Current Sense Resistors

Product Selection Guide

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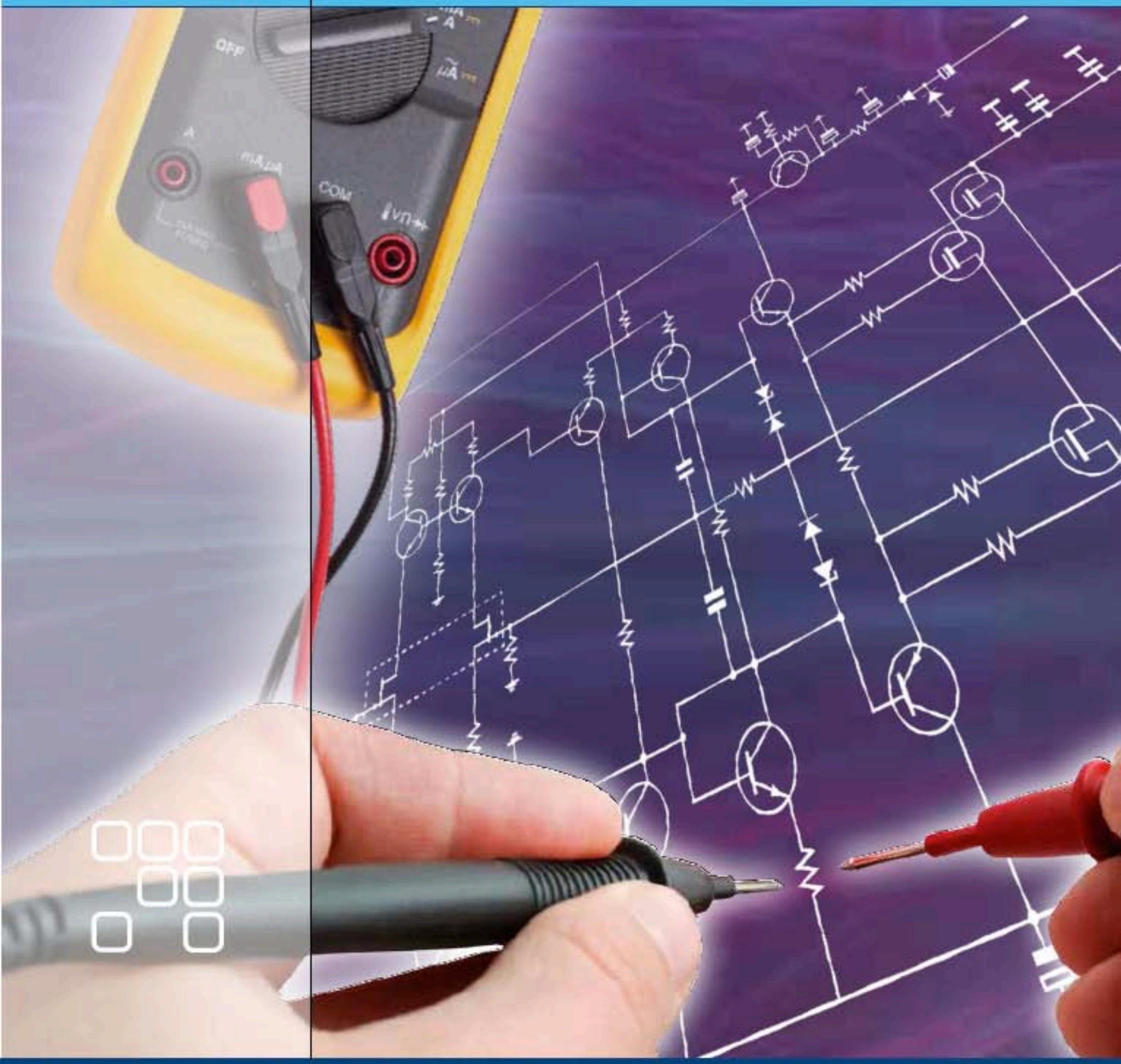

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Current Sense Resistors

A current sense resistor is used to measure or monitor current in a circuit by translating the amount of current to a voltage which can be easily measured.

Power Management

Measures the amount of current applied to a circuit (DC - DC converter).

Over Current Protection

Detects excessive current if applied (power supply / over charging / over heating).

Current Detection

Detects if current is flowing (motor speed).

