

Surge arrester

3-electrode arrester

Series/Type: T90-A170XFSMD Ordering code: B88069X5910T902

Date: 2019-04-12

Version: 04

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3-electrode arrester T90-A170XFSMD

Features

- Very small size
- Fast response time
- High current rating
- Stable performance over life
- Very low capacitance
- High insulation resistance
- Reliable failsafe device
- Excellent SMD handling
- RoHS-compatible

Applications

- Line protection
- Station protection
- Base stations

Electrical specifications

DC spark-over voltage 1) 2) 3)		170	V
Tolerance			
Impulse spark-over voltage 3)			
at 100 V/µs - for 99% of measured values		< 550	V
 typical values of distr 	ribution	< 450 V	
• • • • • • • • • • • • • • • • • • •	for 99% of measured valuestypical values of distribution		V
- typical values of distr			V
Service life			
10 operations	50 Hz; 1 s ⁴⁾	10	Α
1 operation	50 Hz; 0.18 s (9 cycl.) 4)	10	Α
10 operations [5x (+) & 5x (-)]	8/20 µs ⁴⁾	10	kA
1 operation	10/350 µs ⁴⁾	1	kA
300 operations (+/- alternating polarity)	10/1000 μs ⁴⁾	200	Α
Insulation resistance at 100 V _{DC} ³⁾		> 1	$G\Omega$
Capacitance at 1 MHz 3)		< 1.5	pF
Transverse delay time 5)		< 0.2	μs
Arc voltage at 1 A		~ 10	V
Glow to arc transition current		< 1.0	Α
Glow voltage		~ 60	V
Weight		~ 1.2	g
Operation and storage temperature		-40 + 125	°C
Climatic category (IEC 60068-1)		40/125/21	
Marking, blue negative		EPCOS 170 YY O 170 - Nominal YY - Year of p O - Non radi	roduction

Remarks on next page

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- 1) At delivery AQL 0.65 level II, DIN ISO 2859
- 2) In ionized mode
- 3) Tip or ring electrode to center electrode
- Total current through center electrode, half value through tip respectively ring electrode.
- 5) Test according to ITU-T Rec. K.12

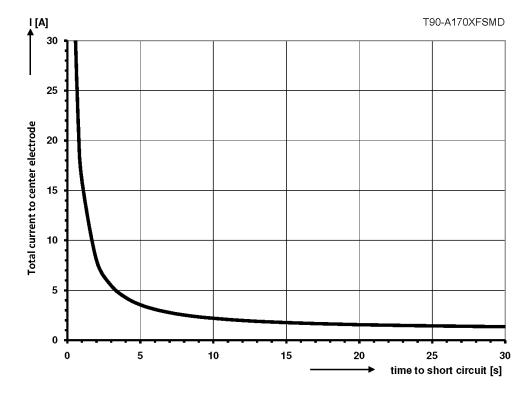
Terms in accordance with ITU-T Rec. K.12 and IEC 61643-311.

The arrester failsafe mechanism contains an insulating foil with a melting temperature of 260 °C.

Arrester failsafe works at temperatures > 260 °C. The arrester has to be fixed mechanically, if the arrester is contacted by soldering and if the solder temperature is less than 260 °C.

Failsafe characteristic diagram

For arrester only, characteristic can differ in assembled module.

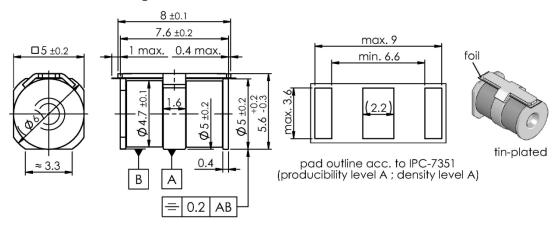




3-electrode arrester

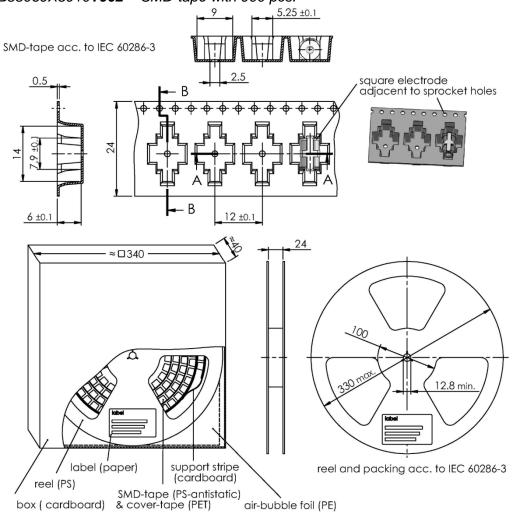
T90-A170XFSMD

Dimensional drawing in mm



Ordering code and packing advice

B88069X5910**T902** = SMD-tape with 900 pcs.



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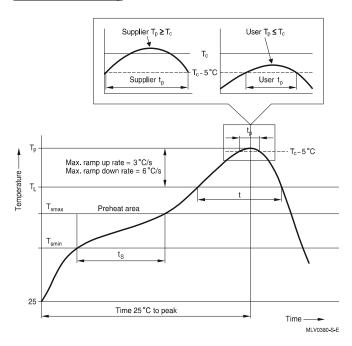


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Soldering parameter

Reflow soldering



Reflow profile features		Sn- Pb eutectic assembly	Pb-free assembly
Preheat and soak - Temperature min - Temperature max - Time	T_{smin} T_{smax} $t_{smin} \text{ to } t_{smax}$	100 °C 150 °C 60 120 s	150 °C 200 °C 60 180 s
Average ramp-up rate	T_{smax} to T_p	max. 3 °C/ s	max. 3 °C/ s
Liquidous temperature Time at liquidous	T _L	183 °C 60 150 s	217 °C 60 150 s
Peak package body temperature *, Classification temperature **	T_p, T_C	220 235 °C **	245 260 °C **
Time (t _p) ** within 5 °C of the specified classification temperature (T _C)		20 s ***	30 s ***
Average ramp-down rate	T _p to T _{smax}	max. 6 °C/ s	max. 6 °C/ s
Time 25 °C to peak temperature		max. 6 min	max. 8 min

- * = Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.
- * = For details please refer to JEDEC J-STD-020D
- *** = Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

Surface mounted components (SMD) may exhibit a temporary increase in the DC spark-over voltage after the solder reflow process. The components will recover within 24 hours. There is no quality defect nor change in protection levels during the temporary change in DC spark-over voltage.

Cautions and warnings

- Depending on the sensor material the short-circuit spring does not trigger until 260 °C is reached. Thermal radiation to adjacent components must be taken into consideration in the circuit design. Depending on the mounting position, the surge arrester may have to be secured by additional mechanical means.
- Do not continue to use surge arresters whose short-circuit mechanisms have been activated.
- If the contacts of the surge arresters are defective, current load can cause sparks and loud noises.
- Do not operate surge arresters in power supply networks, whose maximum operating voltage exceeds the minimum spark-over voltage of the surge arresters.
- Surge arresters may become hot in the event of longer periods of current stress (burn risk). In the event of overload the connectors may fail or the component may be destroyed.
- Surge arresters must be handled with care and must not be dropped.
- Do not continue to use damaged surge arresters.
- The shown SMD pad dimensions represent a safe way to mount the arrester and are a recommendation of the manufacturer. During the reflow process it must be assured that no solder material reduces the insulation distance between the pads below the arrester.
- SMD surge arresters should be soldered within 24 month after shipment.



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