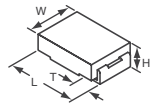


VISHAY Dale **WSR Power Metal Strip® SMT Resistor**



Series	Temperature Coefficient (ppm/°C)	Short Time Overload	Value Range	Dimensions – mm			
				L	W	H	T
WSR2	.001Ω – .009Ω/±110 .01Ω – 1.0Ω/±75	5X Rated Power for 5 Seconds	All Listed Values	11.56	6.98	2.41	2.54
WSR3	.001Ω – .009Ω/±110 .01Ω – 200Ω/±75	4X Rated Power for 5 Seconds	All Listed Values	11.56	6.98	2.41	2.54
WSR5	.001Ω – .009Ω/±110 .01Ω – .30Ω/±75	3X Rated Power for 5 Seconds	All Listed Values	11.56	6.98	2.41	2.54

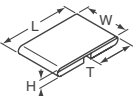
Features:
 • Molded high temperature encapsulation • Improved thermal management incorporated into design • Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instrumentation, and power amplifiers • All welded construction • Solid metal Nickel-Chrome or Manganese-Copper alloy resistive element with low TCR (<20 ppm/°C) • Very low inductance 0.5nH – 5nH • Excellent frequency response to 50MHz • Low thermal EMF (<3µV/°C) • Operating Temperature Range: -65°C – 275°C

WSR2, 1%, WSRA Resistance Values				WSR3, 1%, WSRB Resistance Values				WSR5, 1%, WSRC Resistance Values			
.001	.006	.015	.04	.001	.006	.015	.04	.001	.006	.015	.04
.002	.007	.02	.05	.002	.007	.02	.05	.002	.007	.02	.05
.003	.008	.025	.06	.003	.008	.025	.06	.003	.008	.025	.06
.004	.009	.03	.07	.004	.009	.03	.07	.004	.009	.03	.07
.005	.01	.033	.08	.005	.01	.033	.08	.005	.01	.033	.08

Description	Power Rating (W)	Value Range (Ω)	Digi-Key Part No. Ⓞ	Cut Tape Pricing			Digi-Key Part No. Ⓞ	Tape and Reel Pricing		Vishay Part No.
				1	10	50		1,500	6,000	
WSR2, 1%, WSRA	2.0	.001 – .004	WSRA-(Value)CT-ND	1.98	16.82	74.18	WSRA-(Value)TR-ND	784.79/M	627.83/M	WSR2xxxxxFEA
WSR2, 1%, WSRA	2.0	.005 – .009	WSRA-(Value)CT-ND	1.86	15.79	69.67	WSRA-(Value)TR-ND	736.74/M	589.39/M	WSR2xxxxxFEA
WSR2, 1%, WSRA	2.0	.01 – .09	WSRA-(Value)CT-ND	1.54	13.07	57.66	WSRA-(Value)TR-ND	608.61/M	486.89/M	WSR2xxxxxFEA
WSR2, 1%, WSRA	2.0	.10 – 1.0	WSRA-(Value)CT-ND	1.38	11.71	51.65	WSRA-(Value)TR-ND	544.55/M	435.64/M	WSR2xxxxxFEA
WSR3, 1%, WSRB	3.0	.001 – .004	WSRB-(Value)CT-ND	1.54	13.07	57.66	WSRB-(Value)TR-ND	608.61/M	486.89/M	WSR3xxxxxFEA
WSR3, 1%, WSRB	3.0	.005 – .009	WSRB-(Value)CT-ND	1.94	16.47	72.67	WSRB-(Value)TR-ND	768.77/M	615.02/M	WSR3xxxxxFEA
WSR3, 1%, WSRB	3.0	.01 – .09	WSRB-(Value)CT-ND	1.58	13.41	59.16	WSRB-(Value)TR-ND	624.63/M	499.70/M	WSR3xxxxxFEA
WSR3, 1%, WSRB	3.0	.10 – 2.0	WSRB-(Value)CT-ND	1.06	8.98	39.64	WSRB-(Value)TR-ND	416.42/M	333.14/M	WSR3xxxxxFEA
WSR5, 1%, WSRC	5.0	.001 – .004	WSRC-(Value)CT-ND	4.22	35.88	158.26	WSRC-(Value)TR-ND	1681.68/M	1345.35/M	WSR5xxxxxFEA
WSR5, 1%, WSRC	5.0	.005 – .009	WSRC-(Value)CT-ND	3.90	33.15	146.25	WSRC-(Value)TR-ND	1553.56/M	1242.85/M	WSR5xxxxxFEA
WSR5, 1%, WSRC	5.0	.01 – .09	WSRC-(Value)CT-ND	3.26	27.71	122.23	WSRC-(Value)TR-ND	1297.30/M	1037.84/M	WSR5xxxxxFEA
WSR5, 1%, WSRC	5.0	.1 – .3	WSRC-(Value)CT-ND	2.94	24.98	110.21	WSRC-(Value)TR-ND	1169.17/M	935.34/M	WSR5xxxxxFEA

Ⓞ For complete part number, substitute value from Resistance Value Chart for (Value).

