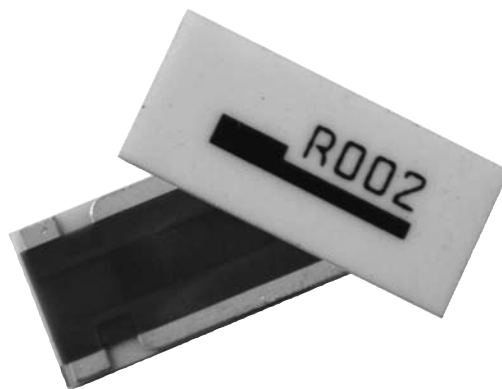


FC4L Series

FC4L Four Terminal Current Sense Metal Foil Construction



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)

Ohmite extends its FC4L Series with this 4-terminal Kelvin type FC4L derivative in 2 watt and 5 watt package sizes. Employing the same Ni-Cu-Mn resistive element this product affords the user an added advantage of a built in 4-terminal design with 2 larger electrodes for current management and 2 smaller electrodes for current measurement.

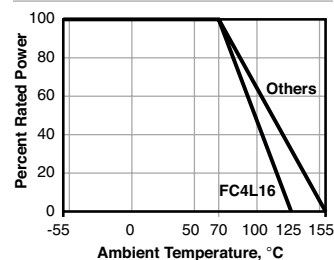
SERIES SPECIFICATIONS

Series	Power Rating	Resistance Range	Tol.	TCR (ppm/°C)	Weight (g)	Series	Power Rating	Resistance Range	Tol.	TCR (ppm/°C)	Weight (g)
FC4L16	0.25W	10m, 20m, & 50mΩ	±1%	±50	0.004	FC4L64	2W	1mΩ 2mΩ 3mΩ 4mΩ ~ 100mΩ	±5% ±2% ±1% ±1%	±100 ±100 ±100 ±50	0.038
FC4L32	1W	1mΩ 2mΩ 3mΩ 4mΩ ~ 500mΩ	±5% ±2% ±1% ±1%	±100 ±100 ±100 ±50	0.015	FC4L110	5W	1mΩ 2mΩ 3mΩ ~ 50mΩ	±5% ±2% ±1%	±100 ±50 ±50	0.110

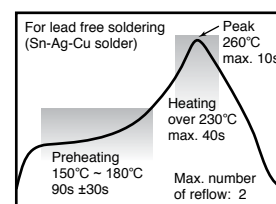
CHARACTERISTICS

Test Condition	Maximum ΔR
Max. temperature for rated power 70°C	
Operating temperature range -55°C ~ +155°C (FC4L16: -40°C ~ +125°C)	
Rated voltage $\sqrt{\text{(Rated power} \times \text{Resistance value)}}$ V	
Overload (FC4L16 only) Rated Voltage x 1.5 for 5s	±(0.5%+0.0005Ω)
In-rush current Rated current 10 msec ON, 60 sec OFF, 10 cycles.	±(1.0% +0.0005Ω)
Series	Power Rating
Resistance Range	In-rush Power
In-rush Current	Max. Current
FC4L16	0.25 watt
10mΩ	2.5W
5A	
FC4L32	1 watt
1mΩ~9mΩ	25W
45A	
10mΩ~500mΩ	12.5W
24A	
FC4L64	2 watt
1mΩ~9mΩ	100W
85A	
10mΩ~100mΩ	50W
35A	
FC4L110	5 watt
1mΩ~50mΩ	100W
100A	
In-rush current = $\sqrt{\text{(In-rush power/resistance value)}}$, or max. current, whichever is smaller	
Rapid change of temperature -55°C (30min.)/+155°C (30min.), 100 cycles	±(1.0% +0.0005Ω)
1000 cycles, FC4L16 only	±(2.0%+0.0005Ω)
Solderability 245°C ±5°C for 3 ±0.5 sec.	Min. 90% coverage
Endurance at 70°C 70°C ±3°C, Rated voltage 1.5h ON, 0.5h OFF, 1000h	±(1.0% +0.0005Ω)
Resistance to soldering heat 260°C ±5°C for 10 ±1 sec.	±(1.0% +0.0005Ω) (±0.5% FC4L16)
Moisture resistance 60°C ±2°C, 90~95% RH, Rated voltage 1.5h ON, 0.5h OFF, 1000h	±(2.0% +0.0005Ω) (±1.0% FC4L16)

