SANKOSHA proposes industry-leading lightning protection solutions.
Don't hesitate to talk to us.

SANKŌSHA

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- For printing reasons, the colors shown in the catalog may differ from those of the actual products.
- Thank you in advance for understanding that product specifications and external appearance may sometimes undergo slight changes for the sake of improvement.

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SANKŌSHA

Catalog for Lightning Protection

Versatile Applications of GDT:
From Power Device,Network Device to
Railway Signaling

Gas Discharge Tube

Sankosha Corporation

At Sankosha, we have worked to protect people and society from natural disasters through our core businesses of lightning protection, telecommunications and environmental countermeasures. Not only in Japan, but around the globe, we at Sankosha continue to work with our customers to deliver safety and security to an advanced information society as the world's only comprehensive lightning protection company, through every kind of service, from lightning observation to lightning protection.

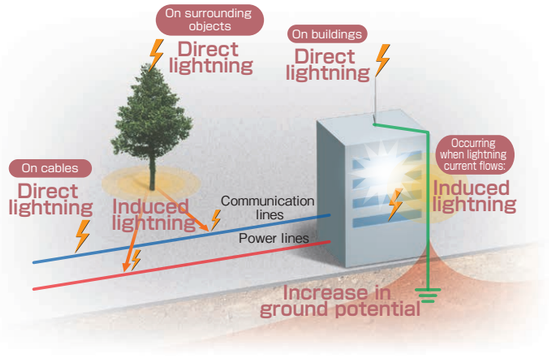
Lightning Surges

Direct Lightning

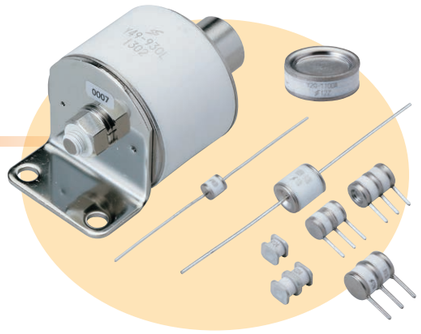
Direct lightning is that lightning directly strikes buildings and other objects on the ground. When an extremely large lightning current is formed, it changes not only into electrical energy but also into heat and mechanical energy momentarily, and is discharged with explosive force, causing damage to various types of equipment and machinery.

Induced Lightning

Induced lightning is lightning surge (transient abnormally high voltage current) that is caused from communication and electrical power lines, and can enter via power supply lines, communication lines and earthing, etc. Most lightning damage is caused by induced lightning which destroys communication equipment and computers, and sometimes even power supplies, and therefore, the number of cases of lightning damage has risen dramatically in recent years.



What's GDT?



Gas Discharge Tube (GDT) also known as a Gas Discharge Arrester (GDA) — is an electrical protection device designed to protect sensitive electronic equipment and communication lines from high-voltage surges, such as those caused by lightning strikes, power line crosses, or electrostatic discharges.

The Ceramic Gas Tube Arresters manufactured by Sankosha Corporation provide protection for personnel, equipment and circuitry from the abnormally high transient voltages which can be caused by lightning or electromagnetic induction. The arresters are designed with defined surge limiting characteristics. When the abnormal voltage on a line reaches that defined level, sparkover (or breakdown) occurs within the gas tube arrester, the surge is redirected, and people and equipment are protected.

Sankosha's Ceramic Arresters are very durable and extremely gastight. They have precise sparkover voltages and very high AC current withstand capability and impulse withstand capability. Different applications require different types of arresters and Sankosha provides arresters to meet every need. Arrester models vary both in dimension and in electrical characteristics and it is important that arresters be selected in accordance with the requirements of the particular application.

The various standard designs that Sankosha currently produces are described in this catalogue. Arresters for special applications are also available, and we welcome your inquiries if the model you need is not listed here.

GDT Usage

Gas Discharge Tubes (GDTs) are widely used in various applications to protect electronic equipment and circuits from voltage surges or transient overvoltage, such as those caused by lightning strikes, power line crosses, or switching events. Here are some key applications of GDTs:

Telecommunication Equipment Protection

Application GDTs are commonly used in telecommunication systems, such as telephone lines, data transmission lines, and fiber optic equipment.

Purpose They protect sensitive telecom equipment (e.g., switches, routers, and modems) from voltage spikes caused by lightning strikes or other electrical disturbances.

How GDTs are placed across the incoming lines to divert surge currents to ground, preventing damage to the connected equipment.

Power Line and Electrical Systems

Application GDTs are used in power systems, including substations, distribution boards, and electrical panels.

Purpose To protect electrical systems and equipment from transient overvoltage events, such as those caused by lightning or switching surges.

How GDTs are typically installed across power lines to divert high-voltage spikes to ground and protect transformers, circuit breakers, and other components.

Surge Protection Devices (SPDs) for Consumer Electronics

Application GDTs are integrated into surge protection devices for consumer electronics like computers, televisions, home theater systems, and gaming consoles.

Purpose To safeguard sensitive devices from voltage spikes that could damage internal components like the power supply or motherboard.

How In surge protectors, GDTs act as the primary component that shunts the surge energy to ground, preventing the harmful effects of overvoltage.

Automotive Electronics

Application GDTs are used in automotive electrical systems to protect critical components like sensors, control units, and navigation systems.

Purpose To prevent damage from electrical transients, such as those generated by switching inductive loads (e.g., relays or motors) or lightning strikes.

How GDTs are often included in automotive surge protection circuits to limit the voltage spikes that might otherwise affect delicate automotive electronics.

Industrial Equipment and Control Systems

Application GDTs are used in industrial control systems, robotics, and machinery that require protection from power surges.

Purpose Protect industrial systems from power surges that could lead to costly downtime or damage to motors, PLCs (programmable logic controllers), and other sensitive components.

How GDTs are placed across power inputs or signal lines to divert transient voltages, ensuring the stability and longevity of the equipment.

Renewable Energy Systems (Solar & Wind)

Application In renewable energy installations like solar panel arrays and wind turbines.

Purpose To protect inverters, control systems, and batteries from surges caused by lightning or grid switching events.

How GDTs are incorporated into surge protection circuits to divert excessive voltage to ground, preventing damage to the renewable energy system.

Medical Equipment Protection

Application GDTs are used in medical devices and equipment such as diagnostic tools, patient monitoring systems, and life-support machines.

Purpose To protect sensitive medical equipment from power surges that could lead to malfunction or failure.

How GDTs ensure that transient overvoltage do not reach the medical devices, preserving the safety and integrity of the equipment.

Data Centers and Servers

Application Data centers and server farms rely heavily on surge protection to ensure uninterrupted service.

Purpose GDTs help safeguard server racks, switches, routers, and critical network infrastructure from voltage surges that could cause data loss or hardware damage.

How Surge protectors with GDTs divert the surge current away from sensitive components, protecting mission-critical IT infrastructure.

Power Supply Protection

Application GDTs are often found in power supply circuits, especially in uninterruptible power supplies (UPS) or AC/DC adapters.

Purpose To protect against voltage spikes that could damage the power conversion components or downstream equipment.

How GDTs act as a first line of defense, clamping excessive voltages to a safe level and preventing the surge from propagating through the power supply system.

Railway Signal System Protection

Application GDTs are widely used in railway signal systems to safeguard sensitive control and communication circuits.

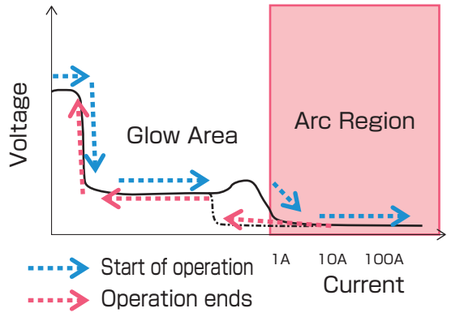
Purpose To protect against transient overvoltages caused by lightning strikes, switching operations, or power line disturbances that could compromise signaling reliability.

How GDTs function as a primary surge protection element, diverting excessive voltage away from critical components and maintaining system integrity under harsh electrical conditions.

GDT Operation

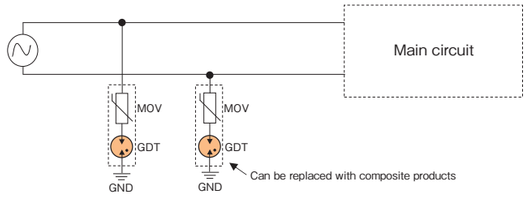
Gas discharge tube (GDT) surge arresters operate on the gas physics principle of arcing. Acting as a voltage-dependent switch, the GDT maintains a high-impedance, non-conducting state until the applied voltage exceeds the sparkover threshold. When the sparkover threshold is exceeded, the gas in the tube is fully ionized and continuity begins within a few microseconds.

During this arcover phase, the GDT behaves like a crowbar device with a very low impedance, minimizing the on-state (arc) voltage. This crowbar action effectively suppresses overvoltage and diverts surge currents away from downstream sensitive components and circuits. When the surge dissipates and returns to normal system voltage, the GDT automatically returns to a high-impedance non-conducting state.



GDT Installation

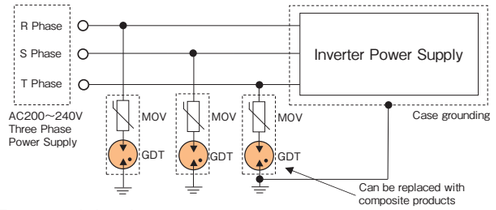
For single-phase power supply



■Recommended products

AC withstand test	Type of mount	Single item			Composite product
		Ceramic arrester (GDT)*		Varistor (MOV)	
		Recommend	Product name	Recommend	Product name
AC1,500V-1min	Lead type	≥ 3,000V	Y05-272B、Y08SV-272B	470V~680V	—
None	Lead type	≥ 470V	Y05-600B、U-9B		AV13

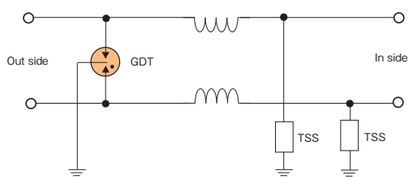
For three-phase power supply



■Recommended products

AC withstand test	Type of mount	Single item			Composite product
		Ceramic arrester (GDT)*		Varistor (MOV)	
		Recommend	Product name	Recommend	Product name
AC1,500V-1min	Lead type	≥ 3,000V	Y05-272B、Y08SV-272B	470V~680V	—
None	Lead type	≥ 470V	Y05-600B、U-9B		AV13

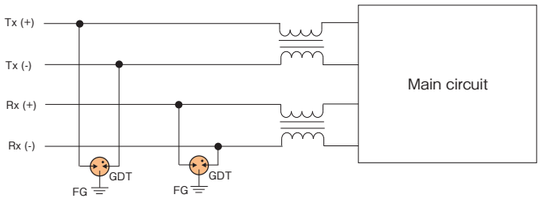
Modem/Communication line/Censor



■Recommended products

	Type of mount	Ceramic arrester (GDT)*
GDT (Recommend : DC Spark-over Voltage ≥230V)	Lead type	3YD-230P1、3J-3J1
	SMD type	3SDH4-230

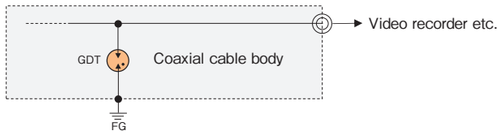
Ethernet(1000BASE-TX, etc.)



