MOV Disk

MOV Disk-Lightning Protection Type For T1

- Withstand 10/350μs surge
- Compatible for T1+T2 application
- Compatible for AC & DC application
- Customized dimensions are available
- RoHS & REACH Compliant

SET safe | SET fuse

Providing a Total Solution for High Standard Safety Circuit Protection

MOV
Metal Oxide Varistor

SETsafe | SET fuse

MOV Disk-Lightning Protection Type For T1 (MOV) Feature & Model List Overview

Nominal Operating Voltage U_n (V) AC	Nominal Operating Voltage U_n (V) DC	Maximum Peak Current (8/20 μs) (kA) 40	50	60	Maximum Continuous Operating Voltage U_n (V) AC	Maximum Continuous Operating Voltage U_n (V) DC	Page
		○	○	○	○	750	990
480V	500V	YMJ34S112K	YMJ33R112K	YMJ36R112K	YMJ40R112K	680	895
		YMJ34S102K	YMJ33R102K	YMJ36R102K	YMJ40R102K	625	825
415V		YMJ34S911K	YMJ33R911K	YMJ36R911K	YMJ40R911K	550	745
380V		YMJ34S821K	YMJ33R821K	YMJ36R821K	YMJ40R821K	510	670
		YMJ34S751K	YMJ33R751K	YMJ36R751K	YMJ40R751K	460	615
100V - 240V		YMJ34S681K	YMJ33R681K	YMJ36R681K	YMJ40R681K	420	560
		YMJ34S621K	YMJ33R621K	YMJ36R621K	YMJ40R621K	385	505
		YMJ34S561K	YMJ33R561K	YMJ36R561K	YMJ40R561K	350	460
		YMJ34S511K	YMJ33R511K	YMJ36R511K	YMJ40R511K	320	415
100V - 220V		YMJ34S471K	YMJ33R471K	YMJ36R471K	YMJ40R471K	300	385
		YMJ34S431K	YMJ33R431K	YMJ36R431K	YMJ40R431K	275	350
100V - 120V	250V	YMJ34S391K	YMJ33R391K	YMJ36R391K	YMJ40R391K	250	320
		YMJ34S361K	YMJ33R361K	YMJ36R361K	YMJ40R361K	230	300
		YMJ34S331K	YMJ33R331K	YMJ36R331K	YMJ40R331K	210	275
		YMJ34S301K	YMJ33R301K	YMJ36R301K	YMJ40R301K	190	250
100V	125V	YMJ34S271K	YMJ33R271K	YMJ36R271K	YMJ40R271K	175	225
		YMJ34S241K	YMJ33R241K	YMJ36R241K	YMJ40R241K	150	200
		○	○	○	○	140	180
		○	○	○	○	130	170
		○	○	○	○	115	150
	48V	○	○	○	○	95	125
		○	○	○	○	75	100
		○	○	○	○	60	85
		○	○	○	○	50	65
	24V	○	○	○	○	40	56
		○	○	○	○	35	45
	12V	○	○	○	○	30	38
		○	○	○	○	25	31
		○	○	○	○	20	26
		○	○	○	○	17	22

Maximum Peak Current (8/20 μs) (kA)

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MOV
Metal Oxide Varistor

Description

The T1 surge protection type varistor selfdeveloped by Xiamen SET Electro nics Co., Ltd. has high surge current capacity, especially outstanding 10/350μs impulse capacity, and good AC & DC characteristics. It suits all the surge protection scenarios of buildings, photovoltaic and wind power applications.

MOV

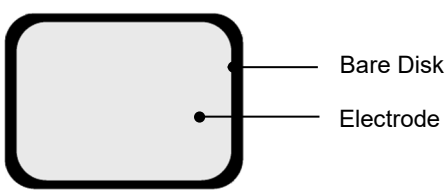
Agency Approvals

Agency	Standards	No.
	UL 1449 4th Edition	On-going
	CSA C22.2 NO.269.5-17	On-going

