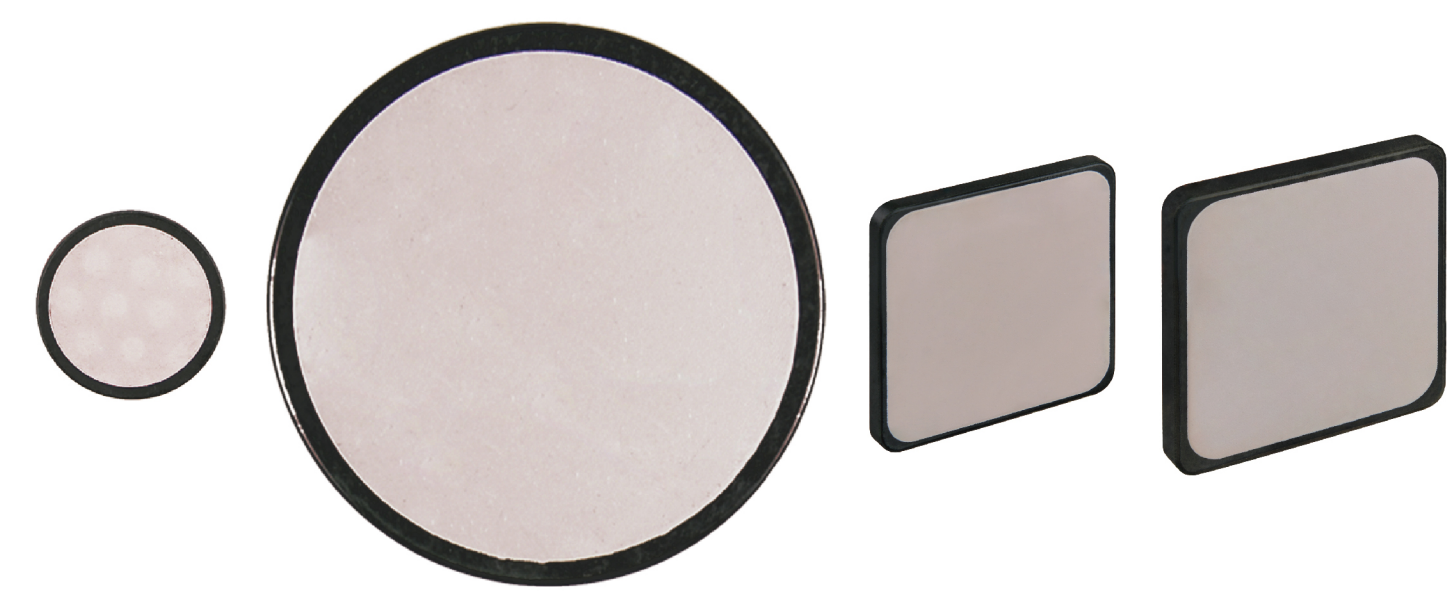
MOV Disk

Lightning Protection Type For T2

MOV

- Low Leakage Current
- High Surge Current Density
- High operating temperature
- Compatible for AC & DC application
- RoHS & REACH Compliant

Please refer to the datasheet of each series.



https://setsafe.com/Product/Over-Voltage-Protection/Metal-Oxide-Varistor-and-MOV-Disk/Metal-Oxide-Varistor-and-MOV-Disk-Standard-Type.html

2024

SET safe | SET fuse

Providing a Total Solution for High Standard Safety Circuit Protection

Metal Oxide Varistor（MOV）

Metl Oxide Varistor (MOV) is a nonlinear resistance component with zinc oxide (ZnO) as its main constituent. The resistance of an MOV is sensitive to changes in the lied voltage. Below the threshold voltage, the MOV exhibits high resistance, allowing only a negligibly small leakage current to flow. Once the threshold voltage threshold voltage is exceeded, the resistance of the MOV drops sharply, enablingthe the conduction of a large current. This characteristic makes the MOV suitable for detecting and suppressing surge voltage and overvoltage, thereby protect the circuit from damage caused by excessive voltage.

