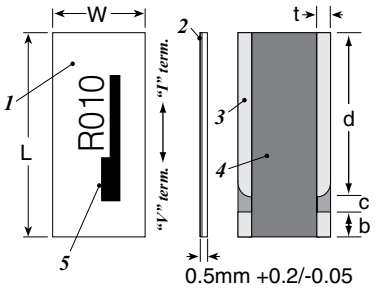
FC4L Series

FC4L Four Terminal Current Sense Metal Foil Construction

Ohmite extends its FCSL Series with this 4-terminal Kelvin type FC4L derivative in a 5 watt package. 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.



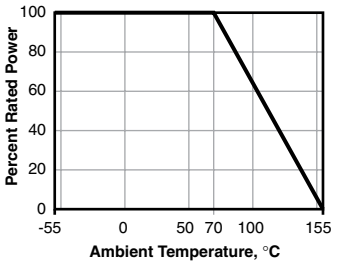
1. *Alumina substrate*
2. *Resistive element (Ni-Cu-Mn alloy)*
3. *Electrode (Ni, Sn)*
4. *Protective coating (Epoxy resin)*
5. *Marking (Epoxy resin):* ***wider mark indicates "V" term.***

(mm ±0.20)	L	W	t	b	c	d
FC4L110	11.0	5.0	0.7	1.4	1.1	8.5

FEATURES

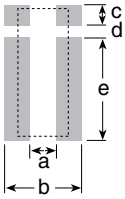
- Foil Construction ensures a very stable TCR (Temperature Coefficient of Resistance)
- Designed for automatic insertion
- Industry standard sizes
- High heat resistant use
- Low heat electromotive use
- Color: white (top) and green (bottom)

DERATING



Series	Power Rating	Resistance Range	Tol.	TCR (ppm/°C)	Dim. (in.±.008/*mm ±0.20*) L	W	t
FC4L110	5W	1mΩ	±5%	±100	0.433/*11.0*	0.197/*5.0*	0.028/*0.7*
		2mΩ	±2%	±50			
		3mΩ ~ 50mΩ	±1%	±50			

LAND PATTERN



(mm)	a	b	c	d	e
FCSL110	3.2	5.6	1.6	1.1	8.7

STANDARD VALUES

Part Number	Resistance Value	Tolerance
FC4L110R001JE	0.001	5%
FC4L110R002GE	0.002	2%
FC4L110R003FE	0.003	1%
FC4L110R005FE	0.005	1%
FC4L110R010FE	0.010	1%
FC4L110R025FE	0.025	1%
FC4L110R050FE	0.050	1%

PERFORMANCE CHARACTERISTICS

Test	Condition	Maximum ΔR
Max. temperature for rated power	70°C	
Operating temperature range	-55°C ~ +155°C	
Max. over current	I = √100/R (A) R = Resistance value (Ω) Max. current: 100A Max. 10msec., 10 cycles Applied interval: min. 60 sec.	
Rated voltage	√(Rated power x Resistance value) V	
In-rush current	Rated current 10 msec ON, 60 sec OFF, 10 cycles **(see table below)**	±(1.0% +0.0005Ω)
Rapid change of temperature	-55°C (30min.)/+155°C (30min.), 100 cycles	±(1.0% +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.	±(0.5% +0.0005Ω)
Moisture resistance	60°C ±2°C, 90~95% RH, Rated voltage 1.5h ON, 0.5h OFF, 1000h	±(2.0% +0.0005Ω)

In-rush Current

Series	Rated Wattage	1mΩ~10mΩ In-rush Power	1mΩ~10mΩ Max. Current	12mΩ~100mΩ In-rush Power	12mΩ~100mΩ Max. Current
FC4L110	5W	600W	240A	440W	120A

In-rush current = √(in-rush power/resistance value), or max. current, whichever is smaller

ORDERING INFORMATION

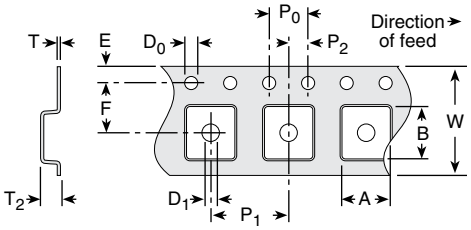
RoHS Compliant

F C 4 L 1 1 0 R 0 0 5 F E R

Series	Package Size	Ohms	Tolerance	Taping Code
	110=11050=5W	R005=0.005Ω R050=0.050Ω	J = 5% G=2% F = 1%	R = 1,000 pc/reel

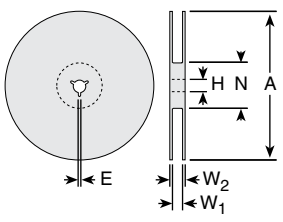
PACKAGING SPECIFICATIONS

TAPE inches *(mm)*



FC4L110	
A	0.211 *(5.36 ±0.1)*
B	0.463 *(11.74 ±0 1)*
W	0.945 *(24.0 +0.3/-0.1)*
E	0.069 *(1.75 ±0.1)*
F	0.453 *(11.50 ±0.1)*
P_0	0.157 *(4.0 ±0.1)*
P_1	0.315 *(8.0 ±0.1)*
P_2	0.185 *(2.0 ±0.1)*
D_0	0.059 *(1.5 +0.1/-0)*
D_1	0.059 *(1.5 +0.25/-0)*
T	0.013 *(0.33 ±0.02)*
T_2	0.077 *(1.96 ±0.1)*

REEL inches *(mm)*



FC4L110	
A	12.992 *(330 ±2.0)*
H	0.512 *(13 ±0.2)*
E	0.079 *(2.0 ±0.5)*
N	3.937 *(100 ±1.0)*
W_1	1.000 *(25.4 ±1.0)*
W_2	1.157 *(29.4 ±1.0)*