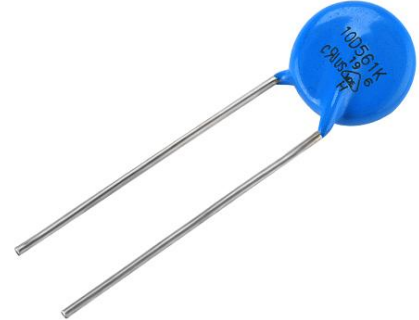


Varistors (MOV) Data Sheet

Features

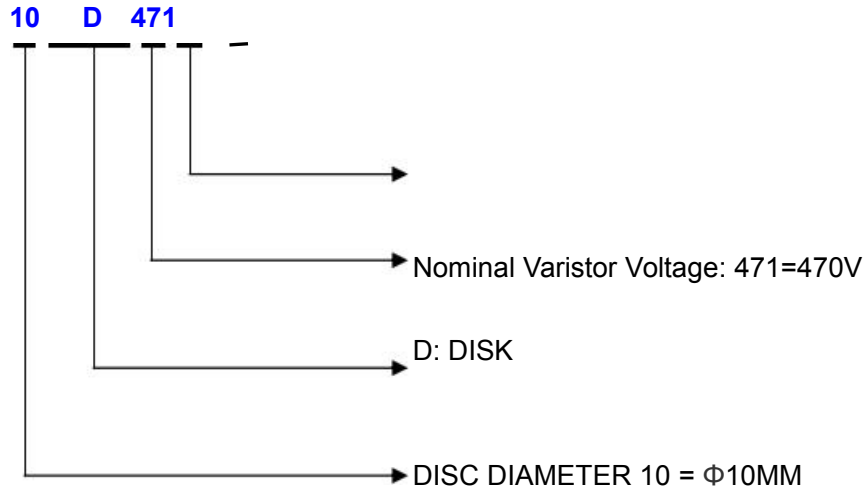
- Wide operating voltage (V1mA) range from 18V to 1100V
- Fast responding to transient over-voltage
- Large absorbing transient energy capability
- Low clamping ratio and no follow-on current
- Meets MSL level 1, per J-STD-020
- Operating Temperature: -40°C ~ +85°C
- Storage Temperature: -40°C ~ +125°C
- Safety certification:



Applications

- MOV varistors are widely used in:
- AC power supplies
- Industrial control systems
- Home appliances
- LED drivers
- Surge protection circuits

Description of Part Number



Delivery Time

Standard MOV	Delivery Time
10D180 ~ 10D112	15days

Electrical Characteristics

Part Number	Maximum Allowable Voltage		Varistor Voltage $V_{1mA}(V)$	Maximum Clamping Voltage $V_c(V)$ AT 25A	Max Surge Current 8/20 μ s I_{max} Standard	Maximum Energy (10/1000 μ s) (J) Standard	Typical Capacitance (Reference) 1KHz(pf)	Safety Certification	
	$V_{AC}(V)$	$V_{DC}(V)$						UL / CUL	VDE
10D180	11V	14V	18V(16V~20V)	38V	500A	2.8J	5600pF	√	√
10D220	14V	18V	22V(20V~24V)	43V	500A	4.5J	4500pF	√	√
10D270	17V	22V	27V(24V~30V)	53V	500A	6.0J	3700pF	√	√
10D330	20V	26V	33V(30V~36V)	65V	500A	7.4J	3000pF	√	√
10D390	25V	31V	39V(35V~43V)	77V	500A	9.1J	2400pF	√	√
10D470	30V	38V	47V(42V~52V)	93V	500A	10.8J	2100pF	√	√
10D560	35V	45V	56V(50V~62V)	110V	500A	12.9J	1800pF	√	√
10D680	40V	56V	68V(61V~75V)	135V	500A	15.4J	1500pF	√	√
10D820	50V	65V	82V(74V~90V)	135V	2500A	16.8J	1200pF	√	√
10D101	60V	85V	100V(90V~110V)	165V	2500A	18.2J	1000pF	√	√
10D121	75V	100V	120V(108V~132V)	200V	2500A	21.0J	830pF	√	√
10D151	95V	125V	150V(135V~165V)	250V	2500A	25.2J	670pF	√	√
10D181	115V	150V	180V(162V~198V)	300V	2500A	30.8J	560pF	√	√
10D201	130V	170V	200V(180V~220V)	340V	2500A	42.0J	500pF	√	√
10D221	140V	180V	220V(198V~242V)	360V	2500A	46.2J	450pF	√	√
10D241	150V	200V	240V(216V~264V)	395V	2500A	50.4J	420pF	√	√
10D271	175V	225V	270V(243V~297V)	455V	2500A	57.4J	370pF	√	√
10D301	190V	250V	300V(270V~330V)	505V	2500A	63.0J	330pF	√	√
10D331	210V	275V	330V(297V~363V)	550V	2500A	68.6J	300pF	√	√
10D361	230V	300V	360V(324V~396V)	595V	2500A	74.2J	280pF	√	√
10D391	250V	320V	390V(351V~429V)	650V	2500A	81.2J	260pF	√	√
10D431	275V	350V	430V(387V~473V)	710V	2500A	88.2J	230pF	√	√
10D471	300V	385V	470V(423V~517V)	775V	2500A	96.0J	210pF	√	√
10D511	320V	415V	510V(459V~561V)	845V	2500A	98.0J	200pF	√	√
10D561	350V	460V	560V(504V~616V)	920V	2500A	100J	180pF	√	√
10D621	385V	505V	620V(558V~682V)	1025V	2500A	102J	160pF	√	√
10D681	420V	560V	680V(612V~748V)	1120V	2500A	104J	150pF	√	√
10D751	460V	615V	750V(675V~825V)	1240V	2500A	110J	130pF	√	√
10D781	485V	640V	780V(702V~858V)	1290V	2500A	118J	130pF	√	√
10D821	510V	670V	820V(738V~902V)	1355V	2500A	122J	120pF	√	√
10D911	550V	745V	910V(819V~1001V)	1500V	2500A	128J	110pF	√	√
10D102	625V	825V	1000V(900V~1100V)	1650V	2500A	131J	100pF	√	√
10D112	680V	895V	1100V(990V~1210V)	1815V	2500A	133J	90pF	√	√