The Metal Oxide Varistor (MOV) finds wide application in various fields such as photovol taics, communication, lightning protection, power supply, and power strips. It serves to suppress transient overvoltage and absorb surge energy within the circuit.

SETsafe | SETfuse offers Metal Oxide Varistors (MOV) with maximum peak current ratings ranging from 8 kA to 50 kA, and maximum continuous voltage ratings from 130VAC to 750 VAC. Safety certification Includes UL, cUL, TUV, and CQC, and comply with RoHS and REACH requirements.

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Catalogue

1 Overview of Features and Models 1

2 Glossary 2

3 Attention 3

4 Series 4

Description、Features、Applications、Schematics、Product Structure、Dimensions、Part Numbering System、Marking、Specification、Performance Curve、Packaging Information.

4.1 YMJ25D Model 4

4.2 YMJ53D Model 6

4.3 YMJ37S Model 8

4.4 YMJ40S Model 10

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MOV Disk-Lightning Protection Type For T2 Feature & Model List Overview

Nominal Operating Voltage U_n (V) AC	Nominal Operating Voltage U_n (V) DC	Model 20	Model 60	Model 70	Model 80	Maximum Continuous Operating Voltage U_n (V) AC	Maximum Continuous Operating Voltage U_n (V) DC	Page
480V	500V	YMJ25D122K	YMJ37S122K	YMJ53D122K	YMJ40S122K	750	990	
		YMJ25D112K	YMJ37S112K	YMJ53D112K	YMJ40S112K	680	895	
		YMJ25D102K	YMJ37S102K	YMJ53D102K	YMJ40S102K	625	825	
415V		YMJ25D911K	YMJ37S911K	YMJ53D911K	YMJ40S911K	550	745	
380V		YMJ25D821K	YMJ37S821K	YMJ53D821K	YMJ40S821K	510	670	
		YMJ25D751K	YMJ37S751K	YMJ53D751K	YMJ40S751K	460	615	
100V - 240V		YMJ25D681K	YMJ37S681K	YMJ53D681K	YMJ40S681K	420	560	
		YMJ25D621K	YMJ37S621K	YMJ53D621K	YMJ40S621K	385	505	
		YMJ25D561K	YMJ37S561K	YMJ53D561K	YMJ40S561K	350	460	
		YMJ25D511K	YMJ37S511K	YMJ53D511K	YMJ40S511K	320	415	
100V - 220V		YMJ25D471K	YMJ37S471K	YMJ53D471K	YMJ40S471K	300	385	
		YMJ25D431K	YMJ37S431K	YMJ53D431K	YMJ40S431K	275	350	
100V - 120V	250V	YMJ25D391K	YMJ37S391K	YMJ53D391K	YMJ40S391K	250	320	
		YMJ25D361K	YMJ37S361K	YMJ53D361K	YMJ40S361K	230	300	
		YMJ25D331K	YMJ37S331K	YMJ53D331K	YMJ40S331K	210	275	
		YMJ25D301K	YMJ37S301K	YMJ53D301K	YMJ40S301K	190	250	
100V	125V	YMJ25D271K	YMJ37S271K	YMJ53D271K	YMJ40S271K	175	225	
		YMJ25D241K	YMJ37S241K	YMJ53D241K	YMJ40S241K	150	200	
		YMJ25D221K	○	○	○	140	180	
		YMJ25D201K	○	○	○	130	170	
		○	○	○	○	115	150	
	48V	○	○	○	○	95	125	
		○	○	○	○	75	100	
		○	○	○	○	60	85	
		○	○	○	○	50	65	
	24V	○	○	○	○	40	56	
		○	○	○	○	35	45	
		○	○	○	○	30	38	
	12V	○	○	○	○	25	31	
		○	○	○	○	20	26	
		○	○	○	○	17	22	
		○	○	○	○	14	18	

Maximum Peak Current (8/20 μs) (kA)