■Recommended products

	Type of mount	Ceramic arrester (GDT)*
GDT (Recommend : DC Spark-over Voltage ≥300V)	Lead type	3YD-350P1、3J-5J1
	SMD type	3SDH4-350

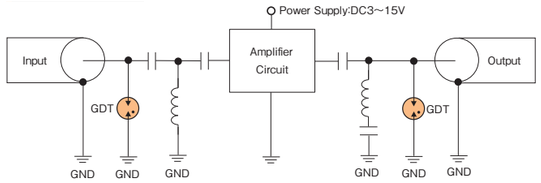
Coaxial cable (CCTV)



■Recommended products

	Type of mount	Ceramic arrester (GDT)*
GDT (Recommend : DC Spark-over Voltage ≥300V)	Lead type	U-7B、Y05-350B
	SMD type	SDH4-350

Booster circuit



■Recommended products

	Type of mount	Ceramic arrester (GDT)*
GDT (Recommend : DC Spark-over Voltage ≥300V)	Lead type	U-7B、Y05-350B
	SMD type	SDH4-350

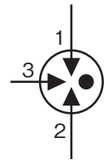
GDT Types

Two Electrode Types

Sankosha's two electrode gas discharge tube surge arresters are available in axial lead type, radial lead type, and surface mount type and feature Sankosha' s industry leading quality and reliability.

Three Electrode Types

While two electrode arresters have the advantage of being lower priced, the opening in the center electrode of three electrode arresters allows the two gaps of the arrester to share a common gas chamber and sparkover occurs almost simultaneously in both sides of the arrester minimizing the current surge in the protected lines.



High Voltage Types

Our Y08SV Series arresters meet the rigorous requirements of both UL 1449 and UL 1414 making them ideal for power supply protection applications.

Extremely High Voltage Types

It is installed between the communication circuit board and the neutral-to-ground line of the power circuit in communication equipment, and is used to protect the equipment from induced voltages and temporary overvoltages (TOV) that may occur on the lines.

Coaxial Types

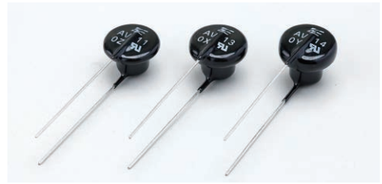
Sankosha's coaxial gas discharge tube surge arresters are available in a special format that allows them to be used inside coaxial cables or connectors and feature Sankosha' s industry leading quality and reliability.

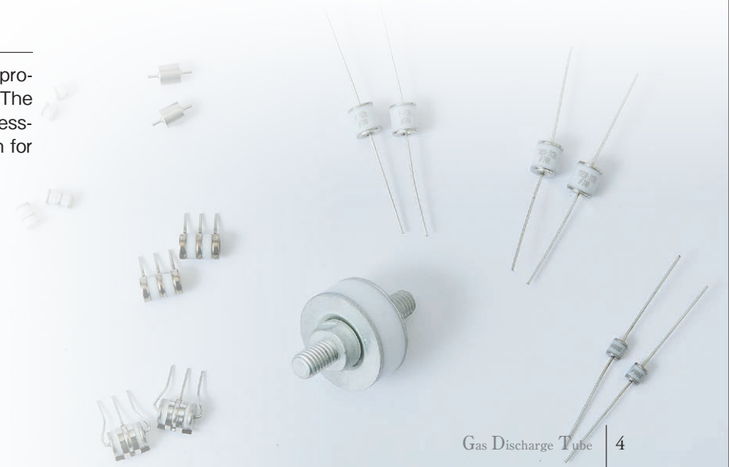
Surface Mount Types

Two and three electrode Surface Mount Arresters in different sizes feature Sankosha' s industry leading quality and reliability. These models are ideal for economical assembly systems using pick and place technology.

AV Types

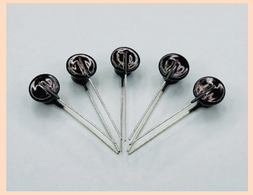
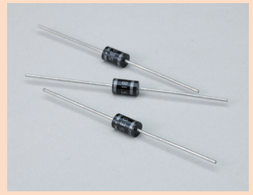
This surge protector combines an MOV and a GDT to provide both high surge protection and long service life. The GDT handles large surge currents, while the MOV suppresses residual voltage, offering compact, reliable protection for communication and control equipment.



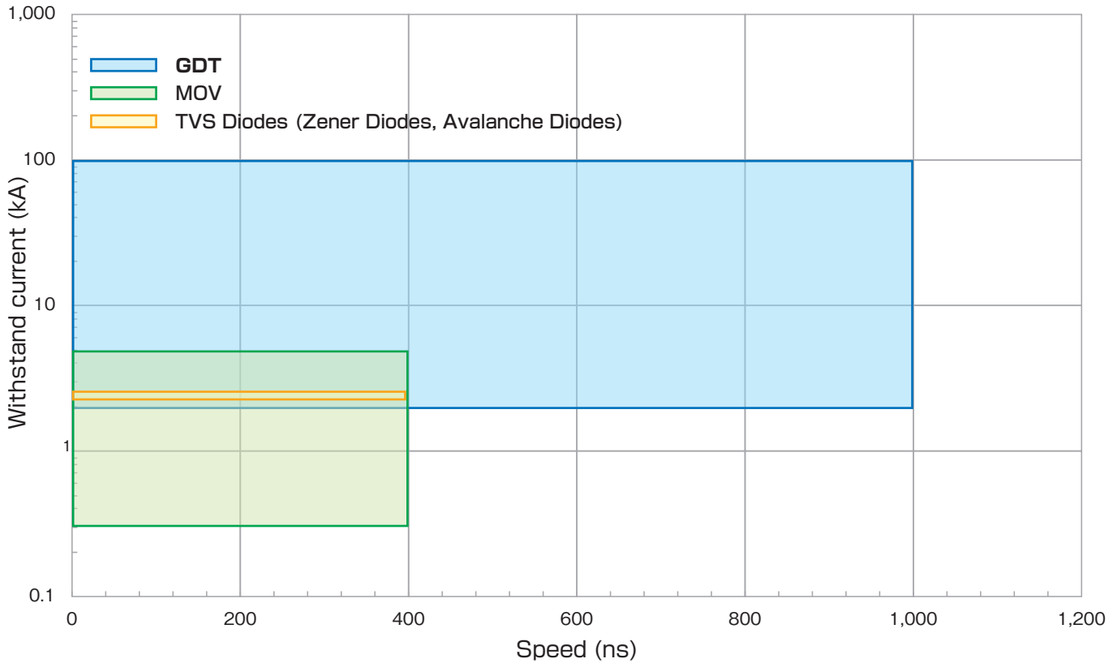


GDT VS Other Anti-Surge Components

Compares GDTs with other surge protection components in terms of electrical characteristics and physical dimensions. GDTs feature a high current- withstand capability and very low capacitance compared to other devices.

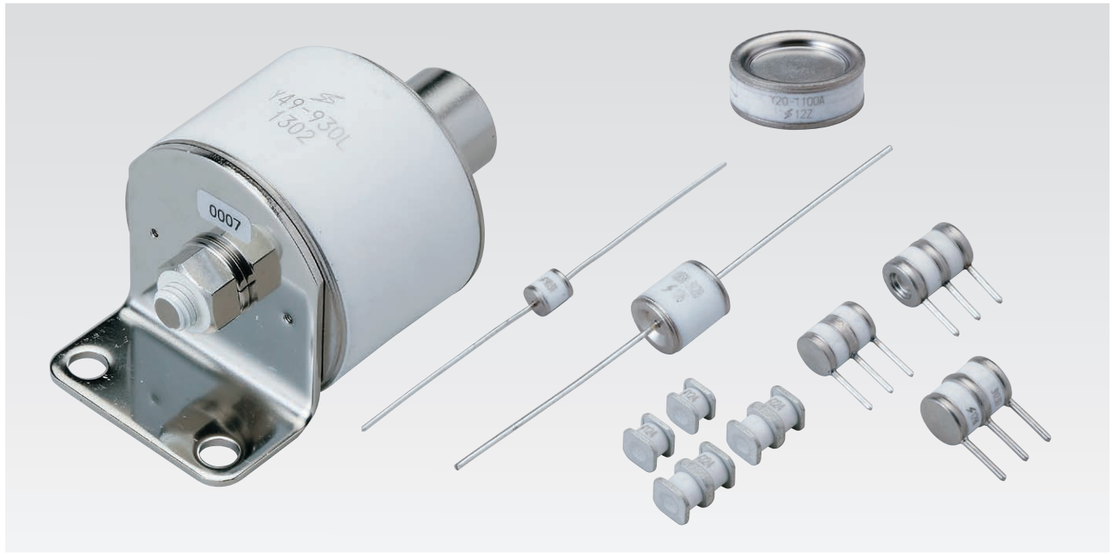
Surge preventive devices Item	GDT	Varistor	SP Diode / TVS Diodes
			
Working voltage	Standard	Standard	Low
	About 600V ~ 12kV	About 30V ~ 5kV	About 5V ~ 300V
Current withstand capacity	Large	Standard	Small
	5kA ~ 100kA	50A ~ 20kA	~ 500A
Capacitance	Small	Standard	Standard
	Number pF	About 500 ~ 5000pF	About 100 ~ 500pF
Operating speed	Standard	Fast	Very fast
	μs band	Ns ~ μs band	Ns zone
Diameter	Approx. ϕ 6 to 49mm	Approx. ϕ 10 to 32mm	Approx. ϕ 4mm
Thickness	Approx. 6 to 30mm	Approx. 2 to 14mm	About 6mm

Characteristics of lightning protection elements



Lightning protective elements GDT (Gas Discharge Tube) Ceramic arrester

These lightning protective elements utilize the electrical discharge phenomenon that occurs across the electrodes disposed within the ceramic arresters to inhibit surge voltage entering communication lines and signaling lines.



■Model identification

2-electrode tubes :

□ □ □ – □ □

- Terminal type
  - A : No lead wire
  - B : With lead wire (ϕ1.0, ϕ0.8)
  - C : With case
- Nominal DC sparkover voltage (V)
- Product type
- Outer diameter of arrester
  - 4 : 4mm 08 : 8mm
  - 05 : 5mm 20 : 20mm
  - 06 : 6mm 49 : 49mm
- Envelope type
  - Y : Standard type
  - SD : Surface mounted type

3-electrode element :

3 □ □ – □ □ □ □

- Failsafe type
- Lead wire pitch type
  - (J)1 : 4.4±0.3
  - (J)3 : 5.0±0.3
  - (P)1 : 3.8±0.3 (3Y06)
  - (P)1 : 3.6±0.3 (3YD)
- Terminal type
  - A : No lead wire
  - B : With lead wire (ϕ1.0)
  - BP : With lead wire (ϕ0.8)
  - J : With lead wire (ϕ1.0)
  - P : With lead wire (ϕ0.8)
- Nominal DC sparkover voltage (V)
- Product type and outer diameter
  - VJ : 8mm
  - VH : 8mm
  - 4 : 4mm
  - 06 : 6mm
  - 20 : 20mm
- Envelope type
  - Y : Standard type
  - SD : Surface mounted type
- No. of electrodes

■Caution when using ceramic arresters

When using stand-alone arresters in power supply circuits, it should be borne in mind that, even after the arrester has operated (and abnormal voltage has been eliminated), there may still be continued discharge of the connected supply voltage (follow current phenomenon).
In order to protect power supply circuits from abnormal voltage, please use our SPDs which do not generate follow current rather than stand-alone arresters.

