



SIOV Metal Oxide Varistors

ThermoFuse varistors

Series/Type: MT25 series
Ordering code: B72225M*
Date: 2020-06-01
Version: g

Construction

- Square varistor element, leaded
- Coating: epoxy molding, flame-retardant to UL 94 V-0
- Terminals: tinned copper wire, metal compound wire

Applications

- Solar
- Inverters
- Street lighting
- Telecommunications
- Large power supplies



Features

- High peak surge current up to 20 kA
- UL1449 approved, type 4CA (file number E321126)
- Remote signal contact
- Compact size with patented overmolding design

General technical data

Climatic category to IEC 60068-1	40 / 85 / 56
Operating temperature	-40...+85 °C
Storage temperature	-40...+85 °C
Response time	< 25 ns
Coating material	UL94-V0 (Black color)
Ingress protection	IP20
Application altitude	<2000 m
Installation	On board

Nomenclature

MT	= Series designation
25	= Rated disk diameter (mm)
K	= Tolerance of V_v at 1 mA: $\pm 10\%$
150 ... 385	= Max. operating AC voltage
F	= Flat spring
T2/3	= 2/3 terminals
L2	= 2-leads indicator (failure mode open)
M201	= Separated monitor circuite
M301	= Integrated monitor lead

Electrical specifications
Maximum ratings (85 °C)

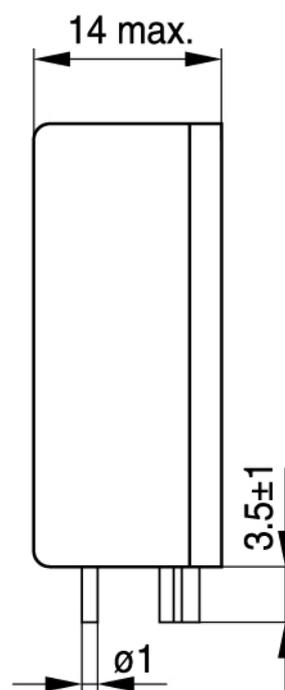
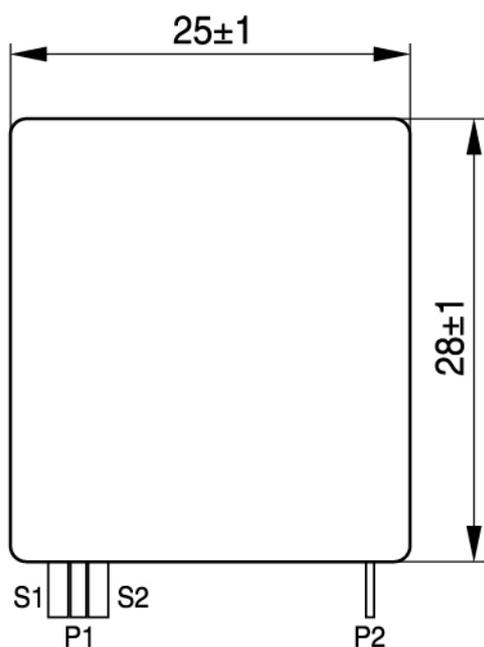
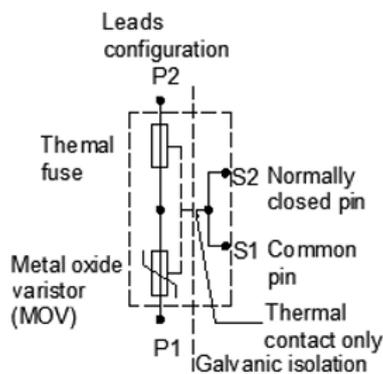
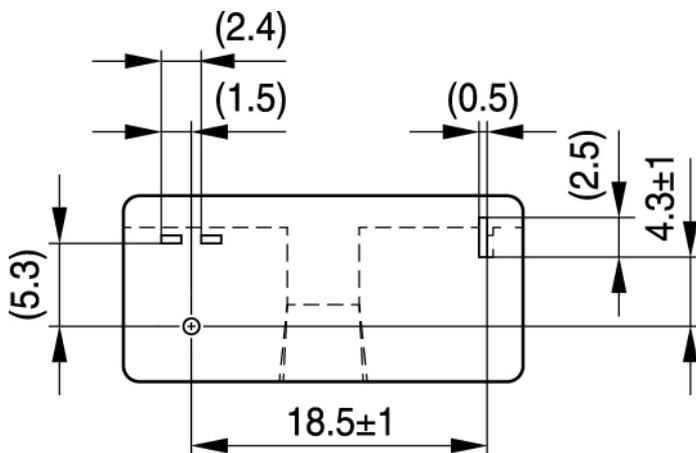
Ordering codes	Type SIOV	Max. operating voltage		I _n 8/20 μs ¹⁾ kA	I _{max} 8/20 μs ¹⁾ kA	W _{max} 2 ms J	P _{max} W
		V _{RMS} V	V _{DC} V				
B72225M0151M201	MT25K150FT2L2M201	150	200	10	20	215	1
B72225M0271M201	MT25K275FT2L2M201	275	350	10	20	375	1
B72225M0321M201	MT25K320FT2L2M201	320	420	10	20	445	1
B72225M0381M201	MT25K385FT2L2M201	385	505	10	20	600	1
B72225M0151M301	MT25K150FT3M301	150	200	10	20	215	1
B72225M0271M301	MT25K275FT3M301	275	350	10	20	375	1
B72225M0321M301	MT25K320FT3M301	320	420	10	20	445	1
B72225M0381M301	MT25K385FT3M301	385	505	10	20	600	1