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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. — (GB 18802.331) — (IEC 61051-1)
I_L	**Leakage Current** Measuring at 75% of varistor voltage. — (GB/T 10193) — (IEC 61051-1)
UCT	**Upper Category Temp.** Max. ambient temp. for which a varistor has been designed to operate continuously. — (GB/T 10193) — (IEC 61051-1)
LCT	**Lower Category Temp.** Minimum ambient temp. at which a varistor has been designed to operate continuously. — (GB/T 10193) — (IEC 61051-1)
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. — (GB/T 10193) — (IEC 61051-1)
V_C	**Clamping Voltage** Peak voltage developed across the varistor terminations under standard atmospheric conditions, when passing an 8/20 μs class current pulse. — (GB 18802.331) — (IEC 61051-1)
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). — (GB/T 10193) — (IEC 61051-1)
C_V	**Capacitance** Capacitance across the MOV measured at a specified frequency and voltage. — (GB 18802.331) — (IEC 61051-1)
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. — (GB/T 10193) — (IEC 61051-1)
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. — (GB/T 10193) — (IEC 61051-1)
I_{max}	**Max. Discharge Current** Crest value of a current through the SPD having an 8/20 μs waveshape and magnitude according to the manufacturers specification. I_{max} is equal to or greater than I_n. — (GB 18802.1) — (IEC 61643-11)

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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.

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.

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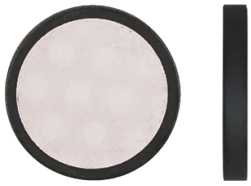

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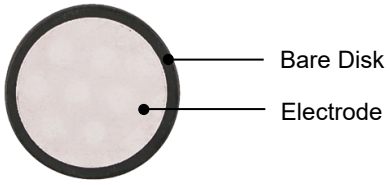
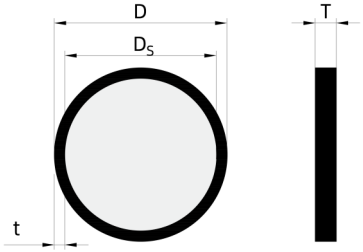
Product Structure



Agency Approvals

Agency	Standards	No.
	UL 1449 4th Edition	E322662
	CSA C22.2 NO.269.5-17	E322662

Dimensions (mm)



D	D_S	t (min.)
24.5±0.8	20.6±0.5	0.8

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

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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.

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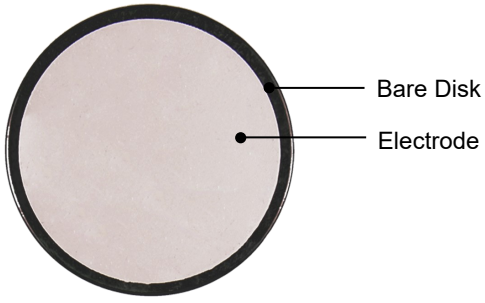
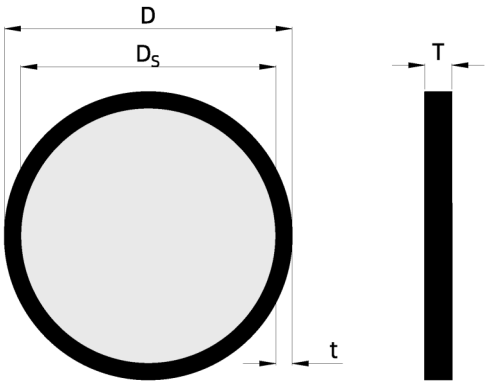
Product Structure



Agency Approvals

Agency	Standards	No.
	UL 1449 4th Edition	E322662
	CSA C22.2 NO.269.5-17	E322662

Dimensions (mm)



