to 1W	down to 50ppm
	NCST	Precision Tolerance Temp.: -55°C - +155°C	0603/0805/1206/1210 2512/0830/1225	10mR – 3R 1%/2%/5%	up to 3W	down to 100ppm
	NCSR	High Power Series Temp.: -55°C - +170°C	1206/2010/2512	0,5mR – 6mR 1%/2%/5%	up to 3W	down to 50ppm
	NCSS	High Power Series Temp.: -55°C - +170°C	1206/2010/ 2512	1mR – 50mR 1%/2%/5%	up to 2W	down to 75ppm
	NCSP	Molded Case Series Temp.: -55°C - +180°C		3mR – 1R 1%/5%	up to 3W	down to 50ppm
	NCLP	High Current, Low EMF Series Temp.: -55°C - +170°C	2512	1mR – 500mR 1%/2%/5%	up to 3W	down to 75ppm

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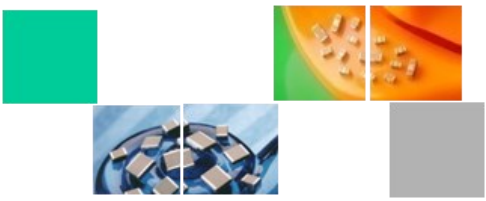

Strom-Messwiderstände / Shunts

Viking

Bild	Viking Series	Type Temperature	Size	Resistance Range Tolerance %	Power Range	TCR ppm/°C
	CS *CS-A	Current Sensing Chip Resistor Temp.: -55°C - +155°C	0201/0402/0603/0805 1206/1210/2010/2512 1225/3750/7520	3mR – 8000mR 1%/2%/5%	up to 2W	down to 100ppm
	TCS	Thin Film Current Sensing Chip Resistor Temp.: -55°C - +155°C	0102/0603/0805/1206 1210/2512	50mR – 1000mR 0,5%/1%	up to 3W	down to 50ppm
	RS	Current Sensing Thick Film Chip Resistor Temp.: -55°C - +155°C	0402/0603/0805/1206 1210/2512	10mR – 976mR 1%/5%	up to 2W	down to 50ppm
	LR	Ultra Low Ohm (Metal Strip) Chip Resistor Temp.: -55°C - +170°C	1206/2010/2512	0,5mR – 15mR 1%/3%/5%	up to 3W	down to 50ppm
	LRS	Chip Shunt Resistor Temp.: -55°C - +170°C	1050/1575	0,5mR – 4mR 1%/2%/5%	up to 7W	down to 50ppm
	CSM	Current Sensing Metal Chip Resistor Temp.: -55°C - +155°C	0805/1206/2010/2512	10mR – 100mR 1%/2%/5%	up to 1W	down to 50ppm
	LRP	Low Ohm (Metal Strip) Chip Resistor Temp.: -55°C - +170°C	2512	10mR – 100mR 1%/2%/5%	up to 3W	down to 50ppm

* Automotiv – Ausführung AEC-Q 200

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Strom-Messwiderstände / Shunts

VISHAY FOIL RESISTORS A VPG Brand

Bild	VPN Series	Temperature	Type Current Sensing	Resistance Range Tolerance %	Power Range	TCR ppm/°C
	**VCS1610**	Temp.: -55°C - +125°C	High precision chip resistor 4-terminal	0,1R – 1R down to 0,5%	up to 0,25W	down to 2ppm
	**VCS1610Z**	Temp.: -55°C - +125°C	High precision chip resistor 4-terminal Z-Foil	0,3R – 1R down to 0,5%	up to 0,25W	down to 0,2ppm
	**VCS1625ZP**	Temp.: -55°C - +125°C	Ultra high precision for higher power Z-Foil	0,3R – 10 KR down to 0,2%	up to 1W	down to 5ppm
	**VCS1625Z**	Temp.: -55°C - +125°C	Ultra high precision DSCC 08003	0,3R – 10 R 0,1%	0,5W max. current 5A	down to 5ppm
	**VCS1625P**	Temp.: -55°C - +125°C	High precision for high power Z-Foil	0,01R – 10R 0,1%	up to 1W	down to 2ppm
	**VCS1625**	Temp.: -55°C - +125°C	High precision chip resistor 4-terminal DSCC 08003	0,01R – 10 R 0,1%	0,5W max. current 5A	down to 2ppm
	**CSM2512 CSM3637**	Temp.: -55°C - +125°C	High Precision Metal Strip Resistor (4-Terminal)	1mR – 200mR down to 0,1%	up to 3W max. current 38A	down to 15ppm
	**CSM2512S CSM3637S**	Temp.: -55°C - +125°C	Bulk Metal® Technology High Precision, Current Sensing, Power Surface Mount, Metal Strip Resistor with Improved Stability 0.05 %,	10mR – 100mR down to 0,1%	up to 2W	15ppm

For more **Power Current-Sensing Resistors** from VISHAY FOIL RESISTORS please call wts // electronic sales.

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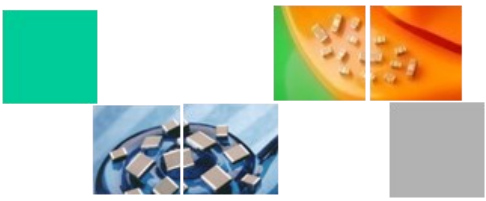

Strom-Messwiderstände / Shunts

Cross Reference Guide

KOA	NIC Comp.	Vishay	Panasonic	Yageo	Isabellen-hütte	Rohm
SL TSL	NCSP	WSC WSR				
	NCSW					
	NCST	WSL	ERJ-L0			
TLR		WSL WSK		PE, PT, PR	BVT, VMK, SMK, LM	PMR
TLR1E		WSL0603				
TLR2A, TLRH2A		WSL0805, WSL(P)0805			VMI0805	
TLR2B		WSL1206, WSLP1206			SMK,VKM	
TLR2BW		WSL1206			SMK,VKM	
TLR2H		WSL2010, WSL2010E			SMP,VMP	
TLR2HW		WSL2010, WSL2010E			SMP	
TLR3A		WSL2512E,WSLS2512, WSK2512,WSLT2512, WSL2512, WSLP2512			BVT,SMS	
TLR3AW		WSL2512E,WSLS2512, WSK2512,WSLT2512, WSL2512,WSLP2512			BVT,SMS	
TLR3AP		WSL2512E,WSLS2512, WSK2512,WSLT2512, WSL2512,WSLP2512			BVT,SMS,VMS, LMS	
TLRH3AP		WSH2818			SMT,SMS,VMS	
PSJ2		WSL(P)3921			BVS3920	
PSL2		WSL(P)2512			BVT2512	
PSG4 PSJ2		WSL			BVS, BVB	
PSF4		WSK1216			BVN1216	
PSI		WSLT3921, WSL3921,WSLP3921			BSV	

Crosses may not be exact for all characteristics. Please consult the datasheet for detailed specifications.

Please do not hesitate to contact our **sales team**, if you have any questions or inquiries. We will be happy to help you.

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