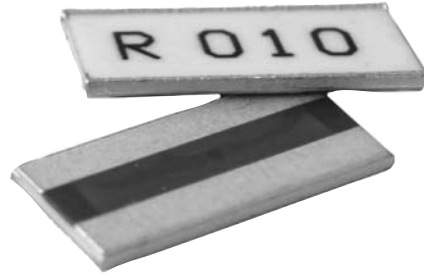


FCSL Series

Metal Foil Current Sense

Ohmite continues to add to its complement of Current Sense offerings with the FCSL Series. FCSL incorporates proven metal foil technology to produce the ultimate in a current sense resistor. FCSL features the effective combination of very low and stable TCRs (Temperature Coefficient of Resistance) available in a wide selection of very low ohmic values. Power ratings up to 5 Watts makes FCSL the ideal choice for your current sensing applications.



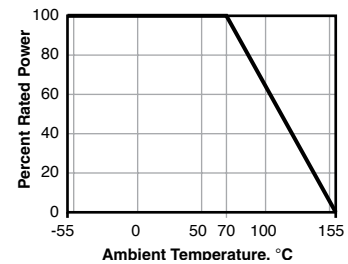
FEATURES

- Foil Construction ensures a very stable TCR (Temperature Coefficient of Resistance)
- Designed for automatic insertion
- Industry standard sizes
- High heat resistant use
- Low heat electromotive use
- Color: white (top) and green (bottom)

SERIES SPECIFICATIONS

Series	Power Rating	Resistance Range	Tolerance	TCR (ppm/°C)	Weight (g)
FCSL05	0.2W	10mΩ, 20mΩ	±1%	±50	0.004
FCSL64	2.0W	1mΩ	±5%	±150	0.036
		2mΩ	±2%	±100	
		3mΩ ~ 100mΩ	±1%	±50	
FCSL76	3.0W	1mΩ	±5%	±150	0.050
		2mΩ	±2%	±100	
		3mΩ ~ 100mΩ	±1%	±50	
FCSL90	4.0W	1mΩ	±5%	±150	0.071
		2mΩ	±2%	±100	
		3mΩ ~ 100mΩ	±1%	±50	
FCSL110	5.0W	1mΩ	±5%	±150	0.096
		2mΩ	±2%	±100	
		3mΩ ~ 100mΩ	±1%	±50	

Derating



CHARACTERISTICS

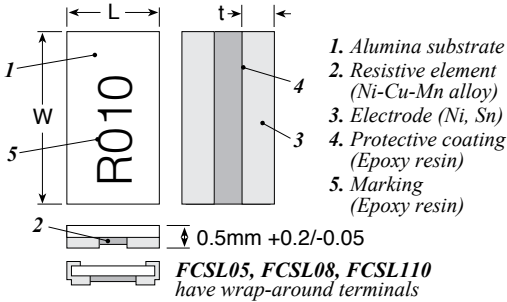
Test Condition	Maximum ΔR	*In-rush Current				
		Series	Rated Wattage	1mΩ-10mΩ In-rush Power Max. Current	12mΩ-100mΩ In-rush Power Max. Current	
Max. temperature for rated power	70°C	FCSL05	0.2W	1W 7A	1W 7A	
Operating temperature range	-55°C ~ +155°C	FCSL64	2W	225W 125A	150W 70A	
Rated voltage	√(Rated power x Resistance value) V	FCSL76	3W	325W 150A	210W 80A	
In-rush current*	Rated current 10 msec ON, 60 sec OFF, 10 cycles* (see table at right)	FCSL90	4W	440W 180A	300W 100A	
Rapid change of temperature	-55°C (30min.)/+155°C (30min.), 100 cy. 1000 cycles, FCSL08 only	FCSL110	5W	600W 240A	440W 120A	
Solderability	245°C ±5°C for 3 ±0.5 sec.	In-rush current = √(in-rush power/resistance value), or max. current, whichever is smaller				
Endurance at 70°C	70°C ±3°C, Rated voltage 1.5h ON, 0.5h OFF, 1000h					
Resistance to soldering heat	260°C ±5°C for 10 ±1 sec.					
Moisture resistance	60°C ±2°C, 90-95% RH, Rated voltage 1.5h ON, 0.5h OFF, 1000h					

FCSL Series

Metal Foil Current Sense

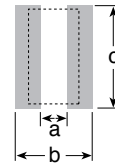
DIMENSIONS

(in.±.008/mm ±0.20)



Series	Power Rating	L	W	t
FCSL05	0.2W	0.039/1.0	0.020/0.5	0.018/0.45 0.012/0.30
FCSL64	2.0W	0.122/3.1	0.248/6.3	0.047/1.2 0.020/0.5 0.020/0.5
FCSL76	3.0W	0.15/3.8	0.3/7.6	0.053/1.35 0.024/0.6 0.024/0.6
FCSL90	4.0W	0.177/4.5	0.35/8.9	0.063/1.6 0.028/0.7 0.028/0.7
FCSL110	5.0W	0.197/5.0	0.43/11.0	0.071/1.8 0.031/0.8 0.031/0.8

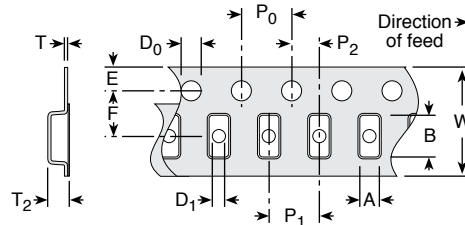
Land Pattern



(mm)	Value range	a	b	c
FCSL05	10Ω, 20Ω	0.1	1.6	0.6
FCSL64	1mΩ	0.9	4.2	6.6
	2mΩ-100mΩ	2.2	4.2	6.6
FCSL76	1mΩ	1.1	4.6	7.8
	2mΩ-100mΩ	2.6	4.6	7.8
FCSL90	1mΩ	1.3	5.1	9.2
	2mΩ-100mΩ	3.1	5.1	9.2
FCSL110	1mΩ	1.5	5.6	11.2
	2mΩ-100mΩ	3.6	5.6	11.2

