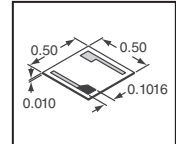




### Thin Film Back-Contact Resistors

The Back Contact Resistor (BCR) series single-value chip is one of the smallest chips available. The BCR requires only one wire bond thus saving hybrid space. **Features:** • Wire bondable • Small size 0.020 inches square • Oxidized silicon substrate for good power dissipation • Resistor material: Tantalum nitride, self-passivating • Moisture resistant



Description	Power Rating (Watts)	Value Range (Ω)	Digi-Key Part No. ‡	Price Each		Vishay Part No.
				10	50	
BCR2020, 1%, BCRFM	0.25	10 - 10K	BCR(Value)FM-ND	6.67	5.84	BCRxxxxxFMAHWT

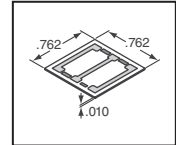
**Resistance Values**  
BCR2020, 1%, BCRFM

10	47	10K
----	----	-----

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

### Thin Film Center-Contact Resistors

The CTR offers the designer flexibility in use as either a single value resistor as two resistors with a center tap feature. **Features:** • Wire bondable • Tight ratio tolerances to: 0.05% • Chip size: 0.030 inches square • Oxidation silicon substrate for good power dissipation • Resistor material: Tantalum nitride, self-passivating • Moisture resistant



Description	Power Rating (Watts)	Value Range (Ω)	Digi-Key Part No. ‡	Price Each		Vishay Part No.
				10	50	
CTR3030, 1%, CTRFK	0.25	1.0K - 27K	CTR-(Value)FK-ND	4.73	3.91	CTRxxxxxFFKGANHWT

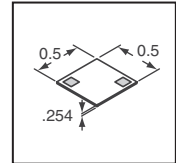
**Resistance Values**  
CTR3030, 1%, CTRFK

1.0K	10K	20K	27K
------	-----	-----	-----

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

### Thin Film Top-Contact Resistors

The SFM Series single-value resistor chips offer a small size, wide ohmic value range and excellent power capacity. The SFMs tantalum nitride resistor material offers excellent resistance to high moisture environments. **Features:** • Wire bondable • Small size: 0.020 inches square • Oxidized silicon substrate for good power dissipation • Self-passivating • Moisture resistant



Description	Power Rating (Watts)	Value Range (Ω)	Digi-Key Part No. ‡	Price Each		Vishay Part No.
				10	50	
SFM2020, 1%, SFMFK	0.25	10 - 10K	SFM(Value)FK-ND	4.11	3.40	SFMxxxxxFKANHWT
SFM2020, 1%, SFMFM	0.25	1M	SFM1.0MFM-ND	4.11	3.40	SFM10003FMANHWT

**Resistance Values**  
SFM2020, 1%, SFMFK

10	1.0K	10K
----	------	-----

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

## VISHAY Dale WSL Power Metal Strip® SMT Resistors

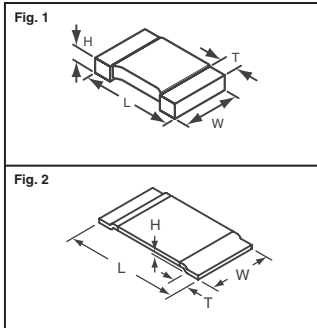


G

**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 • Solid metal iron-chrome (nickel chrome on WSL3921 and WSL5931) 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)

**Specifications:** • Operating Temperature Range: -65°C - 170°C • Thermal Shock: -55°C - 150°C, 1000 cycles, 15 minutes at each extreme • Load Life: 1000 hours at 70°C, 1.5 hours "ON", 0.5 hours "OFF" • Short Time Overload: 5X Rated Power for 5 Seconds

Series	Value Range	Dimensions - mm			
		L	W	H	T
WSL0603	All Listed Values	1.52	0.76	.330	.381
WSL0805	All Listed Values	2.03	1.27	.330	.381
WSL1206	All Listed Values	3.20	1.60	.635	.508
WSL2010	.001Ω - .006Ω	5.08	2.54	.635	1.47
	.007Ω - .50Ω	5.08	2.54	.635	.508
WSL2512	.001Ω - .004Ω	6.35	3.18	.635	2.21
	.005Ω - .006Ω	6.35	3.18	.635	1.19
WSL2816	.007Ω - .50Ω	6.35	3.18	.635	.762
	All Listed Values	7.1	4.20	.635	1.57
WSL3921	All Listed Values	10.01	5.20	.5	2.00
WSL5931	All Listed Values	15.01	7.75	.5	4.00



Series	Temperature Coefficient ppm/°C
WSL0603	±75
WSL0805	±75
WSL1206	.002Ω/±275
	.003Ω - .004Ω/±150
WSL2010	.005Ω - .006Ω/±110
	.007Ω - .20Ω/±75
WSL2512	.001Ω - .002Ω/±275
	.003Ω - .004Ω/±150
WSL2816	.005Ω - .006Ω/±110
	.007Ω - .50Ω/±75
WSL3921	±75
WSL5931	.0003Ω - .0005Ω/±175
	.001Ω - .004Ω/±75
WSL5931	.002Ω/±225
	.003Ω - .0005Ω/±175
	.001Ω - .003Ω/±75