Dimension(mm)

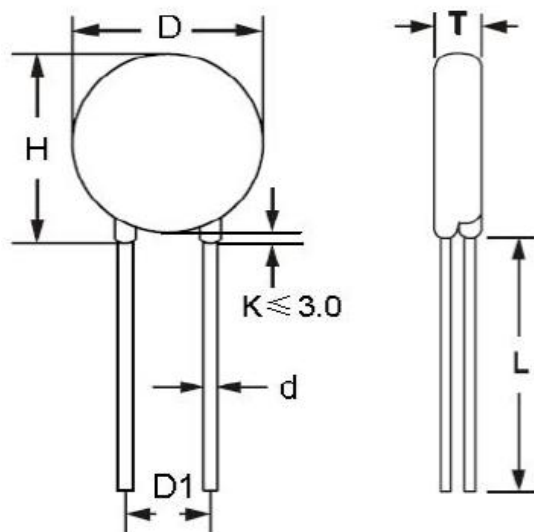


TABLE1

TABLE2

Symbol	Dimensions	Part number	T(±1.0mm)	Part number	T(±1.0mm)
H(Max)	16.5mm	10D180	2.5mm	10D301	3.4mm
L(Min)	22.0mm	10D220	2.6mm	10D331	3.7mm
D(Max)	12.5mm	10D270	2.7mm	10D361	3.9mm
D1(±0.8)	7.5mm	10D330	2.9mm	10D391	4.4mm
T	TABLE2	10D390	3.2mm	10D431	4.4mm
d(±0.05)	0.8mm	10D470	3.3mm	10D471	4.6mm
		10D560	3.4mm	10D511	4.7mm
		10D680	3.5mm	10D561	4.9mm
		10D820	2.6mm	10D621	5.2mm
		10D101	2.8mm	10D681	5.5mm
		10D121	3.0mm	10D751	5.9mm
		10D151	3.3mm	10D781	6.0mm
		10D181	2.7mm	10D821	6.2mm
		10D201	2.9mm	10D911	6.7mm
		10D221	3.0mm	10D102	7.2mm
		10D241	3.1mm	10D112	7.8mm
		10D271	3.3mm	-	-

Packing Information

Part Number	Quantity	Packaging Option	Packaging Specification
10Dxxx	500PCS	Plastic bag	Bulk Pack

Packaging Options

1: Bulk Packaging

Loose packaging in bags and cartons. Suitable for manual assembly and small to medium production volumes.



2: Ammo Packaging(Tape in Box)

Taped packaging in folded (zigzag) form. Designed for automatic insertion (AI) machines and efficient handling.



3: Reel Packaging(Tape & Reel)

Continuous tape packed on reels. Ideal for high-speed automated production and large-scale manufacturing.



Packaging type can be selected based on customer requirements. Custom packaging options are available upon request.