¹⁾ acc. to IEC61643-11

Characteristics (25 °C)

Ordering codes	Type SIOV	V _v 1 mA	V _{c,max} 10 kA	C _{typ} 1 kHz
		V	V	pF
B72225M0151M201	MT25K150FT2L2M201	240 (216 ... 264)	1000	2370
B72225M0271M201	MT25K275FT2L2M201	430 (391 ... 473)	1400	1320
B72225M0321M201	MT25K320FT2L2M201	510 (459 ... 561)	1700	1090
B72225M0381M201	MT25K385FT2L2M201	620 (558 ... 682)	1800	900
B72225M0151M301	MT25K150FT3M301	240 (216 ... 264)	1000	2370
B72225M0271M301	MT25K275FT3M301	430 (391 ... 473)	1400	1320
B72225M0321M301	MT25K320FT3M301	510 (459 ... 561)	1700	1090
B72225M0381M301	MT25K385FT3M301	620 (558 ... 682)	1800	900

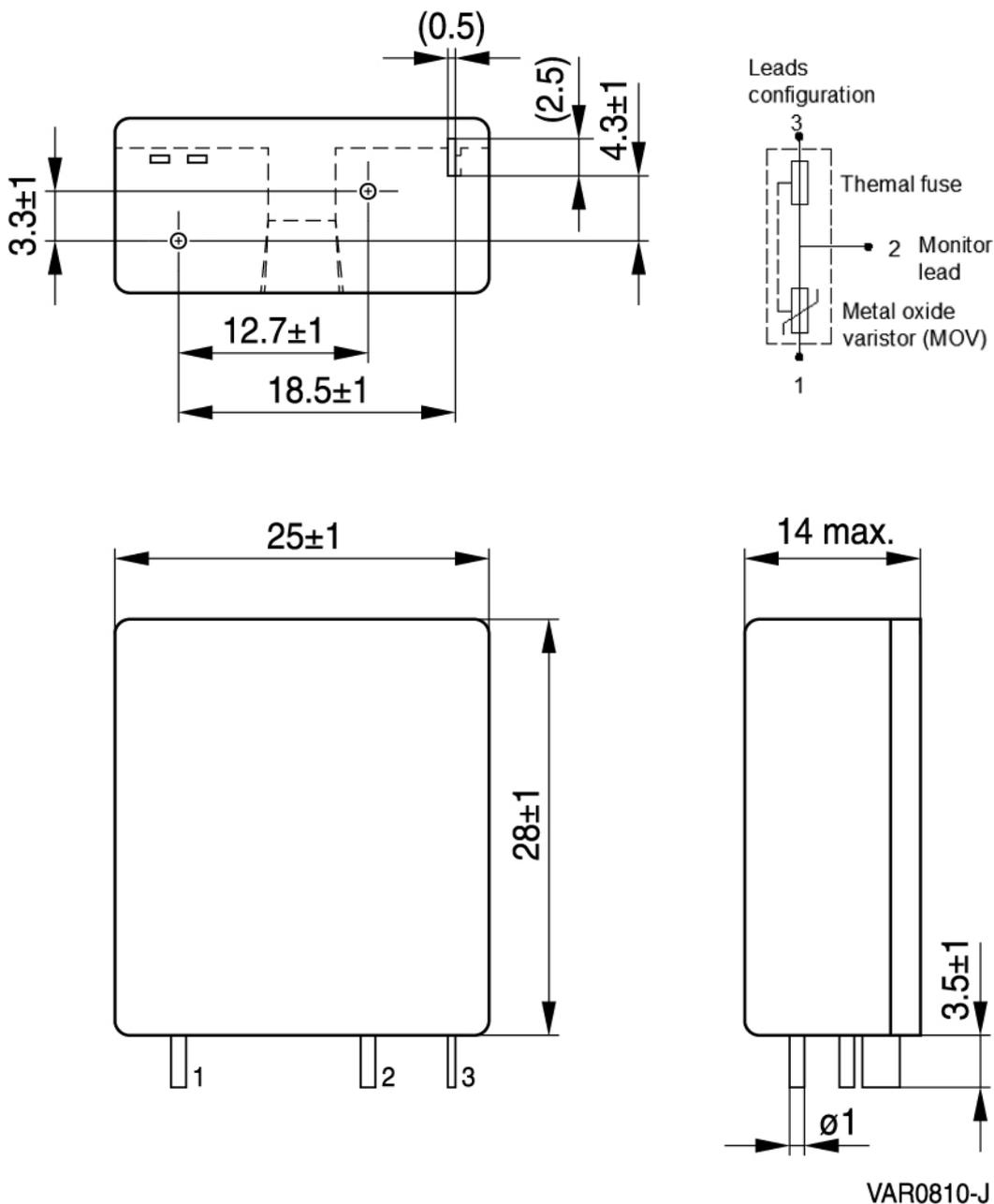
MT25***FT2L2M201 (in mm)



VAR0809-H

Type	Ordering codes
MT25K150FT2L2M201	B72225M0151M201
MT25K275FT2L2M201	B72225M0271M201
MT25K320FT2L2M201	B72225M0321M201
MT25K385FT2L2M201	B72225M0381M201