D	D_S	t (min.)
52.0±0.8	47.0±0.5	0.8

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Specification

Model	Surge Level	Max. Continuous Operating Voltage		Varistor Voltage @1 mA DC		Clamping Voltage (Max.)		Max. Discharge Current (8/20 μs)		Max. Energy (10/1000 μs)	Typical Capacitance (For reference only) @1 kHz	Agency Information	
		VAC	VDC	Min.	Max.	V_C	I_P	I_n	I_{max}	(J)	(pF)	UL	cUL
		(V)	(V)	(V)	(V)	(V)	(A)	(kA)	(kA)				
YMJ53D241K	K	150	200	216	264	395	500	35	70	650	12500	●	●
YMJ53D271K	K	175	225	243	297	455	500	35	70	700	11000	●	●
YMJ53D301K	K	190	250	270	330	500	500	35	70	765	10000	●	●
YMJ53D331K	K	210	275	297	363	550	500	35	70	825	9000	●	●
YMJ53D361K	K	230	300	324	396	595	500	35	70	850	8500	●	●
YMJ53D391K	K	250	320	351	429	650	500	35	70	885	7500	●	●
YMJ53D431K	K	275	350	387	473	710	500	35	70	990	7000	●	●
YMJ53D471K	K	300	385	423	517	775	500	35	70	1080	6500	●	●
YMJ53D511K	K	320	415	459	561	845	500	35	70	1150	6000	●	●
YMJ53D561K	K	350	460	504	616	925	500	35	70	1200	5500	●	●
YMJ53D621K	K	385	505	558	682	1025	500	35	70	1300	5000	●	●
YMJ53D681K	K	420	560	612	748	1120	500	35	70	1350	4500	●	●
YMJ53D711K	K	440	585	639	781	1170	500	35	70	1350	4500	●	●
YMJ53D751K	K	460	615	675	825	1240	500	35	70	1400	4000	●	●
YMJ53D821K	K	510	670	738	902	1355	500	35	70	1600	3700	●	●
YMJ53D911K	K	550	745	819	1001	1500	500	35	70	1700	3300	●	●
YMJ53D951K	K	575	760	855	1045	1565	500	35	70	1800	3200	●	●
YMJ53D102K	K	625	825	900	1100	1650	500	35	70	1890	3000	●	●
YMJ53D112K	K	680	895	990	1210	1815	500	35	70	2050	2700	●	●
YMJ53D122K	K	750	990	1080	1320	1980	500	35	70	2160	2500	●	●

●: Approved ○: Unauthorized ● RoHS & REACH Compliant

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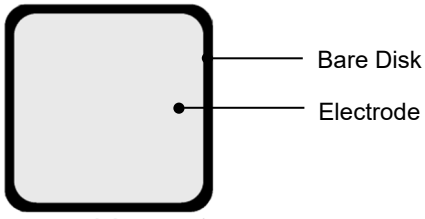
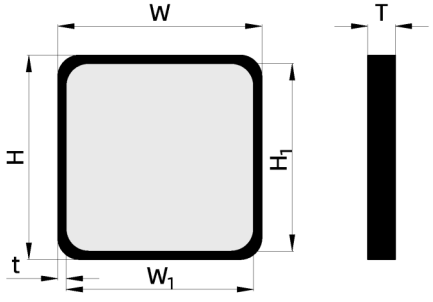
Product Structure



Agency Approvals

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

Dimensions (mm)