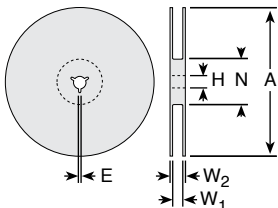
PACKAGING SPECIFICATIONS

Tape (in./mm)



	FCSL05	FCSL64	FCSL76	FCSL90	FCSL110
A	0.026 (0.65 ±0.03)	0.135 (3.43 ±0.2)	A ₀ 0.163 (4.15 ±0.10)	0.191 (4.85 ±0.10)	0.213 (5.40 ±0.10)
B	0.045 (1.15 ±0.03)	0.261 (6.63 ±0.2)	B ₀ 0.313 (7.95 ±0.10)	0.368 (9.35 ±0.10)	0.453 (11.50 ±0.10)
W	0.315 (8.0 ±0.2)	0.472 (12.0 ±0.3)	W 0.630 (16.00 ±0.30)	0.630 (16.00 ±0.30)	0.945 (24.00 ±0.30)
E	0.069 (1.75 ±0.1)	0.069 (1.75 ±0.1)	F 0.295 (7.50 ±0.10)	0.295 (7.50 ±0.10)	0.453 (11.50 ±0.10)
F	0.138 (3.5 ±0.05)	0.217 (5.5 ±0.05)	E 0.069 (1.75 ±0.10)	0.069 (1.75 ±0.10)	0.069 (1.75 ±0.10)
P ₀	0.157 (4.0 ±0.1)	0.157 (4.0 ±0.1)	P ₀ 0.157 (4.00 ±0.10)	0.157 (4.00 ±0.10)	0.157 (4.00 ±0.10)
P ₁	0.079 (2.0 ±0.05)	0.157 (4.0 ±0.1)	P ₁ 0.315 (8.00 ±0.10)	0.315 (8.00 ±0.10)	0.315 (8.00 ±0.10)
P ₂		0.079 (2.0 ±0.05)	P ₂ 0.079 (2.00 ±0.10)	0.079 (2.00 ±0.10)	0.079 (2.00 ±0.10)
D ₀	0.059 (1.5 ±0.1/-0)	0.059 (1.5 ±0.1/-0)	D ₀ 0.059 (1.50 ±0.10)	0.059 (1.50 ±0.10)	0.059 (1.50 ±0.10)
D ₁	0.059 (1.5 ±0.2/-0)	0.059 (1.5 ±0.2/-0)	D ₁ 0.059 (1.50 ±0.10)	0.059 (1.50 ±0.10)	0.059 (1.50 ±0.10)
T	0.020 (0.5 ±0.1)	0.008 (0.2 ±0.05)	T 0.012 (0.30 ±0.05)	0.012 (0.30 ±0.05)	0.012 (0.30 ±0.05)
T ₂		0.059 (1.5 max.)	T ₂ 0.047 (1.2 ±0.15)	0.047 (1.2 ±0.15)	0.047 (1.2 ±0.15)

Reel (in./mm)



	FCSL05	FCSL64	FCSL76/90	FCSL110
A	7.008 (178±2)	7.087 (180 +0/-3)	7.087 (180 +0/-3)	12.992 (330 ±2.0)
H	0.531 (13.5±0.1)	0.512 (13 ±0.2)	0.512 (13 ±0.2)	0.512 (13 ±0.2)
E	0.098 (2.5±1)	0.079 (2.0 ±0.5)	0.079 (2.0 ±0.5)	0.079 (2.0 ±0.5)
N	0.236 (60 +1/-0)	0.236 (60 +1/-0)	0.236 (60 +1/-0)	3.937 (100 ±1.0)
W ₁	0.331 (8.4±2/-0)	0.518 (13.0 ±0.3)	0.669 (17.0 ±0.3)	1.000 (25.4 ±1.0)
W ₂	0.518 (13.0 ±1.4)	0.669 (17.0 ±1.4)	0.764 (19.4 ±1.0)	1.157 (29.4 ±1.0)

ORDERING INFORMATION

RoHS Compliant

FCSL64R005JER

Series	Package Size	Ohms	Tolerance	Taping Code
	64=6432=2W	R005 =0.005Ω	J = 5%	R = 1,000 pc/reel
	76=7638=3W	R050 =0.050Ω	G = 2%	
	90=9045=4W		F = 1%	
	110=11050=5W			

Standard Part Numbers

Ohms	2 Watts	3 Watts	4 Watts	5 Watts	Tolerance	TCR
0.0010	FCSL64R001JE	FCSL76R001JE	FCSL90R001JE	FCSL110R001JER	±5%	±150ppm/°C
0.0020	FCSL64R002GE	FCSL76R002GE	FCSL90R002GE	FCSL110R002GER	±2%	±100ppm/°C
0.0050	FCSL64R005FE	FCSL76R005FE	FCSL90R005FE	FCSL110R005FER	±1%	±50ppm/°C
0.0100	FCSL64R010FE	FCSL76R010FE	FCSL90R010FE	FCSL110R010FER	±1%	±50ppm/°C
0.0250	FCSL64R025FE	FCSL76R025FE	FCSL90R025FE	FCSL110R025FER	±1%	±50ppm/°C
0.0500	FCSL64R050FE	FCSL76R050FE	FCSL90R050FE	FCSL110R050FER	±1%	±50ppm/°C