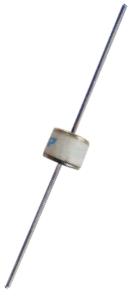
Gas Discharge Tube

GSP***F Serie

Features

- Electronic stability
- Small volume, easy to placement machine operation
- Large flow capacity, impact resistant ability
- Static electricity capacity, good insulation
- Reaction speed is 50 ns - 150 ns
- Storage and operating temperature -40~125℃
- High energy discharge



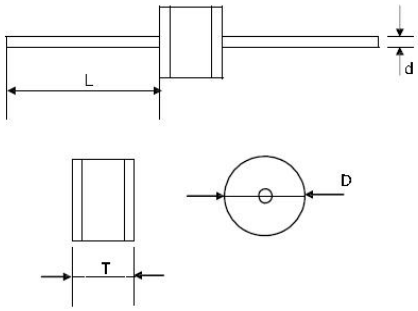
Applications

- ADSL MODEM、FAX、TELEPHONE
- RS485、RS232、CAN level of protection
- CATV
- Power supply prevents thunder common-mode protection
- Line cards

Electrical Characteristics

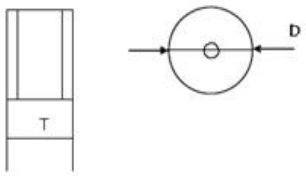
Part Number	DC Spark-over Voltage (@100V/s) (V)	Impulse Spark-over Voltage (@1KV/μs) (V)	Discharge Current 10hits (@8/20μs) (KA)	AC Discharge Current (@50Hz) (A)	Min.Insulation Resistance (@DC)		Max. Capacitance (@1MHz) (pF)
					(GΩ)	Test Voltage (V)	
GSP075F	75±30%	600	20	20	1	50	1
GSP090F	90±30%	600	20	20	1	50	1
GSP150F	150±20%	600	20	20	1	100	1
GSP350F	350±20%	950	20	20	1	100	1
GSP470F	470±20%	1100	20	20	1	100	1
GSP600F	600±20%	1200	20	20	1	100	1

Dimensions



Unit:mm

item	Dimensions	
	spec.	Tolerance
D	8	±0.2
T	6	±0.2
L	25	Min
d	1	±0.1



Unit:mm

item	dimensions	
	spec.	Tolerance
D	8	±0.2
T	6	±0.2

Initial Characteristics

Test Item	Test Method	Specification
DC-Spark-Over Voltage Vs	Add and measure the DC Voltage gradually Maxto get the discharge threshold voltage. The measuring current is 1mA/1 second max.（1sec）.(1mA)	It depands on each spec.
Insulation Resistance	Measure the insulation resistance of two end of leadwire under the specified DC voltage.	1GΩ min.
Capacitance C(pF)	Electrostatic Capacitance under the test condition of 1KHz,DC 6V(max).	1.0pF max.

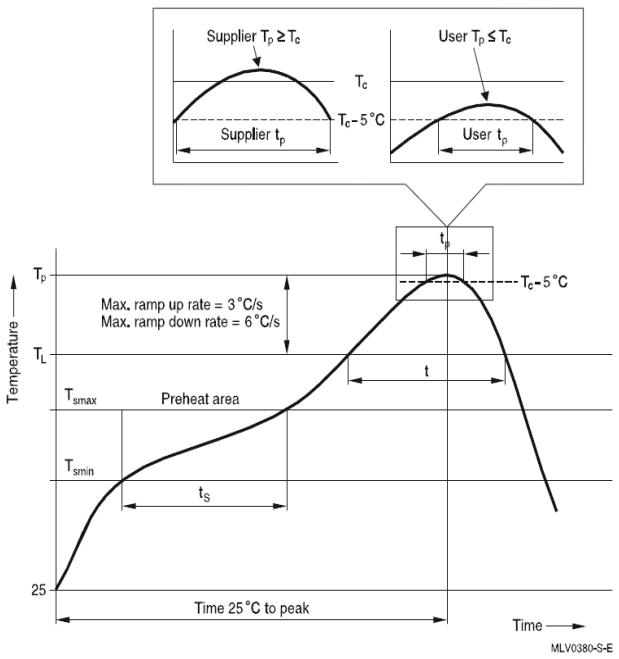
Surge Characteristics

Test Item	Test Method	Specification
Surge withstand capability	In the glass tube ends in 8/20 us surge tester, applying the model that corresponds to the impact resistance current, time interval for the 60 s of plus or minus the test 5 times. Test the dc voltage, insulation resistance, static capacitance and check the appearance.	DC spark-over voltage JSE: ΔVs/Vs≦30%
Surge life test	Apply 10KV voltage charged in 1500pF condenser and apply the current to the specimen,200 times at 10 seconds of intervals.	Within standard mentioned in Initial Characteristics.

Enviromental Characteristics

Test Item	Test Method	Specification
Cold resistance	After -40±3℃ (1000hrs) / room temp.,normal humidity(4 hrs) cycle, measure the properties.	Within standard mentioned in Initial Characteristics.
Heat resistance	After 125±2℃ (1000hrs) / room temp.,normal humidity(4 hrs) cycle, measure the properties.	Within standard mentioned in Initial Characteristics.
Temperature resistance	After 85±2℃ RH85%(1000hrs) / room temp.,normal humidity(4 hrs) cycle, measure the properties.	Within standard mentioned in Initial Characteristics.
Temperature period	25 times repetition of cycle -40±3℃ (30 Min.),roon temp., (4 Min.), 125±2℃(30Min.), room temp., normal humidity(4hrs) .	Within standard mentioned in Initial Characteristics.
Tensile strength	Apply 2.5kgs load approximately 30 seconds, then check for pull-out and breaking of the lead wire.	Within standard mentioned in Initial Characteristics.
Bending strength	Bend the lead wire, with jig which radius is 0.75~0.8mm, at the point of 2mm from the body, under 0.25 kgs load applied at the right angle the direction of theamis and get the bent lead wire back to its original poing after the procedure was repeated 2times.	Within standard mentioned in Initial Characteristics.
Resistance to soldering attachment (by solder dip)	Apply flux and immerse in molten solder, up to the point of 3mm from the body,for 5 sec. (235℃±5℃). Wash the leadwire and check for soldering adhesion.	Lead wire is evenly covered by solder over 90%.
Resistance to soldering heat (by solder dip)	Apply flux and immerse in molten solder, up to the point of 3mm from the body,for 5 sec. (235℃±5℃). Wash the leadwire and check forsoldering adhesion.)	Within standard mentioned in Initial Characteristics.

Recommended wave slodering profile



Reflow profile features		Sn- Pb eutectic assembly	Pb-free assembly
Preheat and soak - Temperature min - Temperature max - Time	 T_{smin} T_{smax} t_{smin} 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 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.