Applications

- Photovoltaic Systems (PV)
- Wind Power Systems
- T1 SPD

Product Structure



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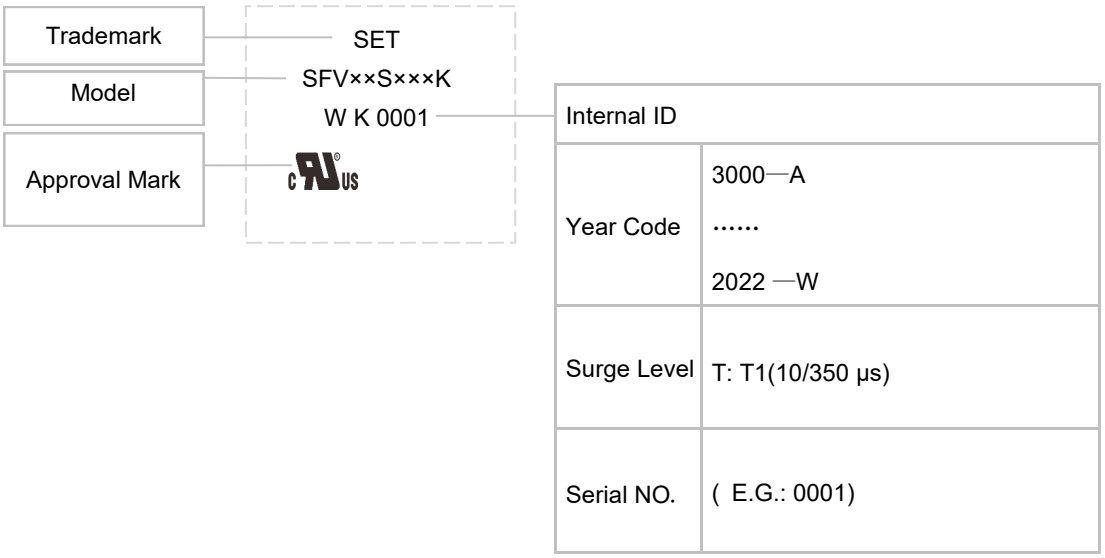
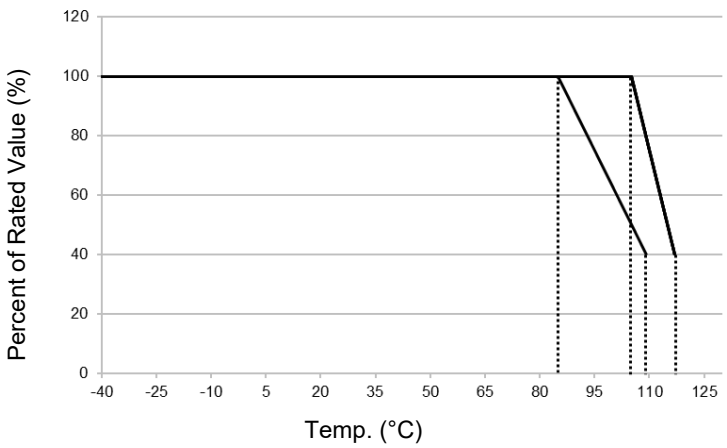
Marking



Temp. Derating Curve



For Normal Temp. Series

Note: When ambient temp. exceeds 85 ℃ / 105 ℃ , the peak surge current and energy rating should be reduced as shown in left curve.

General Technical Data

Item	Value	Unit
Operating Temp.	-40 ~ +85/+105	°C
Storage Temp.	-40 ~ +125	°C
Voltage Proof	≥2500	V_{ac}
Insulation Resistance	≥100	MΩ

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Glossary

Item	Description
V_N	**Nominal Varistor Voltage** Voltage, at specified D.C. current used as a reference point in the component characteristics.
I_L	**Leakage Current** Measuring at 75% of varistor voltage.
UCT	**Upper Category Temp.** Max. ambient temp. for which a varistor has been designed to operate continuously.
LCT	**Lower Category Temp.** Minimum ambient temp. at which a varistor has been designed to operate continuously.
Max. Peak Current	**Max. Peak Current** Max. current per pulse, which may be passed by a varistor at an ambient temp. of 25 °C, for a given number of pulses.
V_C	**Clamping Voltage** Peak voltage developed across the varistor terminations under standard atmospheric conditions, when passing an 8/20 μs class current pulse.
Voltage Proof	**Voltage Proof** Max. peak voltage, which may be applied under continuous operating conditions between the varistor terminations and any conducting mounting surface (Applicable only to insulated varistors).
C_V	**Capacitance** Capacitance across the MOV measured at a specified frequency and voltage.
V_{ac}	**Max. Continuous a.c. Voltage** Max. a.c. r.m.s. voltage of a substantially sinusoidal waveform (less than 5% total harmonic distortion) which can be applied to the component under continuous operating conditions at 25 °C.
V_{dc}	**Max. Continuous d.c. Voltage** Max. d.c. voltage (with less than 5% ripple) which can be applied to the component under continuous operating conditions at an ambient temp. of 25 °C.