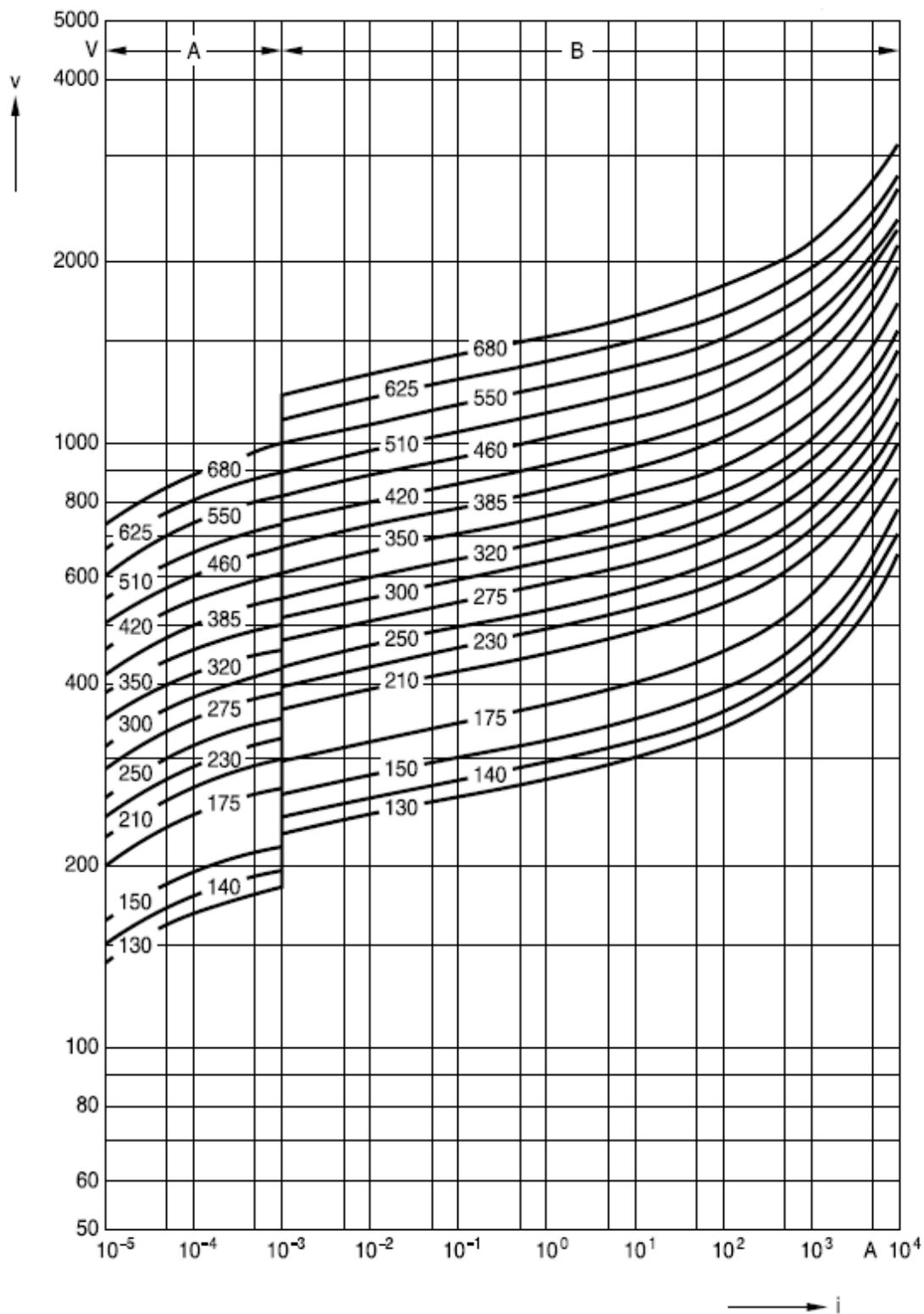
MT25***FT3M301 (in mm)



