



## Features

- Two resistance-matched PTCs in a ceramic housing
- Narrow resistance tolerance
- RoHS compliant\*



Model CMF-SD is currently available, although not recommended for new designs. Model **CMF-SDP** is preferred.

## CMF-SD Series - Telecom CPTC Resettable Fuses

### Electrical Characteristics

| Model        | Induction Voltage Withstand | Rated Voltage | Rated Resistance (RN) @ 25 °C |       | Resistance Matching in Housing | Hold Current | Trip Current | Imax @ 230 VAC | Time to Trip @ Imax / 230 VAC |
|--------------|-----------------------------|---------------|-------------------------------|-------|--------------------------------|--------------|--------------|----------------|-------------------------------|
|              | VAC                         |               | Volts                         | Ohms  |                                |              |              |                |                               |
| CMF-SD10     | 600                         | 220           | 10                            | ±20 % | ±1.0                           | 0.150        | 0.360        | 1              | <4.5                          |
| CMF-SD25     | 600                         | 230           | 25                            | ±20 % | ±0.5                           | 0.130        | 0.260        | 2.8            | < 0.3                         |
| CMF-SD25-10  | 600                         | 220           | 25                            | ±10 % | ±0.5                           | 0.130        | 0.260        | 2.5            | < 0.3                         |
| CMF-SD35     | 600                         | 230           | 35                            | ±20 % | ±0.5                           | 0.100        | 0.200        | 3              | < 0.2                         |
| CMF-SD35-10  | 600                         | 230           | 35                            | ±10 % | ±0.5                           | 0.100        | 0.200        | 3              | < 0.2                         |
| CMF-SD35A    | 600                         | 230           | 35                            | ±20 % | ±0.5                           | 0.100        | 0.200        | 2.5            | < 0.2                         |
| CMF-SD35A-10 | 600                         | 230           | 35                            | ±10 % | ±0.5                           | 0.100        | 0.200        | 2.5            | < 0.2                         |
| CMF-SD50     | 600                         | 230           | 50                            | ±20 % | ±0.5                           | 0.090        | 0.190        | 3              | < 0.1                         |
| CMF-SD50-10  | 600                         | 230           | 50                            | ±10 % | ±0.5                           | 0.090        | 0.190        | 3              | < 0.1                         |
| CMF-SD50A    | 600                         | 230           | 50                            | ±20 % | ±0.5                           | 0.090        | 0.190        | 3              | < 0.1                         |
| CMF-SD50A-10 | 600                         | 230           | 50                            | ±10 % | ± 0.5                          | 0.090        | 0.190        | 3              | < 0.1                         |

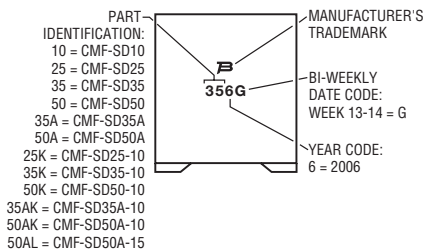
### Test Procedures And Requirements For Model CMF-SD Series

| Test  | Primary Protection | Test Condition   | Requirements         |
|---|--------------------|--|----------------------|
| Mains Power Contact - ITU-T K.20, K.21..... | None               | 230 V rms, 10 ohms, 15 Min.                              | (Ri-Rf) / Ri < ±10 % |
| Power Induction - ITU-T K.20, K.21 .....    | None               | 600V rms, 600 ohms, 0.2 seconds, 10 cycles, every 1 Min. | (Ri-Rf) / Ri < ±10 % |
| Power Induction - ITU-T K.20, K.21 .....    | GDT                | 600 V rms, 600 ohms, 1 second, 10 cycles, every 1 Min.   | (Ri-Rf) / Ri < ±10 % |
| Power Induction - ITU-T K.20, K.21 .....    | GDT                | 600 V rms, 200 ohms, 1 second, 10 cycles, every 1 Min.   | (Ri-Rf) / Ri < ±10 % |
| Lightning Surge - ITU-T K.20, K.21 .....    |                    | 10/700 μs, 25 ohms, 1.0 kV, 10 Tests, every 1 Min.       | (Ri-Rf) / Ri < ±10 % |
| Lightning Surge .....                       |                    | 10/1000 μs, 40 ohms, 1.0 kV, 30 Tests, every 3 Min.      | (Ri-Rf) / Ri < ±10 % |

Ri = R initial  
Rf = R final

### Typical Part Marking

Represents total content. Layout may vary.