MOV

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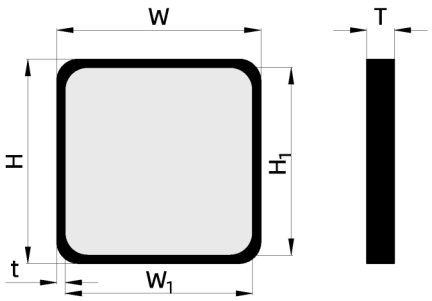
Dimensions (mm)



W	W_1	H	H_1	t (min.)
32.8±0.8	30.6±0.5	32.8±0.8	30.6±0.5	0.8

* Various electrode shapes of uncoated MOV or coated MOV can be customized

Specification

Model	Surge Level	Max. Continuous Operating Voltage		Varistor Voltage @1 mA DC		Clamping Voltage (Max.)		Max. Discharge Current (8/20 μs)		Impulse Discharge Current (10/350 μs)	Max. Energy (10/1000 μs)	Typical Capacitance (Reference) @1 kHz
		Vac	Vdc	Min.	Max.	V_C	I_P	I_n	I_{max}	I_{imp}	(J)	(pF)
		(V)	(V)	(V)	(V)	(V)	(A)	(kA)	(kA)	(kA)		
YMJ34S241K	T	150	200	216	264	395	300	20	40	8.0	480	5650
YMJ34S271K	T	175	225	243	297	455	300	20	40	8.0	540	5100
YMJ34S301K	T	190	250	270	330	500	300	20	40	8.0	600	4510
YMJ34S331K	T	210	275	297	363	550	300	20	40	8.0	656	4150
YMJ34S361K	T	230	300	324	396	595	300	20	40	8.0	745	3750
YMJ34S391K	T	250	320	351	429	650	300	20	40	8.0	830	3500
YMJ34S431K	T	275	350	387	473	710	300	20	40	8.0	920	2950
YMJ34S471K	T	300	385	423	517	775	300	20	40	8.0	1000	2880
YMJ34S511K	T	320	415	459	561	845	300	20	40	8.0	1060	2650
YMJ34S561K	T	350	460	504	616	925	300	20	40	7.5	1150	2450
YMJ34S621K	T	385	505	558	682	1025	300	20	40	7.5	1250	2200
YMJ34S681K	T	420	560	612	748	1120	300	20	40	6.5	1250	2000
YMJ34S711K	T	440	585	639	781	1170	300	20	40	6.5	1250	1900
YMJ34S751K	T	460	615	675	825	1240	300	20	40	6.5	1280	1820
YMJ34S821K	T	510	670	738	902	1355	300	20	40	5.0	1300	1800
YMJ34S911K	T	550	745	819	1001	1500	300	20	40	5.0	1475	1500
YMJ34S951K	T	575	760	855	1045	1565	300	20	40	5.0	1500	1400
YMJ34S102K	T	625	825	900	1100	1650	300	20	40	3.5	1550	1350
YMJ34S112K	T	680	895	990	1210	1815	300	20	40	3.5	1750	1230

★The In/Imax/Iimp could be applied to the same varistor.

★We have specified product for DC application, please make a note when purchasing.

MOV

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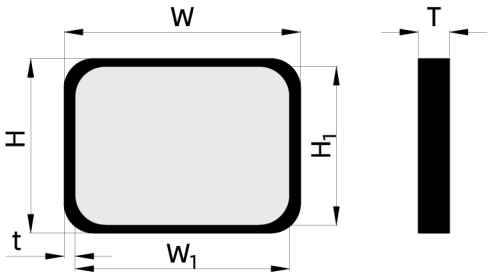
Dimensions (mm)