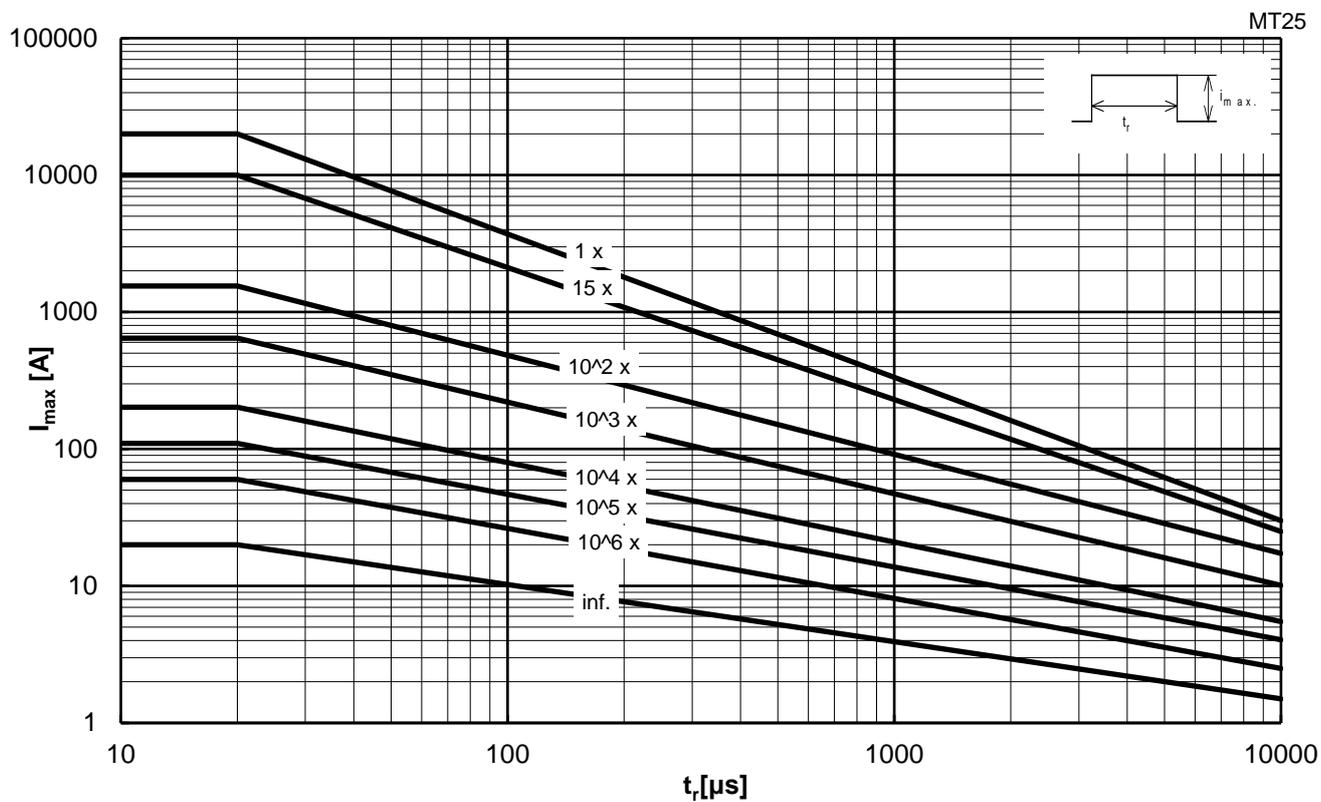
VAR0810-J

Type	Ordering codes
MT25K150FT3M301	B72225M0151M301
MT25K275FT3M301	B72225M0271M301
MT25K320FT3M301	B72225M0321M301
MT25K385FT3M301	B72225M0381M301