### How to Order

**CMF - SD 35 A -10 - 2**

Product Designator \_\_\_\_\_  
 Style \_\_\_\_\_  
 SD = Surface Mount Dual Pkg.  
 Rated Resistance (RN) \_\_\_\_\_  
 10, 25, 35, 50 (25, 35, 50 Ohms)  
 Reduced Footprint and Height Option\* \_\_\_\_\_  
 Resistance Tolerance Option \_\_\_\_\_  
 Blank = Standard (20 %)  
 -10 = 10 %  
 Packaging Options \_\_\_\_\_  
 - 2 = Tape & Reel

\*Reduced footprint and height option currently unavailable for Model CMF-SD25.

\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

## Applications

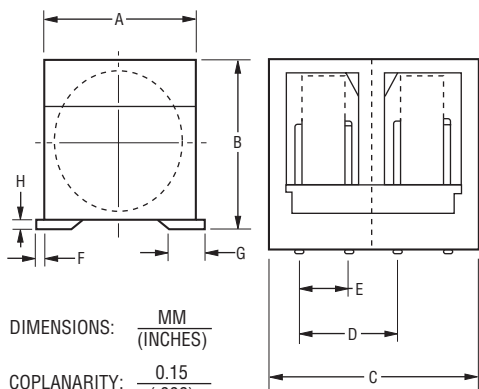
Used as a secondary overcurrent protection device in:

- Customer Premise Equipment (CPE)
- Central Office (CO)
- Access equipment

## CMF-SD Series - Telecom CPTC Resettable Fuses

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### Product Dimensions



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$   
 COPLANARITY:  $\frac{0.15}{(.006)}$

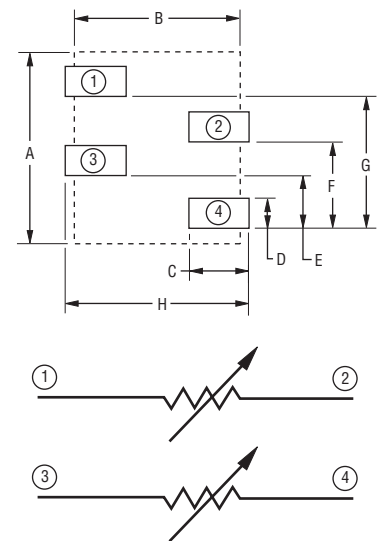
(Reduced value available on request.)

Packaging Options - Tape and Reel:

CMF-SD10, CMF-SD25, CMF-SD35 & CMF-SD50 = 400 pcs. per reel;  
 CMF-SD35A & CMF-SD50A = 500 pcs. per reel

| Dim. | CMF-SD10<br>CMF-SD25<br>CMF-SD35<br>CMF-SD50 | CMF-SD35A<br>CMF-SD50A              |
|------|--|-------------------------------------|
| A    | $\frac{9.00}{(.354)}$ MAX.                   | $\frac{7.15}{(.281)}$ MAX.          |
| B    | $\frac{10.80}{(.425)}$ MAX.                  | $\frac{8.50}{(.355)}$ MAX.          |
| C    | $\frac{10.20}{(.402)}$ MAX.                  | $\frac{8.10}{(.319)}$ MAX.          |
| D    | $\frac{4.88 - 5.28}{(.192 - .208)}$          | $\frac{3.25 - 3.65}{(.128 - .144)}$ |
| E    | $\frac{2.41 - 2.61}{(.095 - .103)}$          | $\frac{2.41 - 2.61}{(.095 - .103)}$ |
| F    | $\frac{0.5}{(.020)}$ MAX.                    | $\frac{0.5}{(.020)}$ MAX.           |
| G    | $\frac{2.5}{(.098)}$                         | $\frac{2.5}{(.098)}$                |
| H    | $\frac{1.0}{(.039)}$                         | $\frac{1.0}{(.039)}$                |