GDT Product Line UP

UL ···UL Compliant

RoHS ···RoHS Compliant

RoHS mark means not to contain the following 6 materials:Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyl, Polybrominated diphenyl ether (Excluding 2011/65 / EC)

Two Electrode Types

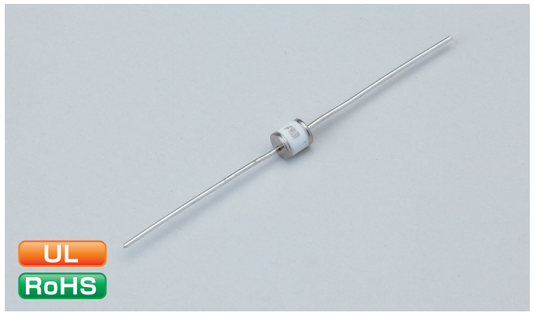
Y05 series

Conforming standards

- UL standard acquired(E140906) ※excluding Y05-60
- RoHS compliant

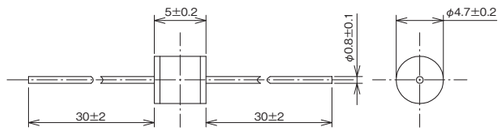
■Characteristics

Item	Conditions	Performance			
		Y05-60 [ ]	Y05-90 [ ]	Y05-230 [ ]	Y05-350 [ ]
DC sparkover voltage	100V/s	51-72V	90V±20%	230V±20%	350V±20%
Impulse sparkover voltage	100V/μs	—	≦400V	—	≦650V
	1kV/μs	≦600V	≦500V	≦650V	≦750V
Insulation resistance	DC50V	≧1,000MΩ	≧10,000MΩ	—	
	DC100V	—		≧10,000MΩ	
Capacitance	1MHz	≦1.0pF			
DC holdover characteristics	DC52V	—	≦150ms		
AC discharge current	AC, 1s	5A 5times		5A 10 times	
Impulse discharge current	8/20μs +5, -5 times	3kA	5kA		
Impulse life	10/1,000μs 300 times	10A	100A		



Mass: 0.7 (g)

■External view (Unit: mm)

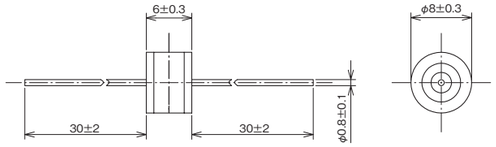


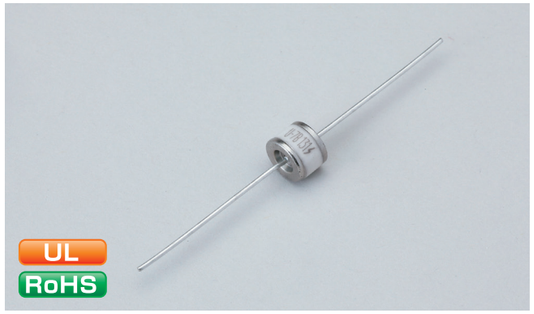
U series

Conforming standards

- UL standard acquired (E140906)
- RoHS compliant

■External view (Unit: mm)





Mass: 1.5 (g)

■Characteristics

Item	Conditions	Performance										
		U-1 [ ]	U-2 [ ]	U-3 [ ]	U-4 [ ]	U-5 [ ]	U-6 [ ]	U-7 [ ]	U-8 [ ]	U-9 [ ]	U-10 [ ]	U-11 [ ]
DC sparkover voltage	100V/s	75V±20%	90V±20%	145V±15%	230V±15%	250V±15%	300V±15%	350V±15%	400V±15%	470V±15%	600V±15%	800V±15%
Impulse sparkover voltage	100V/μs	≦500V			≦600V		≦700V				≦800V	≦1,000V
	10kV/μs	≦900V				≦1,000V					≦1,200V	≦1,500V
Insulation resistance	DC50V	≧10,000MΩ			—							
	DC100V	—			≧10,000MΩ					—		
	DC250V	—								≧10,000MΩ		
Capacitance	1MHz	≦1.0pF										
DC holdover characteristics	DC 52V	≦150ms		—								
	DC 80V	—	≦150ms		—							
	DC 135V	—			≦150ms		—					
	DC 150V	—					≦150ms					
AC discharge current	AC 10A, 1s	5 times				10 times						
Impulse discharge current	8/20μs, 5kA	10 times										
	8/20μs, 10kA	1 time										
Impulse life	10/1,000μs, 500A	300 times				500 times						

Three Electrode Types

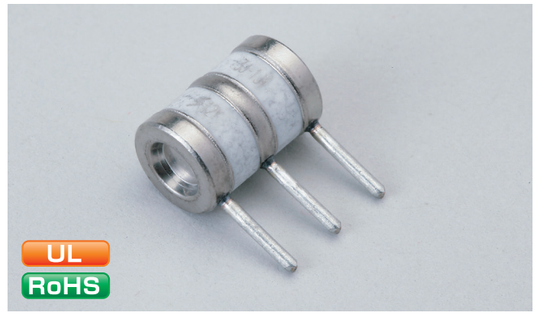
3J series

Conforming standards

- UL standard acquired (E140906)
- RoHS compliant

Features

- With failsafe function

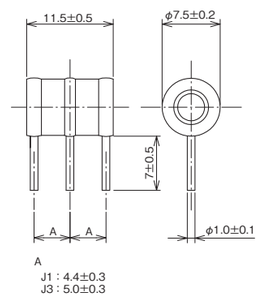


Mass: 2.8 (g)

■Characteristics

Item	Conditions	Performance						
		3J-1 [ ]	3J-2 [ ]	3J-3 [ ]	3J-4 [ ]	3J-5 [ ]	3J-6 [ ]	3J-7 [ ]
DC sparkover voltage	100V/s	90V± 20%	145V± 20%	230V± 20%	250V± 20%	300V± 20%	350V± 20%	400V± 20%
Impulse sparkover voltage	100V/μs	≦700V		≦500V		≦600V		≦700V
	1kV/μs	≦850V		≦650V		≦750V		≦850V
Insulation resistance	DC50V	≧10,000MΩ		—				
	DC100V	—		≧10,000MΩ				
Capacitance	1MHz (L-L)	≦1.5pF						
	1MHz (L-E)	≦3.0pF						
DC holdover character-istics	DC 52V	≦150ms		—				
	DC 135V	—		≦150ms			—	
	DC 150V	—					≦150ms	
AC discharge current	AC 5A×2, 1s	10 times						
	AC 10A×2, 1s	1 time						
Impulse discharge current	8/20us, 5kA×2	+5, -5 times						
	8/20us, 10kA×2	1 time						
Impulse life	10/1000μs, 200A×2	300 times						

■External view (Unit: mm)

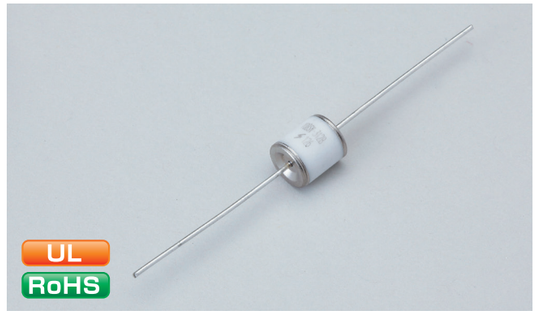


High Voltage Types

Y08SV series

Conforming standards

- UL standard acquired (E328370)
- RoHS compliant

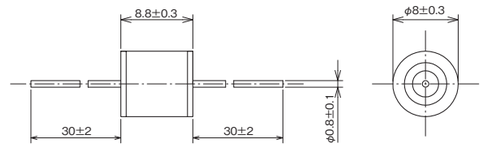


Mass: 1.5 (g)

■Characteristics

Item	Conditions	Performance	
		Y08SV-272 [ ]	Y08SV-312 [ ]
DC sparkover voltage	5kV/s	2,430 - 3,000V	2,850 - 3,500V
Impulse sparkover voltage	1kV／μs	≦3,900V	≦3,700V
Insulation resistance	DC1000V	≧100MΩ	
Capacitance	1MHz	≦1.0pF	
Impulse discharge current	8/20μs, 3kA	+10, -10 times	
Impulse life	8/20μs, 100A	300 times	

■External view (Unit: mm)



Extremely High Voltage Types

Y49 series

Conforming standards

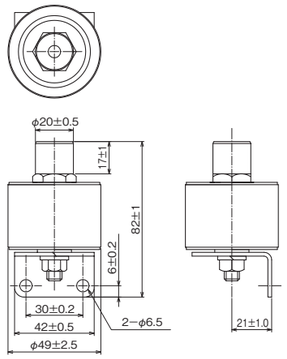
- RoHS compliant

Features

- Large capacity arrester with maximum discharge current of 100kA
- Best suited for lightning surge countermeasures for railway signal, electrical power transmission and other large capacity lines

Mass: 300 (g)

■External view (Unit: mm)



■Characteristics

Item	Conditions	Performance						
		Y49-700	Y49-930	Y49-1000	Y49-1200	Y49-1400	Y49-12kV	Y49-23kV
DC sparkover voltage	500V/s	700V±100V	930V±90V	1,000V±150V	1,200V±200V	1,400V±150V	—	
	5kV/s	—					12kV±3kV	20~25kV
Impulse sparkover voltage	10/200μs 3kV	—			≦2,800V		—	
	1.2/50μs 30kV	—						≦30kV
Insulation resistance	DC250V	≧100MΩ	—		≧100MΩ	—		
	DC500V	—	≧10,000MΩ		—	≧10,000MΩ	—	
	DC1000V	—					≧100MΩ	≧10,000MΩ
Capacitance	1MHz	—			≦10pF	—		
AC discharge current	AC 1,000A, 0.3s	—			10 times	—		
	AC 20A, 80s	—				20 times	—	
	AC 70A, 20s	20 times			—	20 times	—	
	AC 500A, 0.3s	10 times			—	10 times	—	
Impulse discharge current	8/20μs, 40kA	—					5 times	—
	8/20μs, 80kA	—						1 time

Coaxial Types

CA series

Conforming standards

- UL standard acquired (E140906) ※excluding CA-150/CA2-400
- RoHS compliant

Features

- Fits Inside Coaxial Cable or Connector
- High Current and Multi Strike Capabilities
- Non-Radioactive and Maintenance Free
- Low Capacitance ≤ 1.5pF
- Nickel or Tin Plating