Current Sense Methods

Current Sense Resistors

Pros – Accurate direct measurement

Cons – Higher power dissipation

Hall Effect

Pros – Lower power dissipation

Cons – Higher cost

Current Transformer

Pros – Isolation from high voltages
– Lower power dissipation

Cons – Measure A/C current only

Transistor

Pros – Reduces part count

Cons – Lower accuracy

Current Sensing Resistor Applications

Supplier	Series	Technology	Watts	Resistance Range Ω
KOA	SR731H (0201)	Thick Film	1/10	0.180 - 10
Panasonic	ERJ-3R / -L03 (0603)	Thick Film	1/10	0.047 - 9.1
Vishay	WSL0603	Metal Strip	1/10	0.010 - 0.100
KOA	SR731E (0402)	Thick Film	1/8	0.100 - 47
KOA	UR73D1E (0402)	Thick Film	1/8	0.024 - 0.100
Panasonic	ERJ-2B / -2BW (0402)	Thick Film	1/8	0.047 - 1
Panasonic	ERJ-6R / -L06 (0805)	Thick Film	1/8	0.047 - 9.1
Vishay	WSL0805	Metal Strip	1/8	0.005 - 0.200
KOA	SR731J (0603)	Thick Film	1/5	0.100 - 10
KOA	UR73D1J (0603)	Thick Film	1/5	0.010 - 0.100
Vishay	WSL0603-18	Metal Strip	1/5	0.010 - 0.100
KOA	LR72B	Metal Strip	1/4	0.003 - 0.005
KOA	SR732A (0805)	Thick Film	1/4	0.030 - 10
KOA	UR732A / D2A (0805)	Thick Film	1/4	0.010 - 0.100
OHMITE	602SJR	Metal Strip	1/4	0.003 - 0.005
OHMITE	LVC06 (1206)	Thick Film	1/4	0.010 - 0.976
Panasonic	ERJ-14R (1210)	Thick Film	1/4	0.100 - 9.1
Panasonic	ERJ-3BW (0603)	Thick Film	1/4	0.020 - 0.100
Panasonic	ERJ-6B (0805)	Thick Film	1/4	0.100 - 9.1
Panasonic	ERJ-8R / -L08 (1206)	Thick Film	1/4	0.047 - 9.1
Panasonic	ERJ-M03N (0603)	Metal Strip	1/4	0.010
Vishay	WSL0805-18	Metal Strip	1/4	0.005 - 0.200
Vishay	WSL1206	Metal Strip	1/4	0.001 - 0.200
KOA	SR732B (1206)	Thick Film	1/3	0.030 - 10
Panasonic	ERJ-6BW (0805)	Thick Film	1/3	0.010 - 0.100
Bourns	CRA2010	Metal Strip	1	0.005 - 0.020
Bourns	CRF1206	Metal Strip	1	0.010 - 0.020
Bourns	CRF2512	Metal Strip	1	0.001 - 0.040
Bourns	PWR2615 / 3014	Wirewound	1	0.010 - 4K
Bourns	PWR4412-2S B	Metal Strip	1	0.005 - 0.100
KOA	BLR1L	Metal Strip	1	0.008 - 0.050
KOA	CSR1	Metal Strip	1	0.005 - 0.050
KOA	LR72C	Metal Strip	1	0.002 - 0.003
KOA	SL1 / TSL1 (2512)	Metal Strip	1	0.003 - 22M
KOA	SR733A (2512)	Thick Film	1	0.039 - 10
KOA	TLR2H (2010)	Metal Strip	1	0.001 - 0.010
KOA	TLR3A (2512)	Metal Strip	1	0.001 - 0.004
KOA	UR73D3A (2512)	Thick Film	1	0.010 - 0.100
OHMITE	610SJR	Metal Strip	1	0.002 - 0.003
OHMITE	LVC25 (2512)	Thick Film	1	0.010 - 0.976
OHMITE	LVK24 (2412)	Thick Film	1	0.010 - 0.500
OHMITE	MCS1632	Metal Strip	1	0.005 - 0.050
OHMITE	RW1S0BA	Wirewound	1	0.005 - 1K
Bourns	PWR4318 / 4525	Wirewound	2	0.010 - 15K
KOA	BLR2L	Metal Strip	2	0.008 - 0.050
KOA	CSR2	Metal Strip	2	0.005 - 0.050
KOA	SL2 (4527)	Metal Strip	2	0.003 - 22M
KOA	SLN2 (4527)	Metal Strip	2	0.005 - 0.200
KOA	TLR3AW (2512)	Metal Strip	2	0.001 - 0.010
OHMITE	FCSL64	Metal Strip	2	0.001 - 0.050
OHMITE	LVK25 (1224)	Thick Film	2	0.001 - 0.010
OHMITE	MCS3264	Metal Strip	2	0.005 - 0.050
Bourns	CRA2512	Metal Strip	3	0.010 - 0.060
Bourns	PWR4412-2S C	Metal Strip	3	0.005 - 0.100
Bourns	PWR5322 / 6327	Wirewound	3	0.010 - 25K
KOA	PSE / PSI	Metal Strip	3	0.0005 - 0.004
KOA	SL3 (4527)	Metal Strip	3	0.005 - 0.100
OHMITE	FCSL76	Metal Strip	3	0.001 - 0.050
OHMITE	RW3R0DB	Wirewound	3	0.005 - 13K
TT electronics	LRF3W	Thick Film	3	0.002 - 0.100
TT electronics	OAR-3	Metal Strip	3	0.0025 - 0.100
TT electronics	OARS-3	Metal Strip	3	0.002 - 0.015
TT electronics	ULR 2512	Metal Strip	3	0.0005 - 0.003
TT electronics	WSM-3	Wirewound	3	0.010 - 3K
Vishay	SR3	Metal Strip	3	0.005 - 0.050
Vishay	WSC6927	Wirewound	3	0.100 - 8K
Vishay	WSL2726	Metal Strip	3	0.0003 - 0.005
Vishay	WSL3637	Metal Strip	3	0.001 - 0.010
Vishay	WSL3921	Metal Strip	3	0.0003 - 0.004
Vishay	WSL4026	Metal Strip	3	0.0003 - 0.005