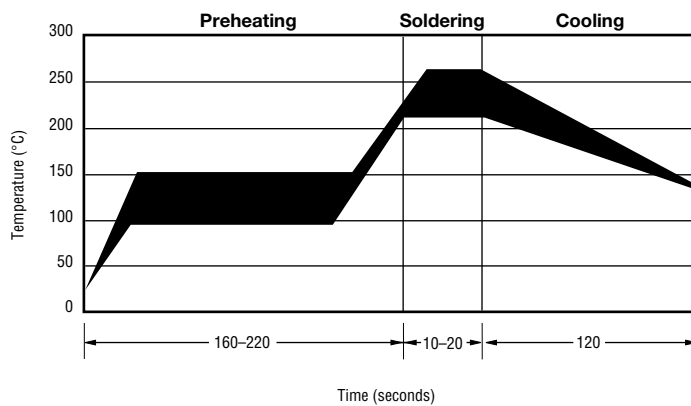
### Recommended Pad Layout



| Dim. | CMF-SD10<br>CMF-SD25<br>CMF-SD35<br>CMF-SD50 | CMF-SD35A<br>CMF-SD50A |
|------|--|------------------------|
| A    | $\frac{10.0}{(.394)}$                        | $\frac{8.00}{(.315)}$  |
| B    | $\frac{8.80}{(.346)}$                        | $\frac{7.05}{(.278)}$  |
| C    | $\frac{3.20}{(.126)}$                        | $\frac{2.75}{(.108)}$  |
| D    | $\frac{2.00}{(.079)}$                        | $\frac{2.00}{(.079)}$  |
| E    | $\frac{2.60}{(.102)}$                        | $\frac{2.51}{(.099)}$  |
| F    | $\frac{5.00}{(.197)}$                        | $\frac{3.45}{(.136)}$  |
| G    | $\frac{7.60}{(.299)}$                        | $\frac{5.95}{(.234)}$  |
| H    | $\frac{10.0}{(.394)}$                        | $\frac{8.15}{(.321)}$  |

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

### Solder Reflow Recommendations



#### Solder reflow

- Recommended reflow methods: IR, vapor phase oven, hot air oven.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Gluing the devices is not recommended.
- Recommended maximum paste thickness is 0.25 mm (.010 inch).
- Devices can be cleaned using standard industry methods and solvents.

#### Note:

- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

#### Rework

- A device should not be reworked.

CMF-SD SERIES, REV. O, 05/10

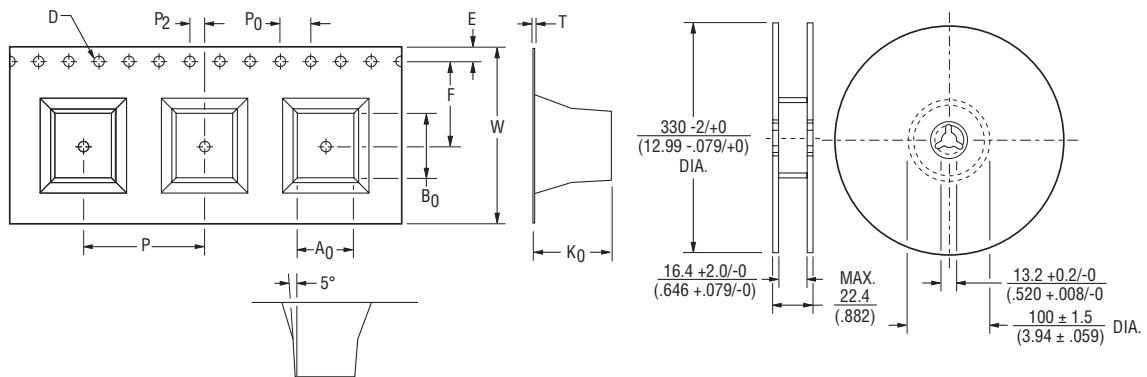
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# CMF-SD Series Tape and Reel Specifications