Applications

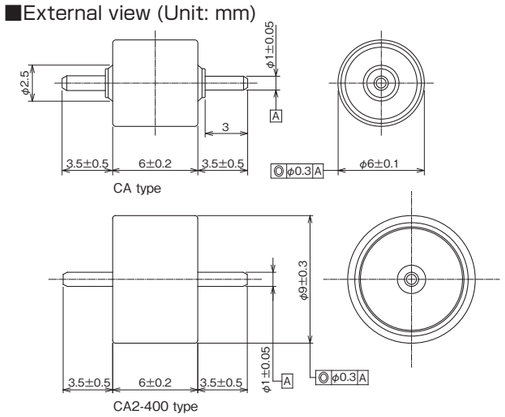
- Coaxial Cable Communication Systems

Mass: CA:1.14, CA2:2.22 (g)

■Characteristics

Item	Conditions	Performance			
		CA-150 (Tin)	CA-200 (Tin)	CA-400	CA2-400
DC Sparkover voltage	100V/s	150V±25%	140~250V	200~600V	300~600V
Impulse sparkover voltage	1kV/μs	≦700V		—	≦800V
	100V/μs	—		<1,000V	—
Insulation resistance	DC 100V	≧10,000MΩ			≧1,000MΩ
Capacitance	1MHz	<1.5pF			
DC holdover voltage	DC48V・1A	—		≦150ms	—
AC Discharge Current	AC50Hz・5A・1s	—			10 times
Impluse discharge current	8/20μs 5kA	10 time		—	
	10/350μs 2.5kA	—			+1, -1 times
Max.Impluse discharge current	8/20μs 10kA	1 time		15 times	+5, -5 times
	8/20μs 18kA	—			1 times
Impluse life	10/1,000μs 100A	300 times		10 times	100 times
	10/1,000μs 10A	—			500 times
Follow current	DC70V・1.4A	—			≦30ms

■External view (Unit: mm)



Surface Mount Types

SDH4 series

Conforming standards

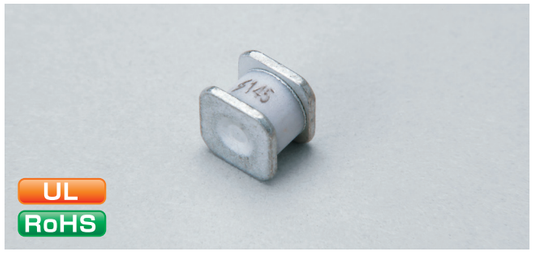
- UL standard acquired (E140906)
- RoHS compliant

Features

- Ultra compact surface mounted arrester
- High current durability

Applications

- Electric devices
- Protection for communication line
- PBX
- FAX

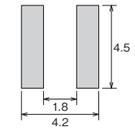


Mass: 0.3 (g)

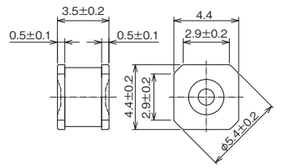
■Characteristics

Item	Conditions	Performance					
		SDH4-75	SDH4-90	SDH4-145	SDH4-200	SDH4-230	SDH4-350
DC sparkover voltage	100V/s	75V±20%	90V±20%	145V±20%	200V±20%	230V±20%	350V±20%
Impluse sparkover voltage	100V/μs	≦500V				≦550V	≦650V
	1kV/μs	≦600V				≦650V	≦750V
Insulation resistance		≧10,000MΩ (DC50V)			≧10,000MΩ (DC100V)		
Capacitance		≦0.5pF					
DC holdover characteristics		≦150ms (DC52V)		≦150ms (DC80V)	≦150ms (DC135V)		
AC discharge current	AC50Hz・5A・1s	10 times					
Impulse discharge current	8/20μs・5kA	10 times					
Impulse life	10/1,000μs・100A	300 times					

■Recommended land pattern (Unit: mm)



■External view (Unit: mm)



3SDH4 series

Conforming standards

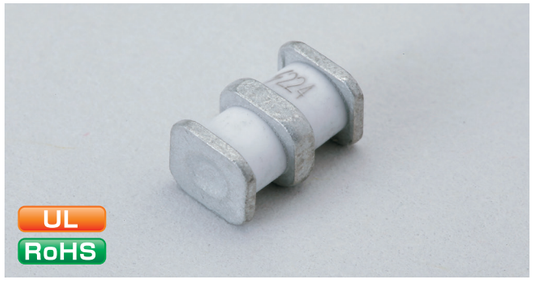
- UL standard acquired (E140906)
- RoHS compliant

Features

- Ultra compact surface mounted arrester
- High current durability

Applications

- Electric devices
- Protection for communication line
- PBX
- FAX

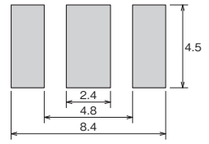


Mass: 0.6 (g)

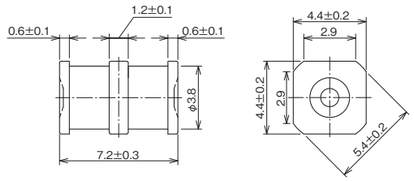
■Characteristics

Item	Conditions	Performance					
		3SDH4-75	3SDH4-90	3SDH4-145	3SDH4-200	3SDH4-230	3SDH4-350
DC sparkover voltage	100V/s	75V ±20%	90V ±20%	145V ±20%	200V ±20%	230V ±20%	350V ±20%
Impluse sparkover voltage	100V/μs	≦500V				≦550V	≦650V
	1kV/μs	≦600V				≦650V	≦750V
Insulation resistance	DC50V	≧10,000MΩ			—		
	DC100V	—			≧10,000MΩ		
Capacitance	1MHz	≦1.0pF					
DC holdover characteristics	DC52V	≦150ms		—			
	DC80V	—		≦150ms	—		
	DC135V	—			≦150ms		
AC discharge current	AC50Hz 5A×2・1s	10 times					
Impulse discharge current	8/20μs・5kA×2	+5 times, -5 times					
Impulse life	10/1,000μs・100A×2	300 times					

■Recommended land pattern (Unit: mm)



■External view (Unit: mm)



AV Types

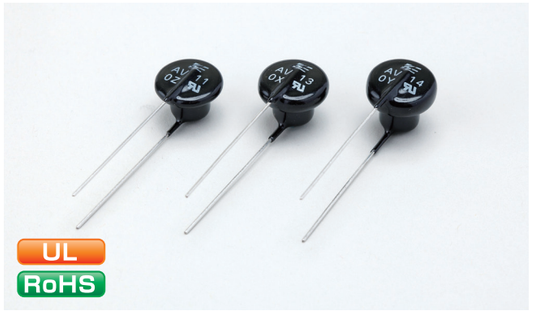
AV-11
AV-13
AV-14

Conforming standards

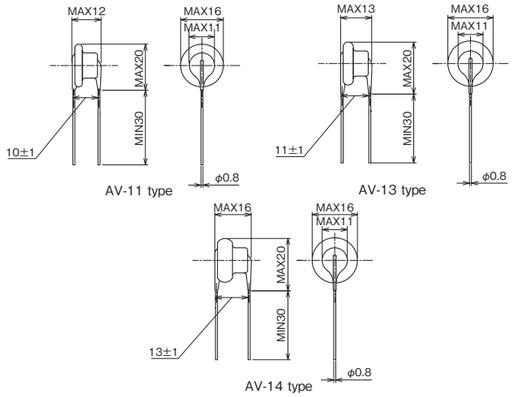
- UL standard acquired (E328370)
- RoHS compliant

Features

- Protection of low voltage power supply circuits of AC125V, 240V or less
- Compact element type allows for space-saving installation.



■External view (Unit: mm)



■Characteristics

Item	Performance		
	AV-11	AV-13	AV-14
Rated circuit voltage	AC125V	AC240V	AC440V
Impulse sparkover voltage	800V or less	1.2kV or less	2kV or less
	(10/200μs, 3kV applied)		
Impulse discharge current	4.5kA (8/20μs), 1 time		
Dimensions (mm)	W16×D12×H50	W16×D13×H50	W16×D16×H50
Mass (g)	4	5	6

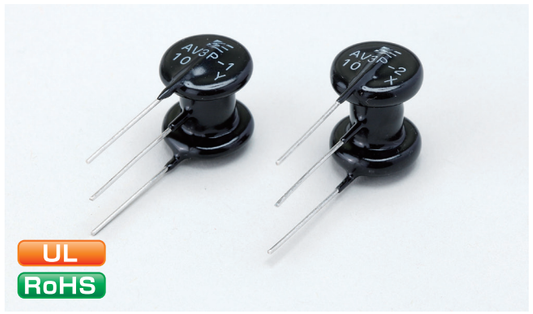
AV3P1
AV3P2

Conforming standards

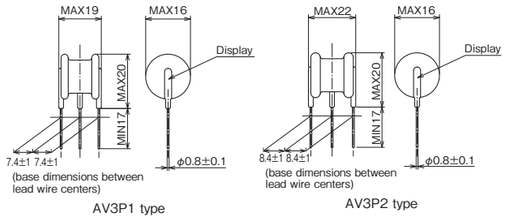
- UL standard acquired (E328370)
- RoHS compliant

Applications

- Protection of low voltage power supply circuits of AC125V, 240V or less
- Compact element type allows for space-saving installation.
- 3-electrode configuration means that a single device can cover a single-phase two-wire type line.



■External view (Unit: mm)



■Characteristics

Item	Performance	
	AV3P1	AV3P2
Rated circuit voltage	AC125V	AC240V
Impulse sparkover voltage	800V or less	1.2kV or less
	(10/200μs, 3kV applied)	
Impulse discharge current	9kA (8/20μs), 1 time	
Dimensions (mm)	W16×D20×H37	W16×D23×H37
Mass (g)	8	10