W	W_1	H	H_1	t (min.)
38.0±0.8	35.4±0.5	28.0±0.8	25.5±0.5	0.8

*Various electrode shapes of uncoated MOV or coated MOV can be customized

Specification

Model	Surge Level	Max. Continuous Operating Voltage		Varistor Voltage @1 mA DC		Clamping Voltage (Max.)		Max. Discharge Current (8/20 μs)		Impulse Discharge Current (10/350 μs)	Max. Energy (10/1000 μs)	Typical Capacitance (Reference) @1 kHz
		Vac	Vdc	Min.	Max.	V_C	I_P	I_n	I_{max}	I_{imp}	(J)	(pF)
		(V)	(V)	(V)	(V)	(V)	(A)	(kA)	(kA)	(kA)		
YMJ33R241K	T	150	200	216	264	395	200	20	40	7.0	480	5650
YMJ33R271K	T	175	225	243	297	455	200	20	40	7.0	540	5100
YMJ33R301K	T	190	250	270	330	500	200	20	40	7.0	600	4510
YMJ33R331K	T	210	275	297	363	550	200	20	40	7.0	656	4150
YMJ33R361K	T	230	300	324	396	595	200	20	40	7.0	745	3750
YMJ33R391K	T	250	320	351	429	650	200	20	40	7.0	830	3500
YMJ33R431K	T	275	350	387	473	710	200	20	40	7.0	920	2950
YMJ33R471K	T	300	385	423	517	775	200	20	40	7.0	1000	2880
YMJ33R511K	T	320	415	459	561	845	200	20	40	7.0	1060	2650
YMJ33R561K	T	350	460	504	616	925	200	20	40	6.5	1150	2450
YMJ33R621K	T	385	505	558	682	1025	200	20	40	6.5	1250	2200
YMJ33R681K	T	420	560	612	748	1120	200	20	40	6.5	1250	2000
YMJ33R711K	T	440	585	639	781	1170	200	20	40	6.5	1250	1900
YMJ33R751K	T	460	615	675	825	1240	200	20	40	6.0	1280	1820
YMJ33R821K	T	510	670	738	902	1355	200	20	40	5.0	1300	1800
YMJ33R911K	T	550	745	819	1001	1500	200	20	40	5.0	1475	1500
YMJ33R951K	T	575	760	855	1045	1565	200	20	40	4.0	1500	1400
YMJ33R102K	T	625	825	900	1100	1650	200	20	40	4.0	1550	1350
YMJ33R112K	T	680	895	990	1210	1815	200	20	40	4.0	1750	1230

★The In/Imax/Iimp could be applied to the same varistor.

★We have specified product for DC application, please make a note when purchasing.

MOV

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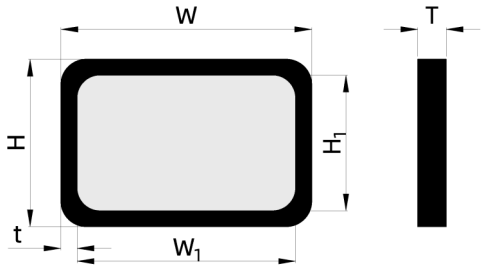
Dimensions (mm)



W	W_1	H	H_1	t (min.)
44.2±0.8	38.5±0.5	29.5±0.8	23.9±0.5	0.8

*Various electrode shapes of uncoated MOV or coated MOV can be customized

Specification

Model	Surge Level	Max. Continuous Operating Voltage		Varistor Voltage @1 mA DC		Clamping Voltage (Max.)		Max. Discharge Current (8/20 μs)		Impulse Discharge Current (10/350 μs)	Max. Energy (10/1000 μs)	Typical Capacitance (Reference) @1 kHz
		Vac	Vdc	Min.	Max.	V_C	I_P	I_n	I_{max}	I_{imp}	(J)	(pF)
		(V)	(V)	(V)	(V)	(V)	(A)	(kA)	(kA)	(kA)		
YMJ36R241K	T	150	200	216	264	395	200	25	50	8.5	575	5650
YMJ36R271K	T	175	225	243	297	455	200	25	50	8.5	650	5100
YMJ36R301K	T	190	250	270	330	500	200	25	50	8.5	720	4510
YMJ36R331K	T	210	275	297	363	550	200	25	50	8.5	780	4150
YMJ36R361K	T	230	300	324	396	595	200	25	50	8.5	900	3750
YMJ36R391K	T	250	320	351	429	650	200	25	50	8.5	1000	3500
YMJ36R431K	T	275	350	387	473	710	200	25	50	8.5	1100	2950
YMJ36R471K	T	300	385	423	517	775	200	25	50	8.5	1200	2880
YMJ36R511K	T	320	415	459	561	845	200	25	50	8.5	1250	2650
YMJ36R561K	T	350	460	504	616	925	200	25	50	7.5	1350	2450
YMJ36R621K	T	385	505	558	682	1025	200	25	50	7.5	1500	2200
YMJ36R681K	T	420	560	612	748	1120	200	25	50	7.0	1500	2000
YMJ36R711K	T	440	585	639	781	1170	200	25	50	7.0	1550	1900
YMJ36R751K	T	460	615	675	825	1240	200	25	50	7.0	1550	1820
YMJ36R821K	T	510	670	738	902	1355	200	25	50	6.0	1550	1800
YMJ36R911K	T	550	745	819	1001	1500	200	25	50	6.0	1750	1500
YMJ36R951K	T	575	760	855	1045	1565	200	20	50	5.0	1800	1400
YMJ36R102K	T	625	825	900	1100	1650	200	20	50	5.0	1850	1350
YMJ36R112K	T	680	895	990	1210	1815	200	20	50	5.0	2100	1230

★The In/Imax/Iimp could be applied to the same varistor.