v/i characteristics



Derating curve

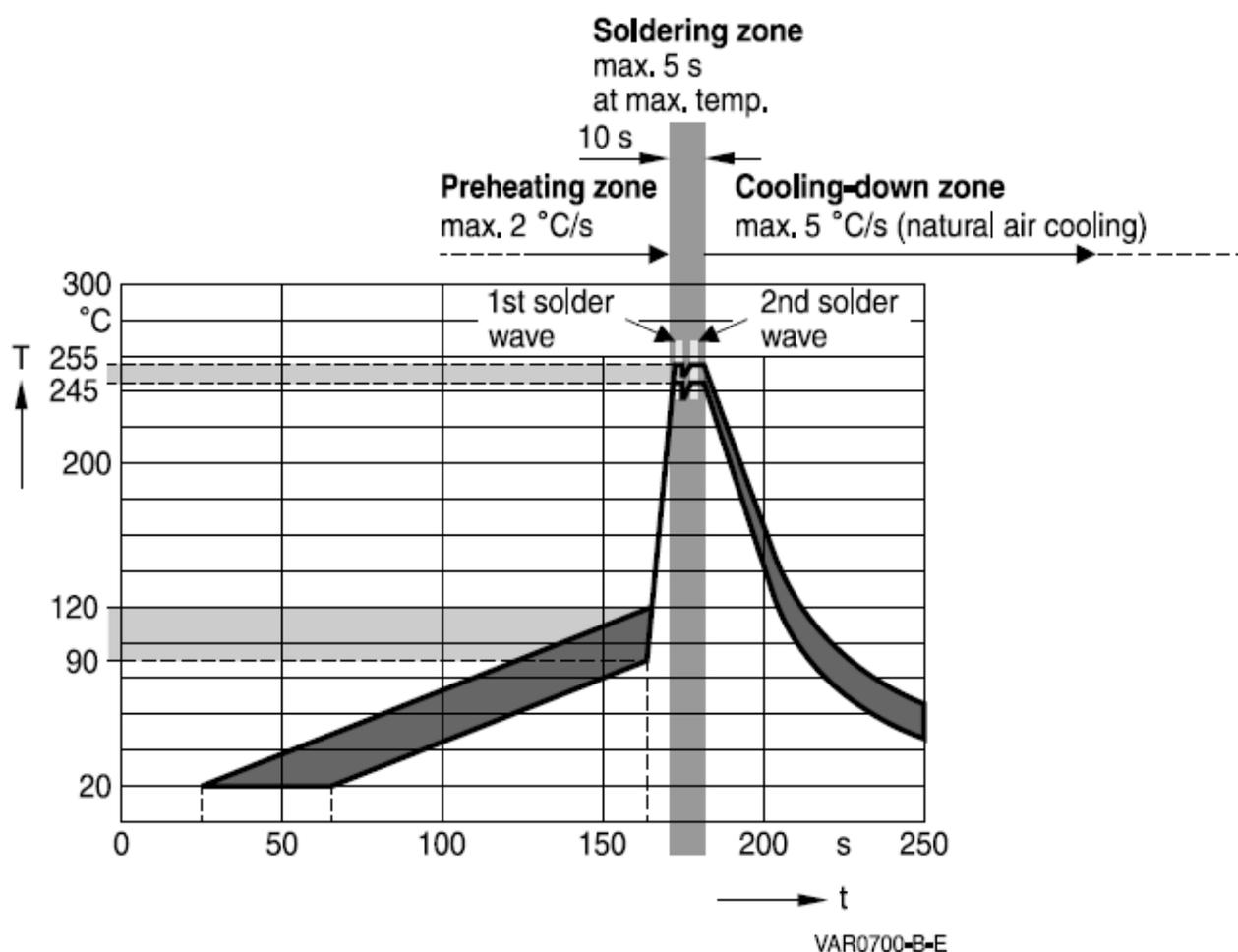


Typical wave soldering curve

Care must be taken when soldering the device into place because it contains a thermal fuse element. Reflow soldering is not recommended.

Two soldering methods are possible:

- (1) Manual soldering under max. 350 °C / 3 s: it is recommended to heat-sink the leads of the device.
- (2) Wave soldering: it is very important that the temperatures of all preheat stages and the solder bath should be strictly controlled.



Cautions and warnings

General

1. EPCOS metal oxide varistors are designed for specific applications and should not be used for purposes not identified in our specifications, application notes and data books unless otherwise agreed with TDK Electronics during the design-in-phase.
2. Ensure suitability of SIOVs through reliability testing during the design-in phase. SIOVs should be evaluated taking into consideration worst-case conditions.
3. For applications of SIOVs in line-to ground circuits based on various international and local standards there are restrictions existing or additional safety measures required.

Storage

After shipment from TDK Electronics the SIOV type series should be soldered within the following time period:

SIOV-S, -Q, L(S), -SNF, -ICL, -B, -E	24 months
SIOV-ETFV, -T, -SMD, -MT,-EM,-TM, -NT	12 months

The parts are to be left in the original packing to prevent oxidized terminals which can cause soldering problems.

Storage temperature:	-25 to 45 °C
Max. relative humidity (without condensation):	<75% annual average, <95% on max. 30 days per annum.

Handling

1. SIOVs must not be dropped.
2. Components must not be touched with bare hands. Gloves are recommended.
