

深圳市瑞隆源电子有限公司 Shenzhen RUILONGYUAN Electronics Co.,Ltd.			
产品名称 Product name	复合防护单元 Keep Off Varistor	产品型号 Product Type	KOV20D-xxxG
文件编号 File serial number	SP-SPD-389	产品编码 Product code	10.20.09.XXXX
类别 Classification	<input type="checkbox"/> 参考阶段 Reference <input type="checkbox"/> 样品阶段 Sample <input checked="" type="checkbox"/> 正式承认 Qualified <input type="checkbox"/> 工程变更 Changed		

拟制: Prepared by	Zoujinhua	日期: Date	2026.05.29
审核: Reviewed by	Shennengwu	日期: Date	2026.05.29
批准: Approved by	Robert	日期: Date	2026.05.29

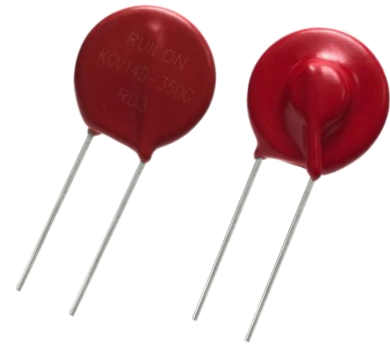
客户回执 Customer Confirmation		
客户名称 Customer Name		
客户料号 Customer Materials		
结果 Conclusion	<input type="checkbox"/> 合格 Qualified <input type="checkbox"/> 不合格 Nonconforming	
生效日期 Effective Date		
拟制 Handled by:	审核 Audit:	批准 Approved:

## Revision History

Revision Version	Description	Page	Date
A0	Qualified	/	2023.04.11
A1	Add “Revision History”	2	2023.05.19
A2	Add “Packaging Information”	6	2023.05.30
A3	Add “UL” information	4	2024.02.26
A4	Add parameter “Vr”	6	2025.09.16
A5	“Operating Temperature” changed to “-40 ~+125”	3	2026.05.29

**Description**

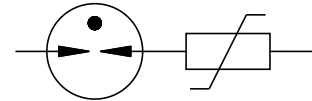
Ruilon combines its patented GDT and a Metal Oxide Varistor (MOV) to create a new and innovative KOV<sup>®</sup> Series Composite Surge Protective Unit. By combining the best features of both MOV and GDT technologies, the KOV<sup>®</sup> Series achieves high performance as a long life protector with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



**Features**

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

**Circuit Diagram**



**Applications**

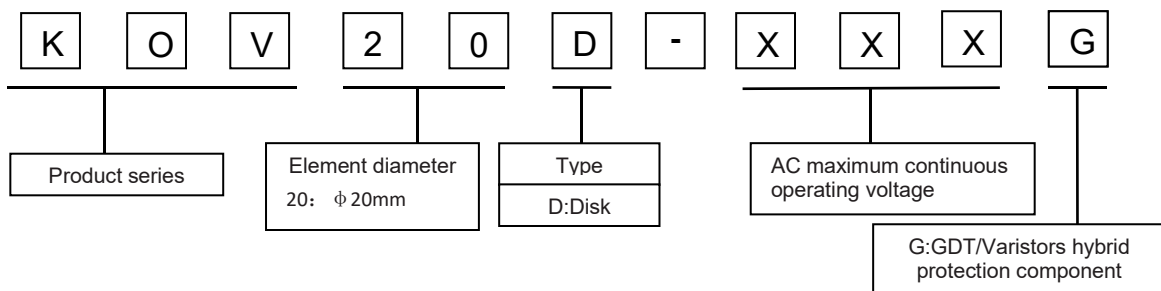
AC Line Protection

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

DC Line Protection

- Solar inverters
- Power supplies
- Distribution systems

**Part Number Code**



**Absolute Maximum Ratings (@T<sub>A</sub>=25°C unless otherwise noted)**



Parameter	Symbol	Typ	Value	Unit
Operating Temperature	T <sub>OPR</sub>	25	-40 ~+125	°C
Storage Temperature	T <sub>STG</sub>	25	-40 ~+125	°C

Electrical Characteristics(@T<sub>A</sub>=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
	Vrms	V <sub>DC</sub>	Arms	1MHz	15 Ops.	40 Ops.	200 A	Max .	Typ.	
	V	V	μA	pF	In(A)	Uoc(V)	Ops.	V <sub>fp</sub>	V <sub>C</sub>	
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