Under 1 Watt

1 Watt

2 Watts

3 Watts and Above

Supplier	Series	Technology	Watts	Resistance Range Ω
Panasonic	ERJ-8B (1206)	Thick Film	1/3	0.100 - 9.1
Panasonic	ERJ-L14 (1210)	Thick Film	1/3	0.020 - 0.100
Vishay	WSLP0603	Metal Strip	2/5	0.010 - 0.100
Bourns	PWR1913 / 2010	Wirewound	1/2	0.010 - 1K
KOA	LR72A	Metal Strip	1/2	0.002 - 0.008
KOA	SR732E (1210)	Thick Film	1/2	0.024 - 10
KOA	TLR2B (1206)	Metal Strip	1/2	0.002 - 0.020
KOA	UR732B / D2B (1206)	Thick Film	1/2	0.010 - 0.100
OHMITE	605SJR	Metal Strip	1/2	0.002 - 0.008
OHMITE	LVC20 (2010)	Thick Film	1/2	0.010 - 0.976
OHMITE	LVK12 (1206)	Thick Film	1/2	0.010 - 0.500
Panasonic	ERJ-12R / -L12 (1812)	Thick Film	1/2	0.020 - 9.1
Panasonic	ERJ-12Z / -L1D (2010)	Thick Film	1/2	0.040 - 9.1
Panasonic	ERJ-14B (1210)	Thick Film	1/2	0.100 - 9.1
Panasonic	ERJ-8BW (1206)	Thick Film	1/2	0.010 - 0.100
TT electronics	LRC-LR/LRF1206	Thick Film	1/2	0.003 - 1
Vishay	WSC01/2 (2012)	Wirewound	1/2	0.100 - 4.99
Vishay	WSL1206-18	Metal Strip	1/2	0.001 - 0.200
Vishay	WSL2010	Metal Strip	1/2	0.001 - 0.500
Vishay	WSLP0805	Metal Strip	1/2	0.010 - 0.050
OHMITE	RW0S6BB	Wirewound	3/5	0.010 - 1K
KOA	SL07 (2010)	Metal Strip	3/4	0.005 - 0.100
KOA	SR732H (2010)	Thick Film	3/4	0.033 - 10
KOA	UR73D2H (2010)	Thick Film	3/4	0.010 - 0.100
OHMITE	LVK20 (2010)	Thick Film	3/4	0.010 - 0.500
Panasonic	ERJ-1TR / -L1W (2512)	Thick Film	1	0.040 - 9.1
Panasonic	ERJ-M1W (2512)	Metal Strip	1	0.001 - 0.020
TT electronics	LRC-LR/LRF2010	Thick Film	1	0.002 - 1
TT electronics	OAR-1	Metal Strip	1	0.003 - 0.050
TT electronics	OARS	Metal Strip	1	0.002 - 0.050
TT electronics	ULR 2512	Metal Strip	1	0.0025 - 0.015
TT electronics	ULR 1206	Metal Strip	1	0.001 - 0.010
TT electronics	WSM-1	Wirewound	1	0.010 - 1K
Vishay	SR1	Metal Strip	1	0.005 - 0.030
Vishay	WSC2515	Wirewound	1	0.100 - 2.5K
Vishay	WSK0612	Metal Strip	1	0.0005 - 0.005
Vishay	WSK2512	Metal Strip	1	0.001 - 0.025
Vishay	WSL2010-18	Metal Strip	1	0.001 - 0.500
Vishay	WSL2512	Metal Strip	1	0.0005 - 0.500
Vishay	WSLP1206	Metal Strip	1	0.001 - 0.050
Yageo	PR2512	Metal Strip	1	0.001 - 0.005
OHMITE	RW1S5CA	Wirewound	1 1/2	0.005 - 1.5K
TT electronics	ULR 2010	Metal Strip	1 1/2	0.001 - 0.010
OHMITE	RW2R	Wirewound	2	0.005 - 5K
TT electronics	LRC-LR/LRF2512	Thick Film	2	0.002 - 1
TT electronics	ULR 2512	Metal Strip	2	0.0005 - 0.010
TT electronics	WSM-2	Wirewound	2	0.010 - 2K
Vishay	WSC4527	Wirewound	2	0.100 - 4.92K
Vishay	WSL2512-18	Metal Strip	2	0.0005 - 0.040
Vishay	WSL2816	Metal Strip	2	0.010 - 0.100
Vishay	WSR2 (4527)	Metal Strip	2	0.001 - 1
TT electronics	ULR 2512	Metal Strip	2 1/2	0.004 - 0.006
Vishay	WSMS2908	Metal Strip	3	0.00005 - 0.001
Vishay	WSMS5515	Metal Strip	3	0.00005 - 0.001
Vishay	WSR2..3	Metal Strip	3	0.002 - 0.005
Vishay	WSR3 (4527)	Metal Strip	3	0.001 - 0.200
OHMITE	RW3R5EA	Wirewound	3 1/2	0.005 - 25K
OHMITE	FCSL90	Metal Strip	4	0.001 - 0.100
Bourns	PWR4412-2S D	Metal Strip	5	0.005 - 0.100
OHMITE	FC4L / FCSL	Metal Strip	5	0.001 - 0.050
TT electronics	OAR-5	Metal Strip	5	0.003 - 0.050
TT electronics	OARS-XP	Metal Strip	5	0.001 - 0.250
Vishay	SR5	Metal Strip	5	0.004 - 0.050
Vishay	WSH2818	Metal Strip	5	0.001 - 0.100
Vishay	WSL5931	Metal Strip	5	0.0002 - 0.003
Vishay	WSLP2726 / 4026	Metal Strip	5	0.002
Vishay	WSR5 (4527)	Metal Strip	5	0.001 - 0.300
KOA	PSB	Metal Strip	6	0.00075 - 0.001
Vishay	WSLP2726 / 4026	Metal Strip	7	0.0005 - 0.001
KOA	BLR3L	Metal Strip	15	0.008 - 0.050

