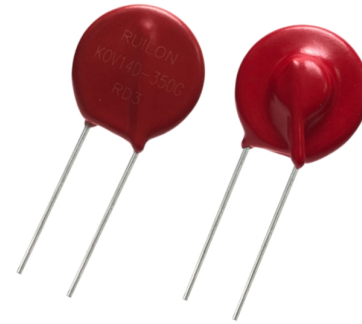


Description

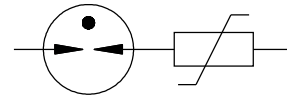
Ruilon combines its patented GDT and a Metal Oxide Varistor (MOV) to create a new and innovative KOV[®] Series Composite Surge Protective Unit. By combining the best features of both MOV and GDT technologies, the KOV[®] Series achieves high performance as a long life protector with low capacitance and, most importantly, very low leakage. The KOV[®] Series is ideally suited for any number of AC and DC power applications where a high level of performance is required over time.



Features

- I Hybrid design
- I Low leakage
- I Bidirectional protection
- I Low capacitance
- I RoHS and REACH compliant

Circuit Diagram



Applications

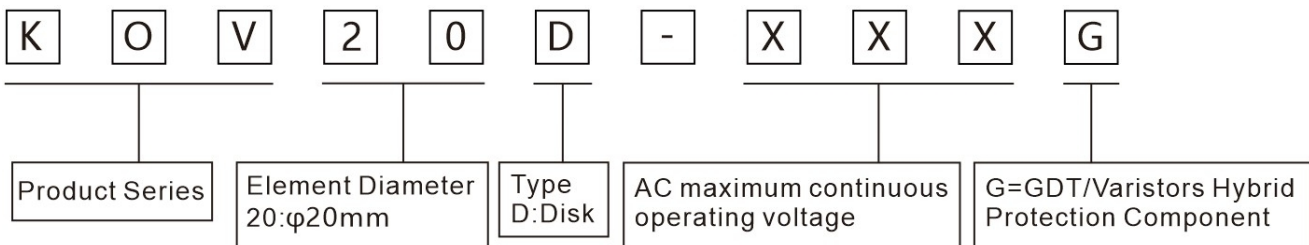
AC Line Protection

- I White goods
- I Power line communications
- I Smoke alarm systems
- I High value consumer goods
- I UL 1449 SPD 5th edition

DC Line Protection

- I Solar inverters
- I Power supplies
- I Distribution systems

Part Number Code



Absolute Maximum Ratings (@T_A=25°C unless otherwise noted)





| Parameter | Symbol | Typ | Value | Unit |
|-----------------------|------------------|-----|----------|------|
| Operating Temperature | T _{OPR} | 25 | -40 -105 | °C |
| Storage Temperature | T _{STG} | 25 | -40 -125 | °C |

Electrical Characteristics (@T_A=25°C unless otherwise noted)