ShenZhen HuaXingAn Electronics Co., Ltd.

www.huaandz.com

sales@huaandz.com

Varistors MOV Datasheet

Specifications subject to change without notice

MOV Varistor Selection Guide for AC Power Applications

1: Voltage Selection Principle

AC peak voltage calculation: $V_{peak} = \sqrt{2} \times V_{RMS}$

Recommended design margin: $MCOV \geq 1.25 \times V_{RMS}$

2: Key Electrical Relationships

Varistor Voltage (V_{1mA}): $\approx (1.6 - 1.8) \times V_{RMS}$

Clamping Voltage (V_c): $\approx 2.5 \times V_{1mA}$

3: Quick Selection Guide

AC System Voltage Typical Application Recommended MOV Model

110VAC Power supply / Consumer electronics 10D241K

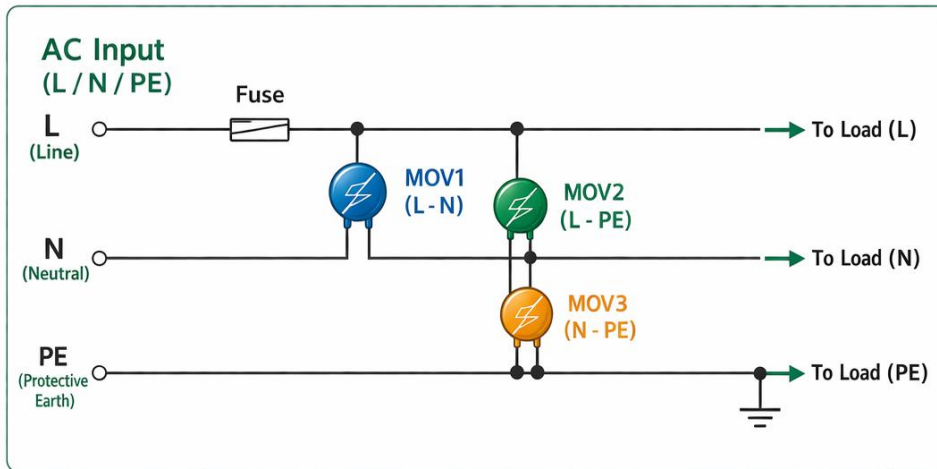
220VAC Industrial equipment / Home appliances 10D471K

277VAC Lighting / Industrial systems 10D561K

3: 10D Series Recommended Models Quick

AC System Voltage Recommended Models (10D Series)

MOV Surge Protection Circuit



Connection Explanation



MOV1 (L - N)
Connected between Line and Neutral



MOV2 (L - PE)
Connected between Line and Protective Earth



MOV3 (N - PE)
Connected between Neutral and Protective Earth

Note:
MOVs are connected in parallel (shunt) across L-N, L-PE, and N-PE, not in series with the power line.

Quick Selection Guide



AC System Voltage	Recommended Models (10D Series)
110VAC	10D221K, 10D241K, 10D271K
120VAC	10D241K, 10D271K, 10D301K
220VAC	10D431K, 10D471K, 10D511K
230VAC	10D471K, 10D511K, 10D561K
240VAC	10D511K, 10D561K, 10D621K
277VAC	10D561K, 10D621K, 10D681K
380VAC	10D681K, 10D751K, 10D781K
400VAC	10D751K, 10D781K, 10D821K

Note:

The above models are recommended based on typical AC system voltage conditions. Final selection should consider surge environment, safety margin, and specific application requirements.

HuaXingAn

www.huaandz.com

Note: The above models are recommended based on typical AC system voltage conditions.

Final selection should consider surge environment, safety margin, and specific application requirements.

ShenZhen HuaXingAn Electronics Co., Ltd.

www.huaandz.com

sales@huaandz.com

Varistors MOV Datasheet

Specifications subject to change without notice

Notice for Use

To ensure safe and reliable operation of MOV varistors, please follow the guidelines below:

1: Overcurrent Protection

When excessive current or voltage occurs, the varistor may overheat, smoke, or fail. It is recommended to install a fuse or circuit breaker in series with the power line.

Recommended fuse rating (for reference):

05D: 1–2A

07D: 2–3A

10D: 3–5A

14D: 3–10A

20D: 5–15A

2: Electrical Limits

Do not exceed the specified maximum voltage, current, or energy ratings of the varistor.

3: Thermal Consideration

MOV varistors can only dissipate limited heat energy.

They are not suitable for applications with frequent high-energy surges or continuous overload conditions.

4: Installation Safety

Do not place flammable materials near the varistor.

Ensure proper spacing and ventilation in circuit design.

5: Soldering

Avoid excessive heat during soldering to prevent damage to the coating and internal structure.

6: Application Responsibility

Customers are responsible for verifying the suitability of the product for their specific applications.

All MOV varistors are compliant with RoHS and REACH requirements.

Products are designed and tested in accordance with IEC 61051 standards.

UL recognized types are available upon request.