★We have specified product for DC application, please make a note when purchasing.

MOV

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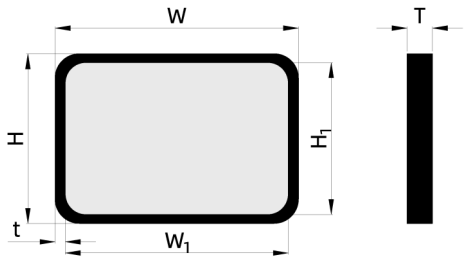
Dimensions (mm)



W	W_1	H	H_1	t (min.)
53.0±0.8	49.0±0.5	33.5±0.8	30.0±0.5	0.8

*Various electrode shapes of uncoated MOV or coated MOV can be customized

Specification

Model	Surge Level	Max. Continuous Operating Voltage		Varistor Voltage @1 mA DC		Clamping Voltage (Max.)		Max. Discharge Current (8/20 μs)		Impulse Discharge Current (10/350 μs)	Max. Energy (10/1000 μs)	Typical Capacitance (Reference) @1 kHz
		Vac	Vdc	Min.	Max.	V_C	I_P	I_n	I_{max}	I_{imp}	(J)	(pF)
		(V)	(V)	(V)	(V)	(V)	(A)	(kA)	(kA)	(kA)		
YMJ40R241K	T	150	200	216	264	395	400	30	60	12.5	860	11000
YMJ40R271K	T	175	225	243	297	455	400	30	60	12.5	975	10000
YMJ40R301K	T	190	250	270	330	500	400	30	60	12.5	1080	8800
YMJ40R331K	T	210	275	297	363	550	400	30	60	12.5	1170	8100
YMJ40R361K	T	230	300	324	396	595	400	30	60	12.5	1350	7400
YMJ40R391K	T	250	320	351	429	650	400	30	60	12.5	1500	6900
YMJ40R431K	T	275	350	387	473	710	400	30	60	12.5	1650	5800
YMJ40R471K	T	300	385	423	517	775	400	30	60	12.5	1800	5650
YMJ40R511K	T	320	415	459	561	845	400	30	60	12.5	1875	5200
YMJ40R561K	T	350	460	504	616	925	400	30	60	12.5	2025	4800
YMJ40R621K	T	385	505	558	682	1025	400	30	60	12.5	2250	4300
YMJ40R681K	T	420	560	612	748	1120	400	30	60	12.5	2250	3900
YMJ40R711K	T	440	585	639	781	1170	400	30	60	12.5	2325	3700
YMJ40R751K	T	460	615	675	825	1240	400	30	60	12.5	2325	3550
YMJ40R821K	T	510	670	738	902	1355	400	30	60	10.0	2325	3510
YMJ40R911K	T	550	745	819	1001	1500	400	30	60	10.0	2625	2950
YMJ40R951K	T	575	760	855	1045	1565	400	25	60	6.5	2700	2730
YMJ40R102K	T	625	825	900	1100	1650	400	25	60	6.5	2775	2650
YMJ40R112K	T	680	895	990	1210	1815	400	25	60	6.5	3150	2400

★The In/Imax/Iimp could be applied to the same varistor.

★We have specified product for DC application, please make a note when purchasing.

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ATTENTION

Usage

1. Varistor must operated in the specified ambient temp.
2. Do not clean the varistor with strong polar solvent such as ketone, esters, benzene and halogenated hydrocarbon.
3. Please do not apply severe vibration, shock or pressure to MOV.
4. Please fix lead wires when bending or cutting. The distance between the bending point and the sealing of MOV shall be greater than 2 mm.

Replacement

If varistor is visually damaged,please replace it.

Storage

1. Storage Temp. Range: (-40 to +125) °C
2. Relative Humidity : ≤75% RH
3. Altitude: <2000 m
4. Do not store the MOV at the high temp., high humidity or corrosive gas environment, to avoid influencing the solder-ability of the lead wires, the product shall be used up within 1 year after receiving the goods.

Environmental Conditions

1. Varistor should neither be exposed to the open air, nor direct sunshine.
2. Varistor should avoid rain, water vapor or other condition of high temp. and high humidity.
3. Varistor should avoid sand dust, salt spray, or other harmful gases.

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Max. Typical Capacitance of Varistor

The typical capacitance of varistor is listed in the specifications. Designers may refer to it when designing MOV in high frequency circuit.

Installation

Mechanical Stress

Do not knock MOV when installing, to avoid mechanical damage.

MOV

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21

21 YEARS OF DESIGNING, MANUFACTURING AND SELLING OF CIRCUIT PROTECTION COMPONENTS

>40

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