GDT Product Performance Table

Two Electrode Types

Product name	Vs standard	Vss (100V/μs)	Vss (1kV/μs)	Vss (Others)	IR (MΩ)	Capacitance (pF)	Follow-up stream Holdover	Maximum impulse discharge current (8/20μs 1 times)	Impulse discharge current (8/20μs 10 times)	Impulse discharge current (Others)	Maximum AC discharge current (AC 50Hz, 1s, 1 time)	AC discharge current (AC 50Hz, 1s, 10 times)	AC discharge current (Others)	Impulse Life AC lifespan	Operating temperature (℃)	Arrester diameter (mm)	Arrester height (mm)	Notes (Other measurement items)
Y06S-90	DC90V ±20%	—	≦700V	10/200μs 20kV ≦ 1,000V	≧10,000	≦1	—	3kA	—	10/200μs 2kA ±1time	3A	—	—	10/1,000μs 100A 200times	-40~85	6	4.3	
Y06S-100	DC100V ±20%	—	≦700V	10/200μs 20kV ≦ 1,000V	≧10,000	≦1	—	3kA	—	10/200μs 2kA ±1time	3A	—	—	10/200μs 100A 200times	-40~85	6	4.3	
Y06SZ-230	DC180-280V	—	≦700V	—	≧10,000	≦1	—	—	5kA	—	—	5A	—	10/1,000μs 100A 200times	-30~65	6	4.3	
Y06SZ-350	DC280-420V	—	≦800V	—	≧10,000	≦1	—	—	5kA	—	—	5A	—	10/1,000μs 100A 200times	-30~65	6	4.3	
Y08S-90	DC90V ±20%	—	—	1.2/50μs 5kV ≦1,000V	≧10,000	≦1	—	10kA	—	—	10A	—	—	—	-30~65	8	6.6	
Y08S-230	DC230V ±15%	—	—	1.2/50μs 5kV ≦1,000V	≧10,000	≦1	—	10kA	—	—	10A	—	—	—	-30~65	8	6.6	
Y08S-350	DC350V ±15%	—	—	1.2/50μs 5kV ≦1,000V	≧10,000	≦1	—	10kA	—	—	10A	—	—	—	-30~65	8	6.6	
Y08J-90	DC90V ±20%	≦450V	≦550V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	20kA	—	—	20A	—	10/1,000μs 200A 300times	-40~90	8	8	
Y08J-230	DC184-276V	≦600V	≦700V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	20kA	—	—	20A	—	10/1,000μs 500A 500times	-40~90	8	8	
Y08J-250	DC250V ±20%	—	≦1,000V	—	≧10,000	≦1.5	DC52V, 260Ω, ≦150ms	—	15kA	—	—	20A	—	10/1,000μs 100A 300times	-40~90	8	8	
Y08J-350	DC350V ±20%	≦800V	≦900V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	20kA	—	—	20A	—	10/1,000μs 200A 300times	-40~90	8	8	
Y08J-470	DC376-564V	≦900V	≦1,000V	—	≧10,000	≦0.7	DC52V, 260Ω, ≦150ms	25kA	20kA	8/20μs 40kA 1time	40A	20A	50A 9Cycles 1time	10/1,000μs 500A 500times	-40~90	8	8	
Y08J-600	DC600V ±20%	≦950V	≦1,100V	—	≧10,000	≦1	DC52V, 200mA, ≦150ms	40kA	20kA	—	40A	20A	50A 9Cycles 1time	10/1,000μs 500A 500times	-40~90	8	8	
Y08J-800	DC800V ±20%	≦1,300V	≦1,500V	—	≧10,000	≦1	DC52V, 200mA, ≦150ms	40kA	20kA	—	40A	20A	50A 9Cycles 1time	10/1,000μs 500A 500times	-40~90	8	8	
Y08J-122	DC1,200V ±20%	—	≦1,600V	1.2/50μs 6kV ≦2,000V	≧10,000	≦1	—	—	10kA	—	—	—	—	—	-40~90	8	8	
Y08J-202	DC2,000V ±20%	—	—	1.2/50μs, 10kV ≦2,800V	≧10,000	≦1	—	—	10kA	—	—	—	—	8/20μs 100A 100times	-30~65	8	8	
Y08JS-90	DC90V ±20%	—	≦800V	—	≧1,000	≦1.5	DC52V, 260Ω, ≦150ms	—	20kA	10/350μs 5kA 2times	—	20A	—	10/1,000μs 100A 300times	-30~65	8	6	
Y08JS-145	DC145V ±30V	—	≦800V	—	≧1,000	≦1.5	DC52V, 260Ω, ≦150ms	—	13kA	—	—	20A	—	—	-30~65	8	6	
Y08JS-200	DC200V ±10%	—	—	1.2/50μs 5kV ≦750V	≧10,000	—	—	—	2.5kA	—	—	—	2A 2s 10times	—	-30~65	8	6	For CP-ND (Can be sold separately)
Y08JS-230	DC180-280V	—	≦800V	—	≧1,000	≦1.5	DC52V, 260Ω, ≦150ms	—	13kA	—	—	20A	—	10/1,000μs 100A 300times	-30~65	8	6	
Y08JS-250	DC200-300V	—	≦800V	—	≧1,000	≦1.5	DC52V, 260Ω, ≦150ms	—	13kA	—	—	20A	—	—	-30~65	8	6	
Y08JS-350	DC290-430V	—	≦800V	—	≧1,000	≦1.5	DC52V, 260Ω, ≦150ms	—	13kA	—	—	20A	—	—	-30~65	8	6	
Y08U-75	DC75V ±20%	—	≦800V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08U-90	DC90V ±20%	—	≦800V	—	≧10,000	≦1	DC52V, IEEE, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-145	DC145V ±20%	—	≦800V	—	≧10,000	≦1	DC80, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-230	DC230V ±15%	—	≦800V	—	≧10,000	≦1	DC135, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-250	DC250V ±15%	—	≦850V	—	≧10,000	≦1	DC135, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-300	DC270-345V	—	≦850V	—	≧10,000	≦1	DC135, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-350	DC350V ±15%	—	≦850V	—	≧10,000	≦1	DC150, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-400	DC400V ±15%	—	≦900V	—	≧10,000	≦1	DC150, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-470	DC470V ±15%	—	≦1,100V	—	≧10,000	≦1	DC150V, IEEE, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-600	DC600V ±15%	—	≦1,500V	—	≧10,000	≦1	DC150V, IEEE, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-800	DC800V ±15%	—	≦2,000V	—	≧10,000	≦1	DC150V, IEEE, ≦150ms	10kA	—	—	10A	—	—	10/1,000μs 500A 200times	-40~90	8	6	
Y08UZ-102	DC800-1,300V	—	≦1,500V	—	≧10,000	≦1	DC 135V, 1,300Ω, ≦150ms	—	5kA	—	—	—	5A 1s 5times	10/1,000μs 100A 300times	-40~90	8	6	
U-1	DC75V ±20%	≦500V	—	10kV/μs ≦900V	≧10,000	≦1	DC52, 200mA, ≦150ms	10kA	5kA	—	—	—	10A 1s 5times 65A 9Cycles 1time	10/1,000μs 500A 300times	-30~65	8	6	
U-2	DC90V ±20%	≦500V	—	10kV/μs ≦900V	≧10,000	≦1	DC52, 200mA, ≦150ms	10kA	5kA	—	—	—	10A 1s 5times 65A 9Cycles 1time	10/1,000μs 500A 300times	-30~65	8	6	
U-3	DC145V ±20%	≦500V	—	10kV/μs ≦900V	≧10,000	≦1	DC80, 200mA, ≦150ms	10kA	5kA	—	—	—	10A 1s 5times 65A 9Cycles 1time	10/1,000μs 500A 300times	-30~65	8	6	
U-4	DC230V ±15%	≦600V	—	10kV/μs ≦900V	≧10,000	≦1	DC135, 200mA, ≦150ms	10kA	5kA	—	—	—	10A 1s 5times 65A 9Cycles 1time	10/1,000μs 500A 300times	-30~65	8	6	