WSH2818 Power Metal Strip® High Power (5W) SMT Resistors



Features: • Improved thermal management incorporated into design • Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments and power amplifiers • All welded construction • Solid metal Nickel-Chrome or Manganese-Copper alloy resistive element with low TCR (<20 ppm/°C) • Very low inductance (<5nH) • Excellent frequency response to 50MHz • Low thermal EMF (<3µV/°C) • Inductance: <5nH • Operating Temperature Range: -65°C – 170°C • Maximum Continuous Current: (P/R)^{1/2} Amps

Features: • Improved thermal management incorporated into design • Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments and power amplifiers • All welded construction • Solid metal Nickel-Chrome or Manganese-Copper alloy resistive element with low TCR (<20 ppm/°C) • Very low inductance (<5nH) • Excellent frequency response to 50MHz • Low thermal EMF (<3µV/°C) • Inductance: <5nH • Operating Temperature Range: -65°C – 170°C • Maximum Continuous Current: (P/R)^{1/2} Amps

Series	Value Range (Ω)	Dimensions – mm			
		L	W	H	T
WSH2818	.001 – .005	7.1	4.6	1.143	3.18
	.006 – .1	7.1	4.6	.813	3.18

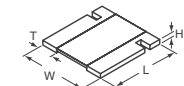
Description	Power Rating (W)	Value Range (Ω)	Digi-Key Part No. Ⓞ	Cut Tape Pricing			Digi-Key Part No. Ⓞ	Tape and Reel Pricing		Vishay Part No.				
				1	10	50		3,500	7,000					
WSH2818, 1%, WSHA	5	.001 – .1	WSHA-(Value)CT-ND	.382	32.47	143.25	WSH2818xxxxxFEA	1217.22/M	1141.14/M					
				.001	.003	.005		.007	.009	.015	.025	.033	.05	.07
				.002	.004	.006		.01	.02	.03	.04	.06	.08	.1

Series	TCR (ppm/°C)	Thermal Shock	Short Time Overload	Load Life

Description	Power Rating (W)	Value Range (Ω)	Digi-Key Part No. Ⓞ	Cut Tape Pricing			Digi-Key Part No. Ⓞ	Tape and Reel Pricing		Vishay Part No.
				1	10	50		3,500	7,000	
WSH2818, 1%, WSHA	5	.001 – .1	WSHA-(Value)CT-ND	3.82	32.47	143.25	WSH2818xxxxxFEA	1217.22/M	1141.14/M	

Ⓞ For complete part number, substitute value from Resistance Value Chart for (Value). Ⓢ For Tape and Reel part number, change CT-ND to TR-ND.

WSL3637 Power Metal Strip® 4 Terminal SMT Resistors



Series	Value Range	Dimensions – mm			
		L	W	H	T
WSL3637	.003	9.14	9.40	6.35	2.18
	.004				
	.005				
	.006				

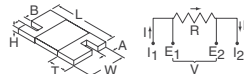
Features: • Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, and power amplifiers • All welded construction • Low thermal EMF (<3µV/°C) • Very low inductance 0.5nH – 5nH • Excellent frequency response to 50MHz
Specifications: • Temperature Coefficient: ±50ppm/°C • Short Time Overload: 5X rated power for 5 seconds • Operating Temperature Range: -65°C – 170°C

Series	Value Range	Dimensions – mm			
		L	W	H	T
WSL3637	All Listed Values	9.14	9.40	6.35	2.18

Description	Power Rating (W)	Value Range (Ω)	Digi-Key Part No. Ⓞ	Cut Tape Pricing			Digi-Key Part No. Ⓞ	Tape and Reel Pricing		Vishay Part No.
				1	10	50		4,000	8,000	
WSL3637, 1%, WSLI	3.0	.003 – .004	WSLI-(Value)CT-ND	1.70	14.43	63.66	WSLI3637xxxxxFEA	538.14/M	504.51/M	
WSL3637, 1%, WSLI	3.0	.005 – .009	WSLI-(Value)CT-ND	1.62	13.75	60.66	WSLI3637xxxxxFEA	512.52/M	480.48/M	
WSL3637, 1%, WSLI	3.0	.01	WSLI-.01CT-ND	1.14	9.67	42.64	WSLI3637xxxxxFEA	358.76/M	336.34/M	

Ⓞ For complete part number, substitute value from Resistance Value Chart for (Value). Ⓢ For Tape and Reel part number, change CT-ND to TR-ND.