| Part No. | Operating | | | | Protection | | | | | |
|-------------|--|-----------------|---------------------|-----------------|---------------------|---------------------|-------------------------------|--|----------------|---|
| | Max. Continuous Operating Voltage (MCOV) | | Max. Leakage @ MCOV | Max Capacitance | Inom UL1449/4th. | UOC IEC61000-4-5 | Ring Wave Surge IEEE 62.41 | Protection Level Current Class (1) IEC 61051-1 | | Comply with safety standards IEC62368-1: 2018 GB4943.1-2022 |
| | V _{rms} | V _{DC} | Arms | 1MHz | 15 Ops. | 40 Ops. | 200 A | Max . | Typ. | |
| | V | V | μA | pF | In(A) | Uoc(V) | Ops. | V _{fp} | V _C | |
| KOV20D-050G | 50 | 65 | < 1 | 4 | 5000 | 10000 | ± 250 | 700 | 150 | 50 |
| KOV20D-060G | 60 | 85 | < 1 | 4 | 5000 | 10000 | ± 250 | 700 | 185 | 50 |
| KOV20D-130G | 130 | 170 | < 1 | 4 | 5000 | 10000 | ± 250 | 700 | 360 | 50 |
| KOV20D-150G | 150 | 200 | < 1 | 4 | 5000 | 10000 | ± 250 | 700 | 390 | 100 |
| KOV20D-175G | 175 | 225 | < 1 | 4 | 5000 | 10000 | ± 250 | 1200 | 475 | 120 |
| KOV20D-210G | 210 | 275 | < 1 | 4 | 5000 | 10000 | ± 250 | 1200 | 535 | 150 |
| KOV20D-250G | 250 | 320 | < 1 | 4 | 5000 | 10000 | ± 250 | 1200 | 630 | 150 |
| KOV20D-275G | 275 | 350 | < 1 | 4 | 5000 | 10000 | ± 250 | 1200 | 680 | 208 |
| KOV20D-300G | 300 | 385 | < 1 | 4 | 5000 | 10000 | ± 250 | 1200 | 740 | 208 |
| KOV20D-320G | 320 | 415 | < 1 | 4 | 5000 | 10000 | ± 250 | 1200 | 810 | 230 |
| KOV20D-350G | 350 | 460 | < 1 | 4 | 5000 | 10000 | ± 250 | 1600 | 870 | 240 |
| KOV20D-385G | 385 | 505 | < 1 | 4 | 5000 | 10000 | ± 250 | 1600 | 950 | 277 |
| KOV20D-420G | 420 | 560 | < 1 | 4 | 5000 | 10000 | ± 250 | 1600 | 1050 | 300 |
| KOV20D-460G | 460 | 615 | < 1 | 4 | 5000 | 10000 | ± 250 | 2200 | 1150 | 400 |
| KOV20D-510G | 510 | 670 | < 1 | 4 | 5000 | 10000 | ± 250 | 2200 | 1330 | 480 |
| KOV20D-550G | 550 | 745 | < 1 | 4 | 5000 | 10000 | ± 250 | 3000 | 1455 | 600 |
| KOV20D-750G | 750 | 990 | < 1 | 4 | 5000 | 10000 | ± 250 | 3000 | 1930 | 690 |

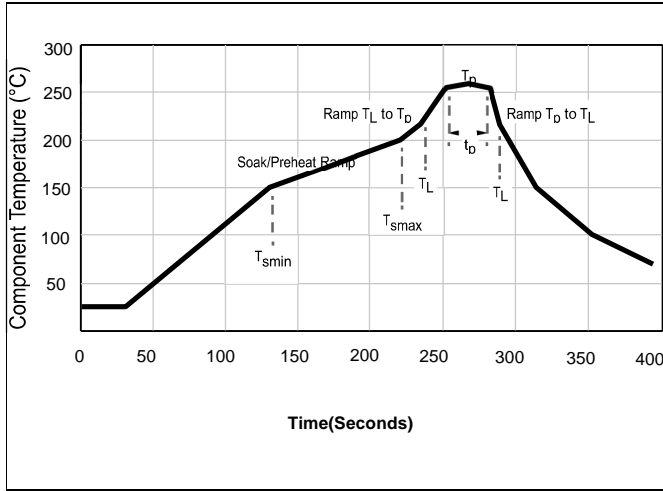
1) Front Level Protection (V_{fp}) defined as measured with 10 % of peak current in accordance with IEC 61051-1.

Agency Approvals

| Icon | Description |
|---|---|
|  | Compliance with 2011/65/EU |
|  | Compliance with IEC61249-2-21:2003 |
|  | Mean lead free |
|  | Compliance with UL1449 Certificated E337906 |

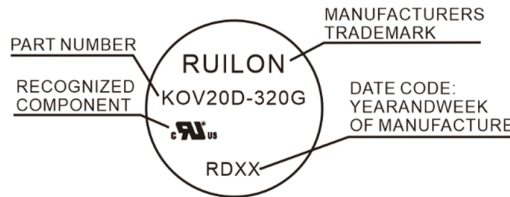
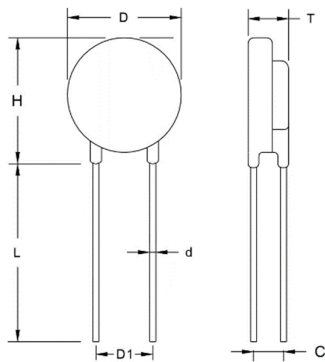
Soldering Profile

Users should ensure that they do not exceed the scope of IPC/JEDEC J-STD-020 (Pb-Free) during solder assembly.



| Profile Feature | Profile Limits |
|--|--------------------|
| Preheat temperature min. (T_{smin}) | 150°C |
| Preheat temperature max. (T_{smax}) | 200°C |
| Ramp time ($T_{smax} - T_{smin}$) | 60 – 120 seconds |
| Ramp-up rate (T_L to T_p) | 3 °C / second max. |
| Liquidus temperature (T_L) | 217°C |
| Time maintained above (T_L) | 60 – 150 seconds |
| Peak package body temperature | 260°C |
| Time within 5 °C of peak temperature (T_p) | 30 seconds max. |
| Ramp-down rate (T_p to T_L) | 6 °C / second max. |
| Time from 25 °C to peak temperature | 8 minutes max. |