Product name	Vs standard	Vss (100V/μs)	Vss (1kV/μs)	Vss (Others)	IR (MΩ)	Capacitance (pF)	Follow-up stream Holdover	Maximum impulse discharge current (8/20μs 1 times)	Impulse discharge current (8/20μs 10 times)	Impulse discharge current (Others)	Maximum AC discharge current (AC 50Hz, 1s, 1 time)	AC discharge current (AC 50Hz, 1s, 10 times)	AC discharge current (Others)	Impulse Life AC lifespan	Operating temperature (℃)	Arrester diameter (mm)	Arrester height (mm)	Notes (Other measurement items)
U-5	DC250V ±15%	—	≦600V	—	10kV/μs ≦1,000V	≧10,000	≦1	DC135, 200mA, ≦150ms	10kA	5kA	—	—	10A	65A 9Cycles 1time	10/1,000μs 500A 500times	-30~65	8	6	
U-6	DC300V ±15%	—	≦700V	—	10kV/μs ≦1,000V	≧10,000	≦1	DC150, 200mA, ≦150ms	10kA	5kA	—	—	10A	65A 9Cycles 1time	10/1,000μs 500A 500times	-30~65	8	6	
U-7	DC350V ±15%	—	≦700V	—	10kV/μs ≦1,000V	≧10,000	≦1	DC150, 200mA, ≦150ms	10kA	5kA	—	—	10A	65A 9Cycles 1time	10/1,000μs 500A 500times	-30~65	8	6	
U-8	DC400V ±15%	—	≦700V	—	10kV/μs ≦1,000V	≧10,000	≦1	DC150, 200mA, ≦150ms	10kA	5kA	—	—	10A	65A 9Cycles 1time	10/1,000μs 500A 500times	-30~65	8	6	
U-9	DC470V ±15%	—	≦700V	—	10kV/μs ≦1,000V	≧10,000	≦1	DC150, 200mA, ≦150ms	10kA	5kA	—	—	10A	65A 9Cycles 1time	10/1,000μs 500A 500times	-30~65	8	6	
U-10	DC600V ±15%	—	≦800V	—	10kV/μs ≦1,200V	≧10,000	≦1	DC150, 200mA, ≦150ms	10kA	5kA	—	—	10A	65A 9Cycles 1time	10/1,000μs 500A 500times	-30~65	8	6	
U-11	DC800V ±15%	—	≦1,000V	—	10kV/μs ≦1,200V	≧10,000	≦1	DC150, 200mA, ≦150ms	10kA	5kA	—	—	10A	65A 9Cycles 1time	10/1,000μs 500A 500times	-30~65	8	6	
Y08-802	DC8,000V ±20%	—	≦10kV	—	10kV/μs ≦12kV	≧10,000	≦1	DC150, 200mA, ≦150ms	5kA	1kA	—	—	1A	—	8/20μs 200A 20times	-40~90	8	13	
Y08-103	DC10kV ±20%	—	—	—	—	≧10,000	≦1	—	—	—	—	—	—	—	8/20μs 200A 20times	-40~90	8	13	
Y08-123	DC12kV ±20%	—	—	—	—	≧10,000	≦1	—	—	—	—	—	—	—	8/20μs 200A 20times	-40~90	8	17	
Y08-143	DC14kV ±20%	—	—	—	—	≧10,000	≦1	—	—	—	—	—	—	—	8/20μs 200A 20times	-40~90	8	17	
Y08-163	DC16kV ±20%	—	—	—	—	≧10,000	≦1	—	—	—	—	—	—	—	8/20μs 200A 20times	-40~90	8	17	
Y08Z-1000	DC1,000V ±20%	—	≦1,500V	—	—	≧10,000	≦1	DC150V, IEEE, ≦150ms	10kA	3kA	—	—	1A	50Hz,5A, 9Cycles,1time	10/1,000μs 500A 200times	-30~65	8	8	
Y-242	DC2,400V ±20%	—	≦3,000V	—	—	≧10,000	≦1	—	10kA	3kA	—	—	1A	5A 9Cycles 1time	10/1,000μs 500A 10times	-40~90	8	8.5	
Y-152	DC1,500V ±20%	—	≦2,200V	—	—	≧10,000	≦1	—	10kA	3kA	—	—	1A	5A 9Cycles 1time	10/1,000μs 500A 10times	-40~90	8	8.5	
Y-212	DC2,100V ±20%	—	≦2,700V	—	—	≧10,000	≦1	—	10kA	3kA	—	—	1A	5A 9Cycles 1time	10/1,000μs 500A 10times	-40~90	8	8.5	
Y-302	DC3,000V ±20%	—	≦4,000V	—	—	≧10,000	≦1	—	5kA	1kA	—	—	1A	5A 9Cycles 1time	10/1,000μs 500A 10times	-40~90	8	8.5	
Y-402	DC4,000V ±20%	—	≦5,000V	—	—	≧10,000	≦1	—	10kA	1kA	—	—	1A	5A 9Cycles 1time	10/1,000μs 500A 10times	-40~90	8	8.5	
Y-602	DC6,000V ±20%	—	≦8,000V	—	—	≧10,000	≦1	—	5kA	1kA	—	—	1A	5A 9Cycles 1time	10/1,000μs 500A 10times	-40~90	8	13	
Y08AV-90	DC90V ±20%	—	≦600V	10kV/μs ≦1,000V	≧10,000	≦1	—	10kA	—	—	10A	—	—	8/20μs 2kA ±5times	8/20μs 2kA ±5times	-30~65	8	6.6	
Y08AV-230	DC230V ±20%	—	≦700V	10kV/μs ≦1,000V	≧10,000	≦1	—	10kA	—	—	10A	—	—	8/20μs 2kA ±5times	8/20μs 2kA ±5times	-30~65	8	6.6	
Y08SV-272	DC2,430-3,000V	—	≦3,900V	—	≧100	≦1	—	—	—	8/20μs 3kA 20times	—	—	—	8/20μs 100A 300times	8/20μs 100A 300times	-40~90	8	8.8	
Y08SV-312	DC2,850-3,500V	—	≦3,700V	—	≧100	≦1	—	—	—	8/20μs 3kA 20times	—	—	—	8/20μs 100A 300times	8/20μs 100A 300times	-40~90	8	8.8	
Y08SV-522	DC4,675-6,600V	—	—	7.5kV/μs ≦8,000V	≧10,000	≦1	—	—	5KA	—	—	—	—	—	—	-40~90	8	8.8	
YX08-200	DC200V ±10%	—	≦1,000V	—	≧10,000	≦3	—	20kA	—	—	20A	—	—	—	—	-30~65	7.6	20	
YX08-230	DC230V ±15%	—	≦1,000V	—	≧10,000	≦3	—	20kA	—	—	20A	—	—	—	—	-30~65	7.6	20	
CA-150	DC150V ±25%	—	≦700V	—	≧10,000	≦1.5	—	10kA	5kA	—	—	—	—	—	—	-30~65	6	6	
CA-200	DC140-250V	—	≦700V	—	≧10,000	≦1.5	—	10kA	5kA	—	—	—	—	—	—	-30~65	6	6	
CA-400	DC300-500V	—	≦700V	—	≧10,000	≦1.5	DC48V, 1A, ≦150ms	5kA	—	—	—	—	—	—	—	-30~65	6	6	
CA2-400	DC300-600V	—	≦800V	—	≧1,000	≦1.5	DC70V, 1.4A, ≦30ms	18kA	10kA	10/350μs 2.5kA 2times	—	5A	—	10/1000μs 100A 100times	-30~65	9	13	
Y12-2000	DC1,800-2,600V	—	—	—	≧2,000	—	—	—	—	—	—	—	—	—	-30~65	Case Type		
Y12-3000B	DC2,500-3,300V	—	—	—	≧2,000	—	—	—	—	—	—	—	—	—	-30~65	12	20.2	
Y12-3000	DC2,500-3,300V	—	—	—	≧2,000	—	—	—	—	—	—	—	—	—	-30~65	Case Type		
Y20-90	DC90 ±20V	—	—	10/200μs 3kV ≦700V	≧10,000	≦5	DC52V, 200mA,≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-230	DC230 ±40V	—	—	10/200μs 3kV ≦700V	≧10,000	≦5	DC80V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-250	DC250 ±50V	—	—	10/200μs 3kV ≦750V	≧10,000	≦5	DC80V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-290	DC290 ±50V	—	—	10/200μs 3kV ≦750V	≧10,000	≦5	DC80V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 400A 300times	—	—	50A 0.1s 20times 20A 10s 1time	10/200μs 400A 1,000times	-30~65	20	7	
Y20-350	DC350 ±60V	—	—	10/200μs 3kV ≦750V	≧10,000	≦5	DC80V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-425	DC425 ±60V	—	—	10/200μs 3kV ≦750V	≧10,000	≦5	DC150V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-490	DC490 ±70V	—	—	10/200μs 3kV ≦800V	≧10,000	≦5	DC150V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 400A 300times	—	—	50A 0.1s 20times 20A 10s 1time	10/200μs 400A 1,000times	-30~65	20	7	
Y20-550	DC550 ±100V	—	—	10/200μs 3kV ≦1,000V	≧10,000	≦5	DC150V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	

Product name	Vs standard	Vss (100V/μs)	Vss (1kV/μs)	Vss (Others)	IR (MΩ)	Capacitance (pF)	Follow-up stream Holdover	Maximum impulse discharge current (8/20μs 1 times)	Impulse discharge current (8/20μs 10 times)	Impulse discharge current (Others)	Maximum AC discharge current (AC 50Hz, 1s, 1 time)	AC discharge current (AC 50Hz, 1s, 10 times)	AC discharge current (Others)	Impulse Life AC lifespan	Operating temperature (℃)	Arrester diameter (mm)	Arrester height (mm)	Notes (Other measurement items)
Y20-610	DC610 ±90V	—	—	10/200μs 3kV ≦1,000V	≧10,000	≦5	DC150V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-700	DC700 ±100V	—	—	10/200μs 3kV ≦1,200V	≧10,000	≦5	DC150V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-800	DC800 ±120V	—	—	10/200μs 3kV ≦1,400V	≧10,000	≦5	DC150V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-900	DC900 ±120V	—	—	10/200μs 3kV ≦1,600V	≧10,000	≦5	DC150V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-1100	DC1,100 ±220V	—	—	10/200μs 3kV ≦2,000V	≧10,000	≦5	DC150V, 200mA, ≦150ms	—	—	10/200μs 10kA 1time 10/200μs 500A 200times	100A	—	50A 0.1s 20times	10/200μs 500A 1,000times	-30~65	20	7	
Y20-1200	DC1,200 ±200V	—	—	10/200μs 3kV ≦2,200V	≧10,000	≦5	—	—	—	—	—	—	—	—	-20~60	20	7	
Y20-1300	DC1,300 ±200V	—	—	10/200μs 3kV ≦2,400V	≧10,000	≦5	—	—	—	—	—	—	—	—	-20~60	20	7	
Y20-1600	DC1,400-1700V	—	—	10/200μs 3kV ≦2,200V	≧10,000	≦5	—	—	—	—	—	—	—	—	-20~60	20	7	
Y20-550AV	DC490-630V	—	≦900V	—	≧10,000	≦5	—	80kA	—	8/20μs 40kA 5times 8/20μs 40kA 20times	—	—	—	—	-40~70	20	7	
Y20-610AV	DC520-700	—	≦1,000V	—	≧10,000	≦5	—	75kA	—	8/20μs 60kA 2times 10/350μs 15kA 1time	—	—	—	—	-40~70	20	7	
Y20-900AV	DC840-1,000V	—	≦1,300V	—	≧10,000	≦5	—	80kA	—	8/20μs 40kA 5times 8/20μs 40kA 20times	—	—	—	—	-40~70	20	7	
Y49-90L	DC90V ±20%	—	—	10/200μs 3kV ≦800V	≧10,000	≦10	—	40kA	—	8/20μs 20kA 20times	—	—	5,000A 0.1s 1time	—	-20~60	49	36	
Y49-145L	DC145V ±20%	—	—	10/200μs 3kV ≦800V	≧10,000	≦10	—	40kA	—	8/20μs 20kA 20times	—	—	5,000A 0.1s 1time	—	-20~60	49	36	
Y49-230L	DC230V ±20%	—	—	10/200μs 3kV ≦1,000V	≧10,000	≦10	—	40kA	—	8/20μs 20kA 20times	—	—	5,000A 0.1s 1time	—	-20~60	49	36	
Y49-350L	DC350V ±20%	—	—	10/200μs 3kV ≦1,000V	≧10,000	≦10	—	40kA	—	8/20μs 20kA 20times	—	—	5,000A 0.1s 1time	—	-20~60	49	36	
Y49-450L	DC360-540V	—	—	10/200μs 3kV ≦1,500V	≧10,000	≦10	—	80kA	—	10/200μs 20kA 30times	—	—	1,000A 0.3s 30times 5,000A 0.1s 1time	—	-20~60	49	36	
Y49-550L	DC450-650V	—	—	10/200μs 3kV ≦1,500V	≧100	≦10	—	—	—	—	—	—	200A 3s 1time 20A 80s 30times	AC 20A 80s 100times	-20~60	49	36	
Y49-700L	DC600-800V	—	—	—	≧100	≦10	—	—	—	—	—	—	70A 20s 20times 500A 0.3s 10times	—	-20~60	49	36	
Y49-800L	DC800 ±120V	—	—	—	≧100	≦10	—	—	—	—	—	—	70A 20s 20times 500A 0.3s 10times	—	-20~60	49	36	
Y49-930L	DC930 ±90V	—	—	—	≧10,000	≦10	—	—	—	—	—	—	70A 20s 20times 500A 0.3s 10times	—	-20~60	49	36	
Y49-1000L	DC1,000 ±150V	—	—	—	≧10,000	≦10	—	—	—	—	—	—	70A 20s 20times 500A 0.3s 10times	—	-20~60	49	36	
Y49-1100L	DC1,100 ±165V	—	—	—	≧10,000	≦10	—	—	—	—	—	—	70A 20s 20times 500A 0.3s 10times	—	-20~60	49	36	
Y49-1200L	DC1,000-1400V	—	—	10/200μs 3kV ≦2,800V	≧100	≦10	DC60V, 200mA, ≦150ms	—	—	—	—	—	1,000A 0.3s 10times 5,000A 0.1s 1time	AC 1kA 0.3s 50times	-20~60	49	36	
Y49-1400L	DC1,400 ±150V(5kV/s)	—	—	—	≧10,000	≦10	—	—	—	—	—	—	70A 20s 20times 500A 0.3s 10times	AC 500A 0.3s 10times	-20~60	49	36	
Y49-12KVL	DC9,000-15,000V (5kV/s)	—	—	—	≧100	≦10	—	—	—	8/20μs 40kA 5times	—	—	—	—	-20~60	49	36	
Y49-23KV	DC20-25kV(5kV/s)/ AC14.2-17.7kV (50-60Hz)	—	—	1.2/50μs 30kV ≦30kV	≧10,000	≦10	—	80kA	—	—	—	—	—	—	-40~70	49	36	
Y49-1000A	DC806-1,202V	—	—	—	≧10,000	≦10	—	—	—	—	—	—	AC 5,000A 0.2s 10times	—	-20~60	49	36	
Y08NS-230	DC184-276V	≦500V	≦650V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	25kA	20kA	—	40A	20A	130A 9Cycles 1time	10/1,000μs 500A 500times	-40~90	8	6	
Y08NS-470	DC376-564V	—	≦700V	—	≧10,000	≦1.5	DC 135V, 1,300Ω, ≦150ms	—	20kA	—	—	—	—	—	-40~90	8	6	
Y08NS-500	DC400-600V	—	≦800V	≦1,100V (10kV/μs)	≧10,000	≦1.5	—	—	20kA	10/350μs 2.5kA 2times	—	—	—	—	-40~90	8	6	
Y08NS-600	DC480-720V	—	≦800V	—	≧10,000	≦1.5	DC 135V, 1300Ω,≦ 150ms	—	20kA	—	—	—	—	—	-40~90	8	6	
Y05-60	DC51-72V	—	≦600V	—	≧10,000	≦1	—	3kA	5kA	—	10A	—	5A 1s 5times	10/1,000μs 10A 300times	-40~90	4.7	5	
Y05-75	DC75V ±20%	—	≦600V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	5kA	—	—	—	5A 1s 5times	10/1,000μs 100A 300times	-40~90	4.7	5	
Y05-90B	DC90V ±20%	≦400V	≦500V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	5kA	—	—	—	5A 1s 5times	10/1,000μs 100A 300times	-30~65	4.7	5	
Y05-230	DC230V ±20%	—	≦650V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-30~65	4.7	5	
Y05-350	DC350V ±20%	≦650V	≦750V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-30~65	4.7	5	
Y05-600	DC600V ±20%	≦900V	≦1,000V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	2.5kA	—	—	5A	—	10/1,000μs 100A 300times	-30~65	4.7	5	
Y05-152	DC1,500V ±20%	—	≦2,200V	—	≧10,000	≦1	—	2.5kA	—	8/20μs 2kA 3times	—	—	0.5A 1s 10times	8/20μs 100A 300times	-40~90	4.7	6	
Y05-212	DC2,100V ±20%	—	≦3,000V	—	≧10,000	≦1	—	2.5kA	—	8/20μs 2kA 3times	—	—	0.5A 1s 10times	8/20μs 100A 300times	-40~90	4.7	6	
Y05-272	DC2,700V ±20%	—	≦3,500V	—	≧10,000	≦1	—	3kA	—	8/20μs 2kA 3times	—	—	—	8/20μs 100A 300times	-40~90	4.7	6	Dielectric strength (AC1250V, 1s)
Y05-312	DC2,700V ±20%	—	≦3,700V	—	≧10,000	≦1	—	3kA	—	8/20μs 2kA 3times	—	—	—	8/20μs 100A 300times	-40~90	4.7	6	Dielectric strength (AC1,500V, 1s)