3. Avoid contamination of the surface of SIOV electrodes during handling, be careful of the sharp edge of SIOV electrodes.

Soldering (where applicable)

1. Use rosin-type flux or non-activated flux.
2. Insufficient preheating may cause ceramic cracks.
3. Rapid cooling by dipping in solvent is not recommended.

4. Complete removal of flux is recommended.
5. Temperature of all preheat stages and the solder bath must be strictly controlled especially for T series.

Mounting

1. Potting, sealing or adhesive compounds can produce chemical reactions in the SIOV ceramic that will degrade the component's electrical characteristics.
2. Overloading SIOVs may result in ruptured packages and expulsion of hot materials. For this reason SIOVs should be physically shielded from adjacent components.

Operation

1. Use SIOVs only within the specified temperature operating range
2. Use SIOVs only within the specified voltage and current ranges.
3. Environmental conditions must not harm the SIOVs. Use SIOVs only in normal atmospheric conditions. Avoid use in deoxidizing gases (chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas, etc), corrosive agents, humid or salty conditions. Contact with any liquids and solvents should be prevented.

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3. **The warnings, cautions and product-specific notes must be observed.**
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Important notes

8. The trade names EPCOS, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, ExoCore, FilterCap, FormFit, LeaXield, MiniBlue, MiniCell, MKD, MKK, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.tdk-electronics.tdk.com/trademarks.

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