Description

TFMOV25M series is mechanical trip thermal-fused MOV, which combines a MOV and disconnecting apparatus that can monitor the status of the MOV, making the TFMOV a fail-safe device. The products meet the requirements of IEC/EN 61643-11 Class I and Class II testing standards and commonly used in photovoltaic, communication etc., to protect the equipment from the damage of lightning surge. And, it is designed with unique structure to protect against the risk of fire due to overheating or energy overstressing of varistors.

Features

- Mechanical Trip Thermal Protection and Fast Response
- Small Size, Space Saving
- With Remote Signal Contact
- Epoxy Sealing Material, Flame-retardant to V0 (UL 94)
- Comply with IEC/EN 61643-11 T1+T2

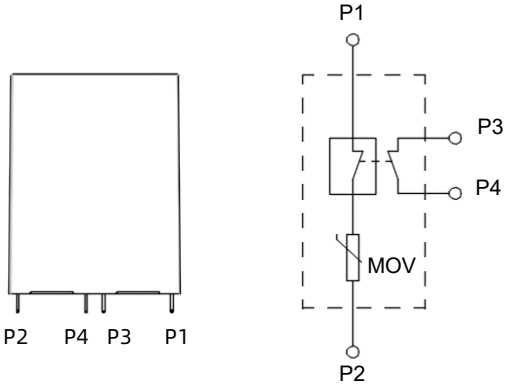
Approvals Information

Agency	Standards	No.
c UL us	UL 1449	on request
TÜVRheinland	IEC/EN 61643-11 IEC/EN 61643-31	On-going
CE	IEC/EN 61643-11 IEC/EN 61643-31	On-going
Environment	RoHS & REACH	Compliant

Applications

- Communication, Microcell
- Photovoltaic, String Inverter
- Power Supply, UPS
- Surge Protective Device (SPD)

Schematics



Part Numbering System

TFMOV 25M 680 - 4 - 001

Other Options

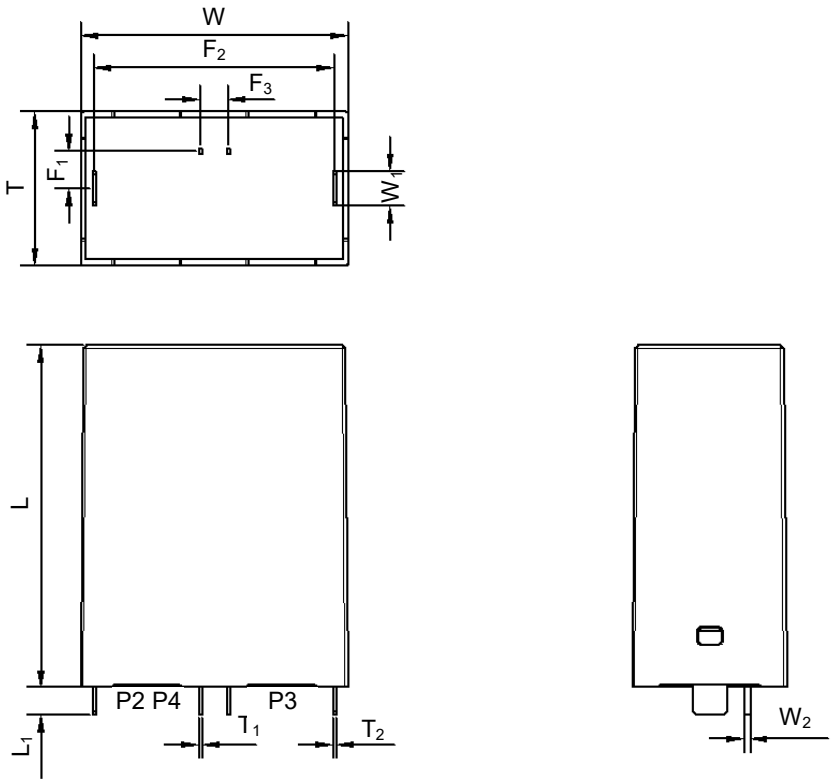
Pin No.
4: With Signal Contact

Max. Continuous Operating Voltage
680 V

Design Sequence

Product Category

Dimensions (mm)



L	L_1	W	W_1	W_2	T
50.0±1.0	4.0±0.5	39.0±1.0	5.0±0.5	0.8±0.3	22.5±1.0
T_1	**T_2**	**F_1**	**F_2**	**F_3**	
0.5±0.2	0.5±0.2	5.5±0.5	35.0±0.5	4.0±0.5	

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Glossary

Item	Description
U_p	**Voltage Protection Level** Maximum voltage to be expected at the SPD terminals due to an impulse stress with defined voltage steepness and an impulse stress with a discharge current with given amplitude and wave shape. — (IEC 61643-11)
8/20 µs	**8/20 µs Current Impulse** Current impulse with a nominal virtual front time of 8 µs and a nominal time to half-value of 20 µs. — (IEC 61643-11)
1.2/50 µs	**1.2/50 Voltage Impulse** Voltage impulse with a nominal virtual front time of 1.2 µs and a nominal time to half-value of 50 µs. — (IEC 61643-11)
U_c	**Maximum Continuous Operating Voltage** Maximum r.m.s. voltage, which may be continuously applied to the SPD's mode of protection. — (IEC 61643-11)
I_n	**Nominal Discharge Current** Crest value of the current through the SPD having a current waveshape of 8/20 µs. — (IEC 61643-11)
I_{imp}	**Impulse Discharge Current for Class I Test** Crest value of a discharge current through the SPD with specified charge transfer Q and specified energy W/R in the specified time. — (IEC 61643-11)
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. — (IEC 61643-11)
Modes of protection	**Modes of protection** An intended current path, between terminals that contains protective components, e.g. line-to-line, line-to-earth, line-to-neutral, neutral-to-earth. — (IEC 61643-11)
IP	**Degrees of Protection Provided by Enclosure (IP Code)** Classification preceded by the symbol IP indicating the extent of protection provided by an enclosure against access to hazardous parts, against ingress of solid foreign objects and possibly harmful ingress of water.