Product name	Vs standard	Vss (100V/μs)	Vss (1kV/μs)	Vss (Others)	IR (MΩ)	Capacitance (pF)	Follow-up stream Holdover	Maximum impulse discharge current (8/20μs 1 times)	Impulse discharge current (8/20μs 10 times)	Impulse discharge current (Others)	Maximum AC discharge current (AC 50Hz, 1s, 1 time)	AC discharge current (AC 50Hz, 1s, 10 times)	AC discharge current (Others)	Impulse Life AC lifespan	Operating temperature (℃)	Arrester diameter (mm)	Arrester height (mm)	Notes (Other measurement items)
SD4-75	DC75V ±20%	≦500V	≦600V	—	≧10,000	≦0.5	DC52V, 260Ω, ≦150ms	2.5kA	—	—	5A	—	—	8/20μs 100A 1,000times	-40~90	3.8	3.5	
SD4-90	DC90V ±20%	≦500V	≦600V	—	≧10,000	≦0.5	DC52V, 260Ω, ≦150ms	2.5kA	—	—	5A	—	—	8/20μs 100A 1,000times	-40~90	3.8	3.5	
SD4-145	DC200V ±20%	≦500V	≦600V	—	≧10,000	≦0.5	DC80V, 330Ω, ≦150ms	2.5kA	—	—	5A	—	—	8/20μs 100A 1,000times	-40~90	3.8	3.5	
SD4-200	DC200V ±20%	≦500V	≦600V	—	≧10,000	≦0.5	DC 135V, 1,300Ω, ≦150ms	2.5kA	—	—	5A	—	—	8/20μs 100A 1,000times	-40~90	3.8	3.5	
SD4-200SVSS	DC200V ±20%	—	≦800V	—	≧10,000	≦0.5	DC 135V, 1,300Ω, ≦150ms	2.5kA	—	—	5A	—	—	8/20μs 100A 1,000times	-40~90	3.8	3.5	
SD4-230	DC230V ±20%	≦550V	≦650V	—	≧10,000	≦0.5	DC 135V, 1,300Ω, ≦150ms	5kA	—	—	5A	—	—	8/20μs 100A 1,000times	-40~90	3.8	3.5	
SD4-350	DC350V ±20%	≦650V	≦750V	—	≧10,000	≦0.5	DC 135V, 1,300Ω,≦ 150ms	5kA	—	—	5A	—	—	8/20μs 100A 1,000times	-40~90	3.8	3.5	
SD3-75	DC75V ±20%	≦500V	≦700V	—	≧10,000	≦0.5	DC52V, 260Ω, ≦150ms	2kA	—	—	—	—	—	8/20μs 100A 1,000times	-40~90	3.2	4.5	
SD3-90	DC90V ±20%	≦500V	≦700V	—	≧10,000	≦0.5	DC52V, 260Ω, ≦150ms	2kA	—	—	—	—	—	8/20μs 100A 1,000times	-40~90	3.2	4.5	
SD3-200	DC200V ±20%	≦500V	≦700V	—	≧10,000	≦0.5	DC 135V, 1,300Ω, ≦150ms	2kA	—	—	—	—	—	8/20μs 100A 1,000times	-40~90	3.2	4.5	
2Z122	DC1,200 ±200V (2kV/s)	—	—	10/200μs 3kV ≦2,800V	≧100	—	DC60V, 200mA, ≦150ms	—	1kA	—	—	—	1,000A 0.3s 10times/5,000A 0.1s 1times	AC 1kA 0.3s 50times	-20~60	49	36	
Y10-160	DC125-185V	—	—	10/700μs 5kV ≦600V	≧10,000	—	—	—	—	8/20μs 20kA 5times	—	—	—	—	-30~60	10.16	9.5	
Y10-230	DC180-280V	—	—	10/700μs 5kV ≦450V	≧10,000	—	—	—	—	8/20μs 20kA 5times	—	—	—	—	-30~60	10.16	9.5	
Y10-260	DC210-305V	—	—	10/700μs 5kV ≦650V	≧10,000	—	—	—	—	8/20μs 20kA 5times	—	—	—	—	-30~60	10.16	9.5	
Y10-400	DC330-500V	—	—	10/700μs 5kV ≦700V	≧10,000	—	—	—	—	8/20μs 40kA 5times	—	—	—	—	-30~60	10.16	9.5	
Y10-500	DC425-590V	—	—	10/700μs 5kV ≦1,000V	≧10,000	—	—	40kA	—	8/20μs 20kA 5times	—	—	—	—	-30~60	10.16	9.5	
Y10-550	DC440-620V	—	—	—	≧10,000	—	—	40kA	—	8/20μs 20kA 5times	—	—	—	—	-30~60	10.16	9.5	
Y10-900	DC790-990V	—	—	10/700μs 5kV ≦1,500V	≧10,000	—	—	40kA	—	8/20μs 20kA 5times	—	—	—	—	-30~60	10.16	9.5	
Y10-1100	DC900-1300V	—	≦1,500V	—	≧10,000	—	—	40kA	—	—	—	—	—	—	-30~60	10.16	9.5	
Y28H-700A	DC700 ±100V	—	—	1.2/50μs 1.5kV ≦1.5kV	≧10,000	—	—	—	—	10/350μs 75kA ±1time	—	—	—	—	-40~90	28	27.8	
Y28H-700A1	DC700 ±100V	—	—	1.2/50μs 6kV ≦1.5kV	≧10,000	—	—	—	100kA	10/350μs 100kA 1time	—	—	AC 300A 0.2s 1time	—	-40~90	28	27.8	
Y28H-1200A	DC1,200 ±200V	—	—	1.2/50μs 1.8kV ≦1.8kV	≧10,000	—	—	—	—	10/350μs 75kA ±1time	—	—	—	—	-40~90	28	27.8	
Y28-610	DC610 ±90V	—	—	1.2/50μs 1.5kV ≦1.5kV	≧10,000	—	—	—	—	10/350μs 25kA 2times	—	—	—	—	-20~60	28	7.4	
Y28-700	DC700 ±100V	—	—	1.2/50μs 1.5kV ≦1.5kV	≧10,000	—	—	—	—	10/350μs 25kA 2times	—	—	—	—	-20~60	28	7.4	
Y28-800	DC850 ±150V	—	—	1.2/50μs 1.5kV ≦1.5kV	≧10,000	—	—	—	—	10/350μs 25kA 2times	—	—	—	—	-40~70	28	7.4	
Y28-1200	DC1,200 ±150V	—	—	1.2/50μs 1.5kV ≦1.5kV	≧10,000	—	—	—	—	8/20μs 75kA ≧2times	—	—	—	—	-40~70	28	7.4	
SDH4-75	DC75V ±20%	≦500V	≦600V	—	≧10,000	≦0.5	DC 52V, 260Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-40~90	5.4	3.5	
SDH4-90	DC90V ±20%	≦500V	≦600V	—	≧10,000	≦0.5	DC 52V, 260Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-40~90	5.4	3.5	
SDH4-145	DC145V ±20%	≦500V	≦600V	—	≧10,000	≦0.5	DC 80V, 330Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-40~90	5.4	3.5	
SDH4-200	DC200V ±20%	≦500V	≦600V	—	≧10,000	≦0.5	DC 135V, 1,300Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-40~90	5.4	3.5	
SDH4-200SVSS	DC200V ±20%	—	≦800V	—	≧10,000	≦0.5	DC 135V, 1,300Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-40~90	5.4	3.5	
SDH4-230	DC230V ±20%	≦550V	≦650V	—	≧10,000	≦0.5	DC 135V, 1,300Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-40~90	5.4	3.5	
SDH4-350	DC350V ±20%	≦650V	≦750V	—	≧10,000	≦0.5	DC 135V, 1,300Ω, ≦150ms	—	5kA	—	—	5A	—	10/1,000μs 100A 300times	-40~90	5.4	3.5	
SD8-75	DC75V ±20% (100V/s)	≦500V	≦700V	—	≧10,000	≦1	DC 52V, 260Ω, ≦150ms	10kA	5kA	—	—	10A	AC 50Hz,65A, 9Cycles,1time	10/1,000μs 500A 300times	-40~90	7.5	6	
SD8S-75	DC75V ±20% (100V/s)	≦350V	≦600V	—	≧10,000	≦1	—	—	20kA	—	—	20A	—	—	-40~90	7.5	5.6	
SD8-90	DC90V ±20% (100V/s)	≦500V	≦700V	—	≧10,000	≦1	DC 52V, 260Ω, ≦150ms	10kA	5kA	—	—	10A (5times)	AC 50Hz,65A, 9Cycles,1time	10/1,000μs 500A 300times	-40~90	7.5	6	
SD8-230	DC230V ±15%	≦600V	≦750V	—	≧10,000	≦1	DC 135V, 1,300Ω, ≦150ms	10kA	5kA	—	—	10A (5times)	AC 50Hz,65A, 9Cycles,1time	10/1,000μs 500A 300times	-30~65	7.5	5.6	
SD8-600	DC600V ±15%	≦800V	≦1,000V	—	≧10,000	≦1	DC150V, 200mA, ≦150ms	10kA	5kA	—	—	10A	AC 50Hz,65A, 9Cycles,1time	10/1,000μs 500A 500times	-40~90	7.5	5.6	

