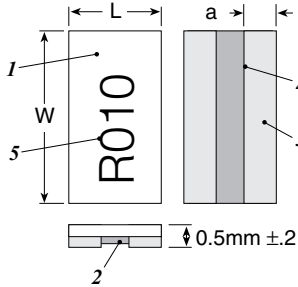


FCSL Series

Metal Foil Current Sense



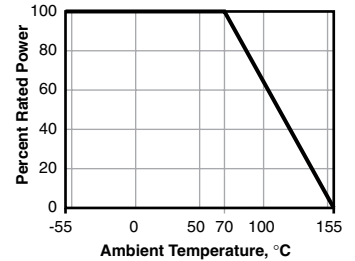
1. Alumina substrate
2. Resistive element (Ni-Cu Alloy)
3. Electrode (Ni, Sn)
4. Protective coating (Epoxy resin)
5. Marking (Epoxy resin)

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 4 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)

DERATING



| Series | Power Rating | Resistance Range | Tol. | TCR (ppm/°C) | Dim. (in.±.008/mm ±0.20) | | |
|--------|--------------|------------------|------|--------------|--------------------------|-----------|------------|
| | | | | | L | W | a |
| FCSL64 | 2.0W | 1mΩ | ±5% | ±150 | 0.122/3.1 | 0.248/6.3 | 0.047/1.2 |
| | | 2mΩ | ±2% | ±100 | | | 0.020/0.5 |
| | | 3mΩ ~ 50mΩ | ±1% | ±50 | | | 0.020/0.5 |
| FCSL76 | 3.0W | 1mΩ | ±5% | ±150 | 0.15/3.8 | 0.3/7.6 | 0.053/1.35 |
| | | 2mΩ | ±2% | ±100 | | | 0.024/0.6 |
| | | 3mΩ ~ 50mΩ | ±1% | ±50 | | | 0.024/0.6 |
| FCSL90 | 4.0W | 1mΩ | ±5% | ±150 | 0.177/4.5 | 0.35/8.9 | 0.063/1.6 |
| | | 2mΩ | ±2% | ±100 | | | 0.028/0.7 |
| | | 3mΩ ~ 50mΩ | ±1% | ±50 | | | 0.028/0.7 |

ORDERING INFORMATION

RoHS Compliant

FCSL64R005JE R

| | | | | |
|--------|--------------|---------------|-----------|-------------------|
| 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% | |

Check product availability at www.ohmite.com

PERFORMANCE CHARACTERISTICS

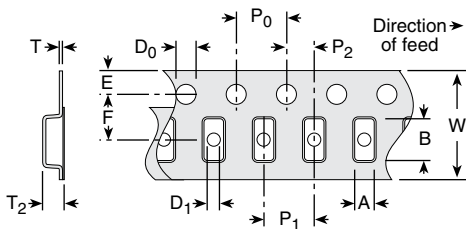
| Test | Condition | Maximum ΔR |
|----------------------------------|--|-------------------|
| Max. temperature for rated power | 70°C | |
| Operating temperature range | -55°C ~ +155°C | |
| Rated voltage | $\sqrt{(\text{Rated power} \times \text{Resistance value})}$ V | |
| Rush current | Rated current 10 msec ON, 60 sec OFF, 10 cycles* | ±(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) |

STANDARD VALUES

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

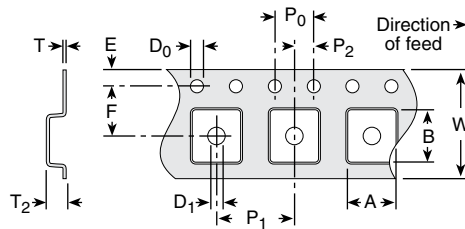
PACKAGING SPECIFICATIONS

TAPE inches (mm)



FCSL64

| | |
|----|----------------------|
| A | 0.135 (3.43 ±0.2) |
| B | 0.261 (6.63 ±0.2) |
| E | 0.472 (12.0 ±0.3) |
| F | 0.069 (1.75 ±0.1) |
| P0 | 0.217 (5.5 ±0.05) |
| P1 | 0.157 (4.0 ±0.1) |
| P2 | 0.079 (2.0 ±0.05) |
| D0 | 0.059 (1.5 ±0.1/-0) |
| D1 | 0.059 (1.5 ±0.25/-0) |
| T | 0.008 (0.2 ±0.05) |
| T2 | 0.059 (1.5 max.) |

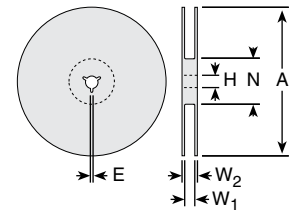


FCSL76

FCSL90

| | | |
|----|------------------------|------------------------|
| A | 0.196 (4.98 ±0.1) | 0.187 (4.75 ±0.1) |
| B | 0.310 (7.88 ±0.1) | 0.372 (9.45 ±0.1) |
| W | 0.630 (16.0 ±0.3/-0.1) | 0.630 (16.0 ±0.3/-0.1) |
| E | 0.069 (1.75 ±0.1) | 0.069 (1.75 ±0.1) |
| F | 0.295 (7.5 ±0.1) | 0.295 (7.5 ±0.1) |
| P0 | 0.157 (4.0 ±0.1) | 0.157 (4.0 ±0.1) |
| P1 | 0.315 (8.0 ±0.1) | 0.315 (8.0 ±0.1) |
| P2 | 0.185 (2.0 ±0.1) | 0.185 (2.0 ±0.1) |
| D0 | 0.059 (1.5 ±0.1/-0) | 0.059 (1.5 ±0.1/-0) |
| D1 | 0.059 (1.5 ±0.25/-0) | 0.059 (1.5 ±0.1/-0) |
| T | 0.012 (0.305 ±0.2) | 0.008 (0.2 ±0.05) |
| T2 | 0.037 (0.93 ±0.1) | 0.074 (1.89 ±0.1) |

REEL inches (mm)



FCSL64

FCSL76/90

| | | |
|----|-------------------|-------------------|
| A | 7.087 (180 +0/-3) | 7.087 (180 +0/-3) |
| H | 0.512 (13 ±0.2) | 0.512 (13 ±0.2) |
| E | 0.079 (2.0 ±0.5) | 0.079 (2.0 ±0.5) |
| N | 0.236 (60 +1/-0) | 0.236 (60 +1/-0) |
| W1 | 0.518 (13.0 ±0.3) | 0.518 (13.0 ±0.3) |
| W2 | 0.669 (17.0 ±1.4) | 0.669 (17.0 ±1.4) |