Derating



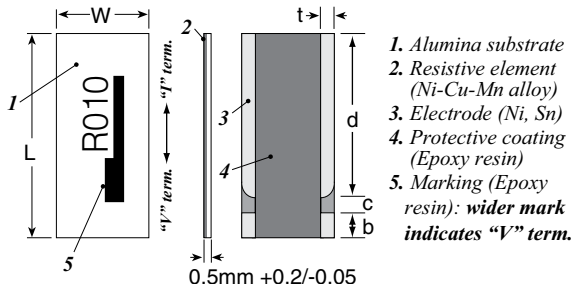
Recommended Reflow Temperature Profile



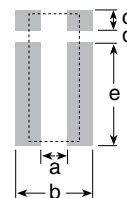
FC4L Series

FC4L Four Terminal Current Sense Metal Foil Construction

DIMENSIONS



Land Pattern



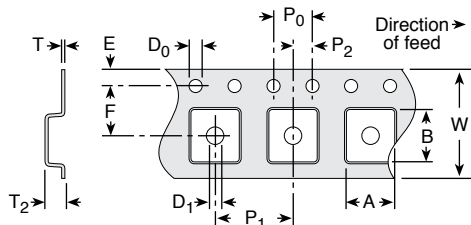
Rating	L	W (in.±.008/mm ±0.20)	t	b mm ±0.15	c mm ±0.1	d mm ±0.15
FC4L16	0.25 watt	0.063 / 1.60	0.031 / 0.8	0.010 / 0.26	0.30 ±2	0.3 ±2
FC4L32	1 watt	0.126 / 3.20	0.063 / 1.6	0.014 / 0.35	0.35	0.2
FC4L64	2 watt	0.251 / 6.40	0.126 / 3.2	0.020 / 0.5	0.7	0.5
FC4L110	5 watt	0.433 / 11.0	0.197 / 5.0	0.028 / 0.7	1.4	1.1

(mm)	a	b	c	d	e
FC4L16	0.25	1.2	0.40	0.30	1.2
FC4L32	0.4	2.7	0.35	0.3	2.7
FC4L64	2.0	4.4	0.7	0.5	5.4
FC4L110	3.2	5.6	1.6	1.1	8.7

PACKAGING SPECIFICATIONS

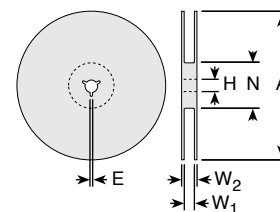
Tape

inches (mm)



	FC4L16	FC4L32	FC4L64	FC4L110
A	0.037 (0.95±0.05)	0.075 (1.90 ±0.1)	0.135 (3.43 ±0.2)	0.213 (5.40 ±0.10)
B	0.073 (1.85±0.05)	0.138 (3.50 ±0.1)	0.261 (6.63 ±0.2)	0.453 (11.50 ±0.10)
W	0.315 (8.00±0.10)	0.315 (8.00 ±0.2)	0.472 (12.0 ±0.3)	0.945 (24.00 ±0.30)
F	0.138 (3.50±0.05)	0.138 (3.50 ±0.05)	0.069 (1.75 ±0.1)	0.069 (1.75 ±0.10)
E	0.069 (1.75±0.10)	0.069 (1.75 ±0.1)	0.217 (5.5 ±0.05)	0.453 (11.50 ±0.10)
P ₀	0.157 (4.00±0.10)	0.157 (4.0 ±0.1)	0.157 (4.0 ±0.1)	0.157 (4.00 ±0.10)
P ₁	0.157 (4.00±0.10)	0.157 (4.0 ±0.1)	0.157 (4.0 ±0.1)	0.315 (8.00 ±0.10)
P ₂	0.079 (2.00±0.05)	0.079 (2.0 ±0.05)	0.079 (2.0 ±0.05)	0.079 (2.00 ±0.10)
D ₀	0.059 (1.50±0.10/-0)	0.059 (1.50 +0.1/-0)	0.059 (1.5 +0.1/-0)	0.059 (1.50 ±0.10)
D ₁	0.024 (0.60±0.05)	0.039 (1.00 +0.2/-0)	0.059 (1.5 +0.2/-0)	0.059 (1.50 ±0.10)
T	0.008 (0.20±0.05)	0.008 (0.20 ±0.05)	0.008 (0.20 ±0.05)	0.012 (0.30 ±0.05)
T ₂	0.022 (0.55±0.05)	0.039 (1.00 ±0.2)	0.059 (1.5) max.	0.047 (1.2 ±0.15)

Reel



	FC4L16	FC4L32 & 64	FC4L110
A	7.087 (180 +0/-3)	7.087 (180 +0/-3)	12.992 (330 ±2.0)
H	0.512 (13 ±0.2)	0.512 (13 ±0.2)	0.512 (13 ±0.2)
E	0.079 (2.0 ±0.5)	0.079 (2.0 ±0.5)	0.079 (2.0 ±0.5)
N	2.362 (60 +1/-0)	2.362 (60 +1/-0)	3.937 (100 ±1.0)
W ₁	0.354 (9.0 ±0.3)	0.512 (13.0 ±0.3)	1.000 (25.4 ±1.0)
W ₂	0.512 (13.0 ±0.3)	0.669 (17.0 ±1.4)	1.157 (29.4 ±1.0)

ORDERING INFORMATION

RoHS Compliant

FC4L110R005FER

Series	Package Size	Ohms	Tolerance	Taping Code
	110=11050=5W	R005=0.005Ω	J = 5%	1,000 pc/reel
	64=6432=2W	R050=0.050Ω	G = 2%	FC4L16: 5,000 pc/reel
	32=3216=1W		F = 1%	
	16=1608=0.25W			

Standard Part Numbers for FC4L series

	0.25 watt	1 watt	2 watt	5 watt
		FC4L32R001JER	FC4L64R001JER	FC4L110R001JER
		FC4L32R002GER	FC4L64R002GER	FC4L110R002GER
		FC4L32R003FER	FC4L64R003FER	FC4L110R003FER
		FC4L32R005FER	FC4L64R005FER	FC4L110R005FER
FC4L16R010FER	FC4L32R010FER	FC4L64R010FER	FC4L110R010FER	
FC4L16R020FER	FC4L32R025FER	FC4L64R025FER	FC4L110R025FER	
FC4L16R050FER	FC4L32R050FER	FC4L64R050FER	FC4L110R050FER	