Current Sense Resistor Technologies

Features & Benefits

Metal Strip

- Lower resistance values
- Lower temperature coefficient (TCR)
- Tighter tolerances
- Good pulse handling
- Extended temperature range
- Small foot print relative to power rating
- Low inductance

Wirewound

- Higher power ratings
- Lower temperature coefficient (TCR)
- Wider resistance range
- Tighter tolerances
- Excellent pulse handling
- Inductive and non-inductive versions available

Thick Film

- Wide resistance range
- Variety package sizes
- Low Inductance
- Lower cost option

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Current Sense Resistors

Metal Strip

Bourns
- CRA
- CRF
- PWR 4412-2S

KOA
- BLR
- CSR
- LR72
- NPR
- PSB
- PSE/PSI
- SL/SLN/TSL
- TLR
- TLRH

OHMITE
- 60S/60
- CS3
- FC4L
- FCSL
- MCS

Panasonic Electronic Components
- ERJ-M03N
- ERJ-M1WS
- ERJ-M1WT

TT electronics
- BCS8
- OAR
- OARS
- OLV
- ULR

Vishay
- SPU
- SR
- WSE
- WSL
- WSL-18
- WSLP
- WSH
- WSK
- WSLT
- WSR
- WSBS
- WSLE
- WSLS
- WSMS

Yageo
- PR

Wirewound

Bourns
- PWR

TT electronics
- WSM

OHMITE
- RW

Vishay
- WSC
- WSN

Thick Film

Bourns
- CRM

KOA
- SR73
- UR73

OHMITE
- LVK
- LVC

Panasonic Electronic Components
- ERJ-Bx/ERJ-A1
- ERJ-xR
- ERJ-12Z
- ERJ-1TR
- ERJ-Lxx

TT electronics
- LRC
- LRCS
- LRF
- LRF3W
- LVC

Vishay
- WSF
- RCWE/RCWL

Yageo
- PE
- PF
- PH
- PT
- RL

BOURNS · KOA SPEER ELECTRONICS, INC. · OHMITE · Panasonic Electronic Components · TT electronics · VISHAY · YAGEO

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