Dimensions

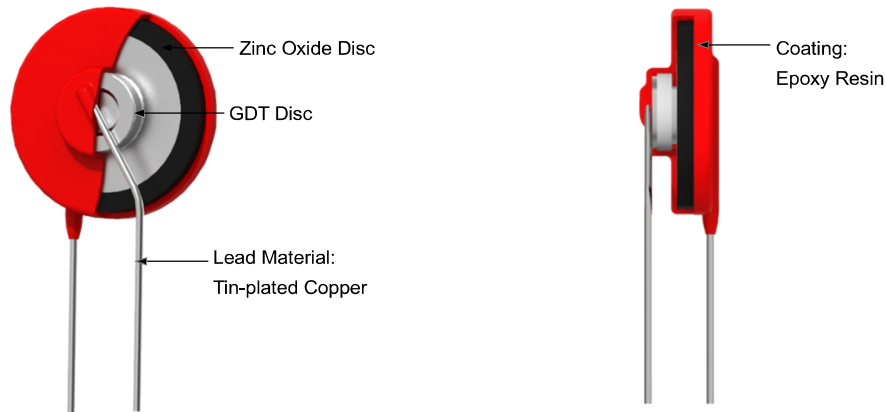


| TABLE1 | | |
|--------------------------------|-------------|--------|
| Symbol | Millimeters | Inches |
| H(max) | 26.0 | 1.024 |
| L(min) | 15.0 | 0.591 |
| D(max) | 23.0 | 0.906 |
| D1(± 1.0) | 10.0 | 0.394 |
| T(max) | TABLE2 | |
| C(± 1.0) | TABLE2 | |
| d(± 0.1) | 1.0 | 0.039 |
| Packaging Quantity: 150pcs/bag | | |

TABLE2


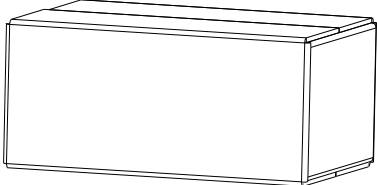
| Model | T(max) | | C | | Model | T(max) | | C | |
|-------------|-------------|--------|-------------|--------|-------------|-------------|--------|-----------|--------|
| | Millimeters | Inches | Millimeters | Inches | | Millimeters | Inches | Millimete | Inches |
| KOV20D-050G | 6.9 | 0.272 | 4.2 | 0.165 | KOV20D-320G | 8.9 | 0.351 | 5.8 | 0.228 |
| KOV20D-060G | 7.0 | 0.276 | 4.2 | 0.165 | KOV20D-350G | 9.1 | 0.359 | 6.0 | 0.236 |
| KOV20D-130G | 7.5 | 0.296 | 4.2 | 0.165 | KOV20D-385G | 9.3 | 0.366 | 6.3 | 0.248 |
| KOV20D-150G | 7.8 | 0.307 | 4.4 | 0.174 | KOV20D-420G | 9.6 | 0.378 | 6.6 | 0.260 |
| KOV20D-175G | 7.9 | 0.311 | 4.6 | 0.181 | KOV20D-460G | 9.9 | 0.390 | 7.4 | 0.291 |
| KOV20D-210G | 8.0 | 0.315 | 4.9 | 0.193 | KOV20D-510G | 10.4 | 0.410 | 7.7 | 0.303 |
| KOV20D-250G | 8.3 | 0.327 | 5.2 | 0.205 | KOV20D-550G | 12.0 | 0.472 | 8.0 | 0.317 |
| KOV20D-275G | 8.5 | 0.335 | 5.4 | 0.213 | KOV20D-750G | 13.0 | 0.512 | 9.0 | 0.354 |
| KOV20D-300G | 8.7 | 0.343 | 5.6 | 0.220 | | | | | |

Construction



Packaging Information - 20 mm Disc

BULK:

| Inner box size | Outer box size | Quantity |
|---|---|--|
| Size: 260*208*55(mm)  | Size: 435*275*200(mm)  | <ul style="list-style-type: none"> • 1800 pcs. per carton • 150 pcs. per bag • 2 bags per inner box • 6 inner boxes per carton |

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