VISHAY PRECISION GROUP CSM High Precision Bulk Metal Foil® Current Sensing 4 Terminal, Power Metal Strip SMT Resistors



CSM2512 Resistance Values	
.005	.05
.01	.1

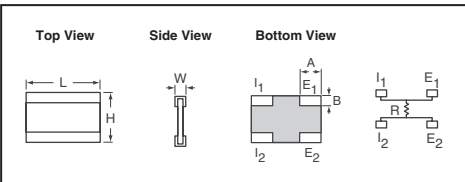
The CSM Series of low value current sense resistors provides power and precision in a four terminal, surface mount configuration. Its all-welded construction is made up of a Bulk Metal Foil resistive element with plated copper terminations.
Features: • Thermal EMF: 3µV/°C • Four Terminal (Kelvin) Design: allows for precision accurate measurements
Specifications: • Operating Temperature Range: -55°C – 125°C, 25°C Ref. • Maximum Weight: 0.09 grams • Thermal Stabilization Time: <1s (nominal value achieved with 10ppm of steady state value)

Series	Resistance Range (Ω)	Dimensions – mm					
		L	W	H	T	A	B
CSM2512	.005	6.35	3.175	0.635	1.194	0.762	0.813
	.01 – .1	6.35	3.175	0.635	0.762	0.762	0.813

Series	Power Rating @ 70°C	Tolerance	Max. Temp. Coefficient	Resist. Range	Digi-Key Part No. Ⓞ	Price Each			Vishay Precision Group Part No.
						1	25	100	
CSM2512	1W	± 0.1%	±15 ppm/°C	.005Ω	Y1487-.005-ND	7.98	6.98	5.32	Y1487R00500B9W
CSM2512	1W	± 0.1%	±15 ppm/°C	.01Ω – .1Ω	Y1487-.01-ND	6.92	6.06	4.62	Y1487xxxxxxx9B9W

Ⓞ For complete part number, substitute value from Resistance Value Chart for (Value).

VCS1625Z Bulk Metal Z-Foil® Ultra High Precision, Current Sensing, SMT Resistors



The Z-Foil technology provides a significant reduction of the resistive component's sensitivity to ambient temperature variations (TCR) and applied power changes (PCR). Designers can now guarantee a high degree of stability and accuracy in fixed-resistor applications using solutions based on Vishay's revolutionary Z-Foil technology. Model VCS1625Z is a surface mount chip resistor designed with four pads for Kelvin connection. It provides performance capabilities far greater than other resistor technologies can supply in a product of comparable size.

Features: • Non-inductive, non-capacitive design • Non hot spot design • Performance Specifications: • TCR: ±0.05ppm/°C typical (0°C – 60°C); ±0.2ppm/°C typical (-55°C – 125°C, 25°C Ref.) • PCR: 5ppm/at rated power • Load Life Stability: 0.02% @ 70°C, 2,000 hours at rated power • Electrostatic Discharge (ESD): up to 25,000V • Power Rating: 1W @ 70°C on alumina substrate (0.5W on FR4 PCB) • Thermal Shock 5 x (-65°C – 150°C): ±0.005% (50ppm) • Low Temp. Operation: ±0.005% (50ppm) • Short Time Overload: ±0.005% (50ppm) • Rise Time: 1ns effectively no ringing • Current Rating: 5A max. • Current Noise: < -40dB • Voltage Coefficient: < 0.1ppm/V • Non-inductive: < 0.08µH • Thermal Stabilization Time: <1s (nominal value achieved with 10ppm of steady state value) • Applications: • Military • Medical • Automatic test equipment (ATE) • Airborne (in heads-up display systems) • High precision instrumentation • Electron beam recording equipment • Electron microscopes • Current sensing applications • Forced balance electronic scales • Applications that require superior frequency stability

Series	Resistance Value	Dimensions – mm					
		L	H	W	A	B	
VCS1625Z	0.5Ω	6.35	4.06	1.02 (max.)	2.03	1.02	

Series	Power Rating @ 70°C	Tolerance	Max. Current	Res. Value	TCR (Typ.) and Max. Spread†	Digi-Key Part No. Ⓞ	Price Each			Vishay Precision Group Part No.
							1	25	100	
VCS1625Z	1W	1.0%	5A	0.5Ω	± 0.2 ± 2.8 ppm/°C	Y1607-.5-ND	9.40	8.06	6.38	Y1607R50000F9W

† (-55°C – 125°C, 25°C)

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

2018 (EU2011-EN) **Free shipping on orders over €65! All prices in euro and include duties.**