TFMOV

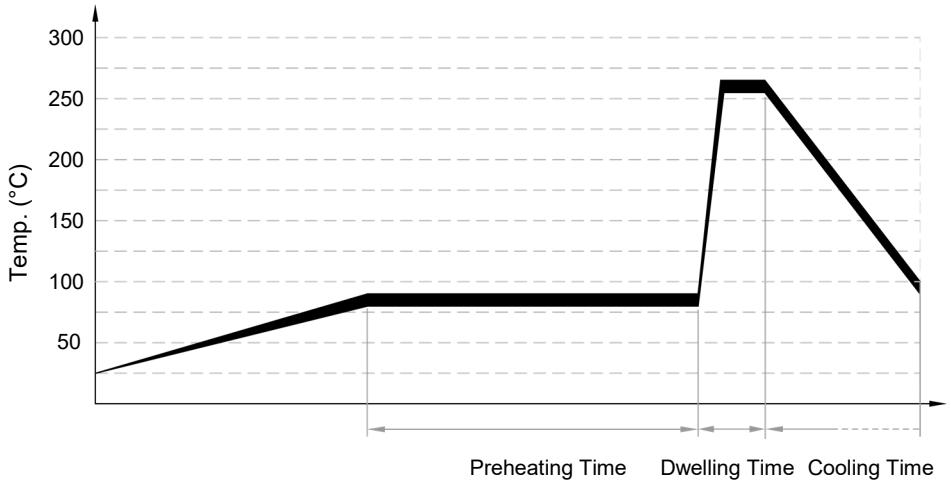
Specifications

Features	Specifications
According to Standard	UL 1449, EN 61643-31, EN 61643-11
Short-circuit Current Rating (I_{SCPV})	30 ~ 50 A
Alarm	Remote + Indicator
Degrees of Protection	IP20
Installation	PCB
Altitude	≤ 5000 m
Operational Temperature Range	(-40 ~ 85) °C
Humidity Range	5 ~ 95%

Model	Nominal System Voltage	Nominal Varistor Voltage @1mA	Max. Continuous Operating Voltage		Nominal Discharge Current (8/20 μs)	Impulse Discharge Current (10/350 μs)	Max. Discharge Current (8/20 μs)	Voltage Protection Rating	UL1449	IEC/EN 61643-11	IEC/EN 61643-31
	U_n	VDC	MCOV		I_n	I_{imp}	I_{max}	U_p			
	VAC(V)	(V)	U_c (VAC)	U_{cpv} (VDC)	(kA)	(kA)	(kA)	(V)	DC Type 4CA		
TFMOV25M385T1	277	620	385	505	20	7.5	40	1800	●	○	○
TFMOV25M440T1	347	680	440	585	20	7.5	40	2100	●	○	○
TFMOV25M510T1	347	820	510	670	20	6.5	40	2400	●	○	○
TFMOV25M550T1	480	910	550	745	20	6.5	40	2700	●	○	○
TFMOV25M575T1	480	950	575	760	20	6	40	2800	●	○	○
TFMOV25M625T1	480	1000	625	825	20	6	40	2900	●	○	○
TFMOV25M680T1	480	1100	680	900	20	6	40	3000	●	○	○

Notes:
1. The Value of Voltage Protection Level (U_p) is determined according to IEC 61643-11:2011 clause 6.4.
   Preferred values of voltage protection level (kV): 0.08, 0.09, 0.10, 0.12, 0.15, 0.22, 0.33, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.2, 1.5, 1.8, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 8.0, 10.
2. “O” means product agency file of TUV is on-going.

Wave Soldering Parameters (Reference)



Item	Temp. (°C)	Time (s)
Preheating	80 to 90	60 to 150
Dwelling	250 to 260	2 to 4

Recommended Hand-Soldering Parameters

Item	Condition
Iron Temperature	350 °C (Max.)
Soldering Time	4 seconds (Max.)
Distance between Soldering Point and the Bottom of Product	2 mm (Min.)

ATTENTION

Usage

1. Frequency range is from 47 Hz to 63 Hz.
2. The voltage applied continuously to the TFMOV can not exceed its maximum continuous operating voltage U_c.
3. When atmosphere press is from 80 kPa to 106 kPa, the related altitude shall be from 2000 meters to - 500 meters.
4. Do not touch the product body or pins directly when power is on, to avoid electric shock.
5. Do not clean the TFMOV with strong polar solvent such as ketone, esters, benzene, halogenated hydrocarbon, to avoid damaging the enclosure.
6. It should have a reliable grounding when using these products.

Replace

TFMOV is a non-repairable product. For safety sake, please use equivalent TFMOV for replacement.

Storage

Do not store TFMOV at high temperature, high humidity or corrosive gas environment. To avoid reducing the solderability of the pins, please use them up within 1 year after receiving the goods.

Installation Position

Do not install the TFMOV on a place that may often suffer severe continuous vibration.

Mechanical Stress

Do not take violent action such as knocking when assembling to avoid mechanical damage.

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