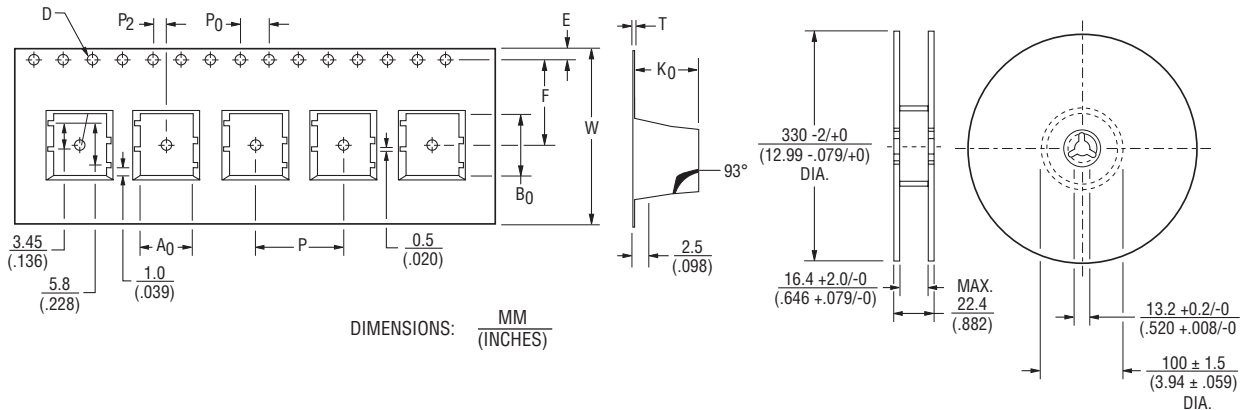
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| Tape Dimensions per EIA 481-2 | CMF-SD10<br>CMF-SD25-2<br>CMF-SD35-2<br>CMF-SD50-2 | CMF-SD35A-2<br>CMF-SD50A-2                       |
|-------------------------------|--|--|
|                               | W  | $\frac{24.0 +0.30/-0.10}{(0.945 +0.012/-0.004)}$ |
| P <sub>0</sub>                | $\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$          | $\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$        |
| P                             | $\frac{16.0 \pm 0.10}{(0.630 \pm 0.004)}$          | $\frac{12.0 \pm 0.10}{(0.472 \pm 0.004)}$        |
| P <sub>2</sub>                | $\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$          | $\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$        |
| A <sub>0</sub>                | $\frac{10.2 \pm 0.10}{(0.402 \pm 0.004)}$          | $\frac{7.30 \pm 0.10}{(0.287 \pm 0.004)}$        |
| B <sub>0</sub>                | $\frac{9.0 \pm 0.10}{(0.354 \pm 0.004)}$           | $\frac{8.30 \pm 0.10}{(0.327 \pm 0.004)}$        |
| D                             | $\frac{1.5 +0.10/-0.0}{(0.059 + 0.004/-0)}$        | $\frac{1.5 \pm 0.10}{(0.059 \pm 0.004)}$         |
| F                             | $\frac{11.5 \pm 0.10}{(0.453 \pm 0.004)}$          | $\frac{11.5 \pm 0.10}{(0.453 \pm 0.004)}$        |
| E                             | $\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$          | $\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$        |
| T max.                        | $\frac{0.50}{(0.020)}$                             | $\frac{0.50 \pm 0.005}{(0.020 \pm 0.002)}$       |
| T <sub>1</sub> max.           | $\frac{0.1}{(0.004)}$                              | $\frac{0.1}{(0.004)}$                            |
| K <sub>0</sub>                | $\frac{11.0 \pm 0.10}{(0.433 \pm 0.004)}$          | $\frac{8.80 \pm 0.10}{(0.346 \pm 0.004)}$        |

**CMF-SD25-2  
CMF-SD35-2  
CMF-SD50-2**



**CMF-SD35A-2  
CMF-SD50A-2**



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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