W	W_1	H	H_1	t (min.)
36.5±0.8	34.0±0.5	36.5±0.8	34.0±0.5	0.8

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Specification

Model	Surge Level	Max. Continuous Operating Voltage		Varistor Voltage @1 mA DC		Clamping Voltage (Max.)		Max. Discharge Current (8/20 μs)		Max. Energy (10/1000 μs)	Typical Capacitance (Reference) @1 kHz
		VAC	VDC	Min.	Max.	V_C	I_P	I_n	I_{max}	(J)	(pF)
		(V)	(V)	(V)	(V)	(V)	(A)	(kA)	(kA)		
YMJ37S241K	K	150	200	216	264	395	400	30	60	720	6215
YMJ37S271K	K	175	225	243	297	455	400	30	60	810	5610
YMJ37S301K	K	190	250	270	330	500	400	30	60	900	4960
YMJ37S331K	K	210	275	297	363	550	400	30	60	980	4565
YMJ37S361K	K	230	300	324	396	595	400	30	60	1125	4125
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YMJ37S471K	K	300	385	423	517	775	400	30	60	1500	3120
YMJ37S511K	K	320	415	459	561	845	400	30	60	1590	2915
YMJ37S561K	K	350	460	504	616	925	400	30	60	1725	2695
YMJ37S621K	K	385	505	558	682	1025	400	30	60	1875	2420
YMJ37S681K	K	420	560	612	748	1120	400	30	60	1875	2200
YMJ37S711K	K	440	585	639	781	1170	400	30	60	1875	2100
YMJ37S751K	K	460	615	675	825	1240	400	30	60	1920	2000
YMJ37S821K	K	510	670	738	902	1355	400	30	60	1950	1980
YMJ37S911K	K	550	745	819	1001	1500	400	30	60	2200	1650
YMJ37S951K	K	575	760	855	1045	1565	400	30	60	2250	1550
YMJ37S102K	K	625	825	900	1100	1650	400	30	60	2325	1485
YMJ37S112K	K	680	895	990	1210	1815	400	30	60	2625	1355
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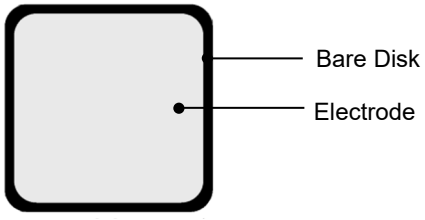

Agency Approvals

Agency	Standards	No.
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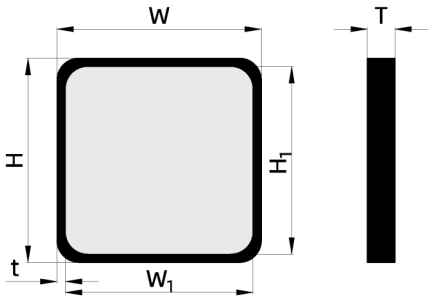
	CSA C22.2 NO.269.5-17	On-going

Dimensions (mm)



W	W_1	H	H_1	t (min.)
40.5±0.8	37.5±0.5	40.5±0.8	37.5±0.5	0.8

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

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Specification

Model	Surge Level	Max. Continuous Operating Voltage		Varistor Voltage @1 mA DC		Clamping Voltage (Max.)		Max. Discharge Current (8/20 μs)		Max. Energy (10/1000 μs)	Typical Capacitance (Reference) @1 kHz
		VAC	VDC	Min.	Max.	V_C	I_P	I_n	I_{max}	(J)	(pF)
		(V)	(V)	(V)	(V)	(V)	(A)	(kA)	(kA)		
YMJ40S241K	K	150	200	216	264	395	500	40	80	1200	13350
YMJ40S271K	K	175	225	243	297	455	500	40	80	1350	11500
YMJ40S301K	K	190	250	270	330	500	500	40	80	1500	10500
YMJ40S331K	K	210	275	297	363	550	500	40	80	1650	9000
YMJ40S361K	K	230	300	324	396	595	500	40	80	1800	9000
YMJ40S391K	K	250	320	351	429	650	500	40	80	1950	8000
YMJ40S431K	K	275	350	387	473	710	500	40	80	2150	7500
YMJ40S471K	K	300	385	423	517	775	500	40	80	2350	6700
YMJ40S511K	K	320	415	459	561	845	500	40	80	2550	6200
YMJ40S561K	K	350	460	504	616	925	500	40	80	2800	5700
YMJ40S621K	K	385	505	558	682	1025	500	40	80	3100	5200
YMJ40S681K	K	420	560	612	748	1120	500	40	80	3400	4700
YMJ40S711K	K	440	585	639	781	1170	500	40	80	3500	4500
YMJ40S751K	K	460	615	675	825	1240	500	40	80	3600	4200
YMJ40S821K	K	510	670	738	902	1355	500	40	80	3900	3900
YMJ40S911K	K	550	745	819	1001	1500	500	40	80	4100	3500
YMJ40S951K	K	575	760	855	1045	1565	500	40	80	4300	3350
YMJ40S102K	K	625	825	900	1100	1650	500	40	80	4500	3200
YMJ40S112K	K	680	895	990	1210	1815	500	40	80	5000	2900
YMJ40S122K	K	750	990	1080	1320	1980	500	40	80	5500	2700

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

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