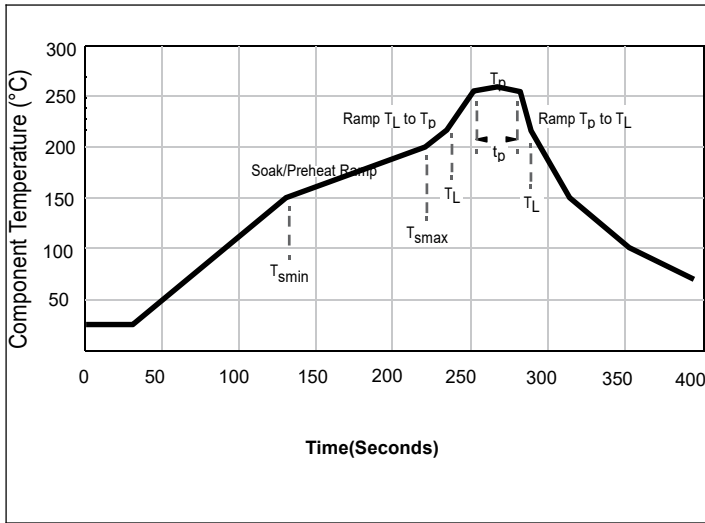
1) Front Level Protection (V<sub>fp</sub>) defined as measured with 10 % of peak current in accordance with IEC 61051-1.

Agency Approvals

Icom	Description
<b>ROSH</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003
	Mean lead free
	Compliance with UL1449 Certificated E508408

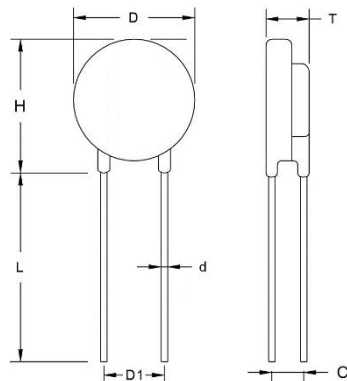
**Soldering Profile**

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**

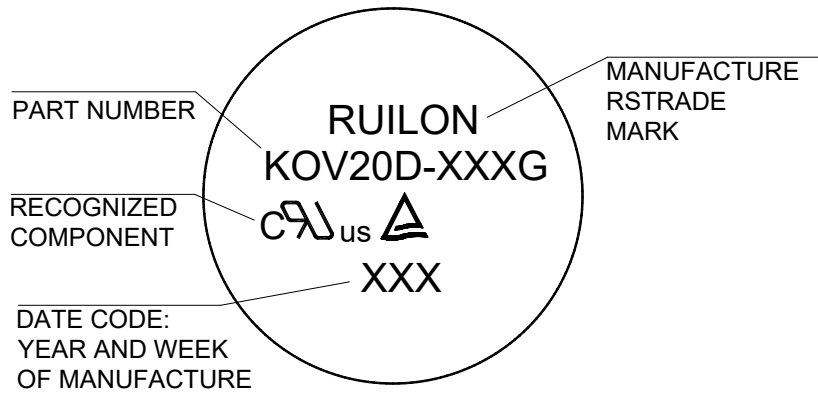


Symbol	Millimeters	Inches
H(max)	26.0	1.024
L(min)	15.0	0.591
D(max)	23.0	0.906
D1(±1.0)	10.0	0.394
T(max)	TABLE2	
C(±1.0)	TABLE2	
φd(±0.1)	1.0	0.039

TABLE2

Model	T(max)		C		Model	T(max)		C	
	Millimeters	Inches	Millimeters	Inches		Millimeters	Inches	Millimeter	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					

### Logo Type

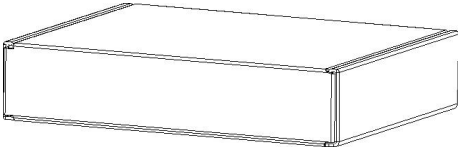
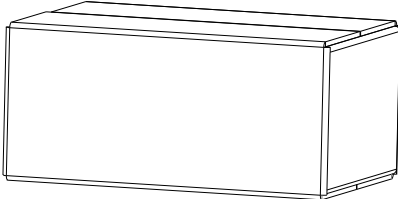


### Construction



### 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"> <li>• 1800 pcs. per carton</li> <li>• 150 pcs. per bag</li> <li>• 2 bags per inner box</li> <li>• 6 inner boxes per carton</li> </ul>