Resistance Values WSL0603, 1%, WSLJ			Resistance Values WSL0805, 1%, WSLA			Resistance Values WSL1206, 1%, WSLC			Resistance Values WSL2010, 1%, WSLE								
.01	.02	.033	.01	.03	.08	.002	.006	.01	.03	.06	.10	.001	.006	.015	.04	.09	.25
.015	.022	.05	.015	.033	.10	.003	.007	.015	.033	.07	.15	.002	.007	.02	.05	.10	.30
.016	.025	.051	.02	.04	.15	.004	.008	.02	.04	.08	.20	.003	.008	.025	.06	.11	.33
.018	.03	.1	.025	.05	.20	.005	.009	.025	.05	.09		.004	.009	.03	.07	.15	.40
												.005	.01	.033	.08	.20	.50

Resistance Values WSL2512, 1%, WSLG				Resistance Values WSL2816, 1%, WSLK				Resistance Values WSL3921, 1%, WSLM		Resistance Values WSL5931, 1%, WSLN						
.001	.006	.015	.04	.09	.25	.01	.018	.025	.04	.06	.068	.08	.0003	.002	.0002	.001
.002	.007	.02	.05	.10	.30	.012	.019	.03	.047	.062	.07	.082	.0005	.003	.0003	.002
.003	.008	.025	.06	.15	.33	.015	.02	.033	.05	.065	.075	.1	.001	.004	.0005	.003
.004	.009	.03	.07	.151	.40											
.005	.01	.033	.08	.20	.50											

Fig.	Description	Power Rating (W)	Value Range (Ω)	Digi-Key Part No. ‡	Cut Tape Pricing			Digi-Key Part No. ‡	Tape and Reel	
					1	10	50		Qty.	Pricing
1	WSL0603, 1%, WSLJ	.1	.01 - .051	WSLJ-(Value)CT-ND	.82	6.94	30.63	WSLJ-(Value)TR-ND	5,000	256.26/M
		.1	.1	WSLJ-(Value)CT-ND	.66	5.58	24.62	WSLJ-(Value)TR-ND	5,000	205.01/M
	WSL0805, 1%, WSLA	.125	.01 - .05	WSLA-(Value)CT-ND	.82	6.94	30.63	WSLA-(Value)TR-ND	5,000	256.26/M
		.125	.08 - .20	WSLA-(Value)CT-ND	.66	5.58	24.62	WSLA-(Value)TR-ND	5,000	205.01/M
	WSL1206, 1%, WSLC	.25	.002 - .009	WSLC-(Value)CT-ND	1.26	10.69	47.15	WSLC-(Value)TR-ND	4,000	397.20/M
		.25	.01 - .06	WSLC-(Value)CT-ND	.90	7.62	33.63	WSLC-(Value)TR-ND	4,000	281.89/M
	WSL2010, 1%, WSLE	.25	.07 - .20	WSLC-(Value)CT-ND	.74	6.26	27.63	WSLC-(Value)TR-ND	4,000	230.63/M
		.5	.001 - .004	WSLE-(Value)CT-ND	1.54	13.07	57.66	WSLE-(Value)TR-ND	4,000	486.89/M
		.5	.005 - .009	WSLE-(Value)CT-ND	1.46	12.39	54.65	WSLE-(Value)TR-ND	4,000	461.26/M
		.5	.01 - .06	WSLE-(Value)CT-ND	1.02	8.65	38.14	WSLE-(Value)TR-ND	4,000	320.32/M
		.5	.07 - .50	WSLE-(Value)CT-ND	.86	7.29	32.14	WSLE-(Value)TR-ND	4,000	269.07/M
		1.0†	.001 - .004	WSLG-(Value)CT-ND	1.58	13.41	59.16	WSLG-(Value)TR-ND	2,000	499.70/M
WSL2512, 1%, WSLG	1.0†	.005 - .009	WSLG-(Value)CT-ND	1.50	12.73	56.16	WSLG-(Value)TR-ND	2,000	474.08/M	
	1.0†	.01 - .06	WSLG-(Value)CT-ND	1.02	8.65	38.14	WSLG-(Value)TR-ND	2,000	320.32/M	
	1.0†	.07 - .50	WSLG-(Value)CT-ND	.90	7.62	33.63	WSLG-(Value)TR-ND	2,000	281.88/M	
	2	.01 - .068	WSLK-(Value)CT-ND	1.33	11.27	49.70	WSLK-(Value)TR-ND	5,000	418.82/M	
WSL2816, 1%, WSLK	2	.07 - .1	WSLK-(Value)CT-ND	1.17	9.94	43.84	WSLK-(Value)TR-ND	5,000	369.17/M	
	3.0	.0003 - .004	WSLM-(Value)CT-ND	2.22	18.86	83.19	WSLM-(Value)TR-ND	3,000	704.71/M	
WSL3921, 1%, WSLM	3.0	.0002 - .004	WSLN-(Value)CT-ND	2.62	22.26	98.20	WSLN-(Value)TR-ND	1,500	832.84/M	
	5.0									

‡ For complete part number, substitute value from Resistance Value Chart for (Value) † For values above .1Ω, derate linearly to 80% rated power at .50.

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.

2016 (EU2011-EN) Free shipping on orders over €65! All prices in euro and include duties.