Three Electrode Types

Product name	Vs standard	Vss (100V/μs)	Vss (1kV/μs)	Vss (Others)	IR (MΩ)	Capacitance (pF)	Follow-up stream Holdover	Maximum impulse discharge current (8/20μs 1 times)	Impulse discharge current (8/20μs 10 times)	Impulse discharge current (Others)	Maximum AC discharge current (1 time)	AC discharge current (10 times)	AC discharge current (Others)	Impulse Life AC lifespan	Operating temperature (℃)	Arrester diameter (mm)	Arrester height (mm)	Notes (Other measurement items)
3Y06-90	DC90V ±20%	—	≦850V	—	≧10,000	≦3	DC 52V, ≦150ms	—	2.5kA ×2	—	—	—	AC 5A×2 1s 5times	10/1,000μs 100A×2 100times	-40~90	6	8.6	
3Y06-230	DC230V ±20%	—	≦700V	—	≧10,000	≦3	DC 135V, ≦150ms	—	5kA×2	—	—	—	AC 5A×2 1s 5times	10/1,000μs 100A×2 300times	-30~85	6	8.6	
3Y06-350	DC350V ±20%	—	≦750V	—	≧10,000	≦3	150V, 200mA, ≦150ms	10kA×2	2.5kA ×2	—	10A×2 1s	—	AC 5A×2 1s 5times	10/1,000μs 100A×2 100times	-30~85	6	8.6	
3J-1	DC90V ±20%	≦700V	—	10kV/μs ≦1,000V	≧10,000	≦3(L-E) ≦1.5(L-L)	IEEE, DC52V, ≦150ms	10kA×2	5kA×2	—	5A×2 1s	—	65A×2 9Cycles 1time	10/1,000μs 200A×2 300times	-40~90	7.5	11.5	
3J-2	DC145V ±20%	≦700V	—	10kV/μs ≦1,000V	≧10,000	≦3(L-E) ≦1.5(L-L)	IEEE, DC52V, ≦150ms	10kA×2	5kA×2	—	5A×2 1s	—	65A×2 9Cycles 1time	10/1,000μs 200A×2 300times	-40~65	7.5	11.5	
3J-3	DC230V ±20%	≦500V	—	10kV/μs ≦800V	≧10,000	≦3(L-E) ≦1.5(L-L)	IEEE, DC135V, ≦150ms	10kA×2	5kA×2	—	5A×2 1s	—	65A×2 9Cycles 1time	10/1,000μs 200A×2 300times	-40~65	7.5	11.5	
3J-4	DC250V ±20%	≦500V	—	10kV/μs ≦800V	≧10,000	≦3(L-E) ≦1.5(L-L)	IEEE, DC135V, ≦150ms	10kA×2	5kA×2	—	10A×2 1s	5A×2 1s	65A×2 9Cycles 1time	10/1,000μs 200A×2 300times	-40~90	7.5	11.5	
3J-5	DC300V ±20%	≦600V	—	10kV/μs ≦900V	≧10,000	≦3(L-E) ≦1.5(L-L)	IEEE, DC135V, ≦150ms	10kA×2	5kA×2	—	10A×2 1s	5A×2 1s	65A×2 9Cycles 1time	10/1,000μs 200A×2 300times	-40~90	7.5	11.5	
3J-6	DC350V ±20%	≦600V	—	10kV/μs ≦900V	≧10,000	≦3(L-E) ≦1.5(L-L)	IEEE,150V, ≦150ms	10kA×2	5kA×2	—	10A×2 1s	5A×2 1s	65A×2 9Cycles 1time	10/1,000μs 200A×2 300times	-40~90	7.5	11.5	
3J-7	DC400V ±20%	≦700V	—	10kV/μs ≦1,000V	≧10,000	≦3(L-E) ≦1.5(L-L)	IEEE, 150V, ≦150ms	10kA×2	5kA×2	—	10A×2 1s	5A×2 1s	65A×2 9Cycles 1time	10/1,000μs 200A×2 300times	-40~90	7.5	11.5	
3YVH-230	DC180-300V	≦700V	<900V	—	>1,000	≦3	DC 135V, 1300Ω, ≦150ms	—	5kA×2	—	—	—	AC 5A×2 1s 5times	10/1,000μs 100A×2 300times	-40~90	MAX 8.0	10	
3YVH-250	DC250V ±20%	—	≦900V	—	≧1,000	≦3	DC 135V, 1300Ω, ≦150ms	—	5kA×2	—	—	—	AC 5A×2 1s 5times	10/1,000μs 100A×2 300times	-40~90	MAX 9	MAX 10.5	
3YVH-350	DC280-420V	—	<900V	—	>1,000	≦3	DC80V, 330Ω, ≦150ms	—	10kA×2	—	—	—	AC 10A×2 1s 5times	10/1,000μs 100A×2 300times	-40~90	8	10	
3YVH-400	DC400V ±20%	—	≦900V	—	≧10,000	≦3	DC80V, 330Ω, ≦150ms	—	10kA×2	—	—	—	AC 10A×2 1s 5times	10/1,000μs 100A×2 300times	-40~90	MAX 8	10	
3H-90	DC90V ±20%	—	≦500V	—	≧10,000	≦3	DC52V, 260Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	8	10	
3H-150	DC150V ±20%	—	≦600V	—	≧10,000	≦3	DC52V, 260Ω, ≦150ms	—	5kA×2	—	—	—	AC 5A×2 1s 5times	10/1,000μs 100A×2 300times	-40~90	8	10	
3H-230	DC230V ±20%	—	≦700V	—	≧10,000	≦3	DC 135V, 1,300Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	8	10	
3H-420	DC420V ±20%	—	≦1,000V	—	≧10,000	≦3	DC 135V, 1,300Ω, ≦150ms	—	5kA×2	—	—	—	AC 5A×2 1s 5times	10/1,000μs 100A×2 300times	-40~90	8	10	
3H-500	DC500V ±20%	—	≦1,000V	—	≧10,000	≦3	DC 135V, 1,300Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	8	10	
3YV-350	DC350V ±20%	—	—	—	≧1,000	≦3(L-E) ≦1.5(L-L)	—	10kA×2	—	—	6A×2 1s	—	—	—	-30~65	8.2	9.1	
3YW-230	DC230V ±20%	≦600V	—	—	≧10,000	≦5(L-E) ≦3(L-L)	DC150V, ≦150ms	20kA×2	—	—	20A×2 1s	—	—	10/1,000μs 500A×2 1,000times	-20~65	8	20.4	
3YW-400	DC300-500V	≦700V	—	10kV/μs ≦1,200V	≧10,000	≦3	—	20kA×2	—	—	—	—	200A×2 9Cycles 1time	10/1,000μs 500A×2 1,000times	-20~65	8	20.4	
3Y20-290	DC220-360V	—	—	10/200μs 3kV ≦750V	≧5,000	—	10/1,000μs, 200A, ≦150ms	—	—	10/200μs 2.5kA×2 1time	20A×2 1s	—	—	10/200μs 200A×2 100times	-30~65	20	13.5	
3Y20-420	DC340-500V	—	—	10/200μs 3kV ≦800V	≧5,000	—	10/1,000μs, 200A, ≦150ms	—	—	10/200μs 2.5kA×2 1time	20A×2 1s	—	—	10/200μs 200A×2 100times	-30~65	20	13.5	
3Y20-490	DC400-580V	—	—	10/200μs 3kV ≦800V	≧5,000	—	10/1,000μs, 200A, ≦150ms	—	—	10/200μs 2.5kA×2 1time	20A×2 1s	—	—	10/200μs 200A×2 100times	-30~65	20	13.5	
3Y20-700	DC600-800V	—	—	10/200μs 3kV ≦1,200V	≧5,000	—	10/1,000μs, 200A, ≦150ms	—	—	10/200μs 2.5kA×2 1time	20A×2 1s	—	—	10/200μs 200A×2 100times	-30~65	20	13.5	
3YD-90	DC90V ±20%	—	≦600V	—	≧10,000	≦3	DC52V, 260Ω, ≦150ms	—	5kA×2	10/350μs 2.5kA×2 2times	—	—	—	—	-30~65	6	8.3	
3YD-230	DC230V ±20%	—	≦600V	—	≧10,000	≦3	DC52V, 260Ω, ≦150ms	—	5kA×2	10/350μs 2.5kA×2 2times	—	5A×2 1s	—	—	-30~65	6	8.3	
3YD-350	DC350V ±20%	—	≦700V	—	≧10,000	≦3	DC52V, 260Ω, ≦150ms	—	5kA×2	10/350μs 2.5kA×2 2times	—	5A×2 1s	—	10/1,000μs 100A×2 100times	-30~65	6	8.3	
3SD4-75	DC75V ±20%	≦500V	≦600V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	2.5kA×2	—	—	5A×2 1s	—	—	8/20μs 100A×2 1,000times	-40~90	3.8	7.2	
3SD4-90	DC90V ±20%	≦500V	≦600V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	2.5kA×2	—	—	5A×2 1s	—	—	8/20μs 100A×2 1,000times	-40~90	3.8	7.2	
3SD4-145	DC145V ±20%	≦500V	≦600V	—	≧10,000	≦1	DC80V, 330Ω, ≦150ms	2.5kA×2	—	—	5A×2 1s	—	—	8/20μs 100A×2 1,000times	-40~90	3.8	7.2	
3SD4-200	DC200V ±20%	≦500V	≦600V	—	≧10,000	≦1	DC 135V, 1,300Ω, ≦150ms	2.5kA×2	—	—	5A×2 1s	—	—	8/20μs 100A×2 1,000times	-40~90	3.8	7.2	
3SD4-230	DC230V ±20%	≦550V	≦650V	—	≧10,000	≦1	DC 135V, 1,300Ω, ≦150ms	5kA×2	—	—	5A×2 1s	—	—	8/20μs 100A×2 1,000times	-40~90	3.8	7.2	
3SDH4-75	DC75V ±20%	≦500V	≦600V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	4	7.2	
3SDH4-90	DC90V ±20%	≦500V	≦600V	—	≧10,000	≦1	DC52V, 260Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	4	7.2	
3SDH4-145	DC145V ±20%	≦500V	≦600V	—	≧10,000	≦1	DC80V, 330Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	4	7.2	
3SDH4-200	DC200V ±20%	≦500V	≦600V	—	≧10,000	≦1	DC135V, 1,300Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	4	7.2	
3SDH4-230	DC230V ±20%	≦550V	≦650V	—	≧10,000	≦1	DC135V, 1,300Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	4	7.2	
3SDH4-350	DC350V ±20%	≦650V	≦750V	—	≧10,000	≦1	DC135V, 1,300Ω, ≦150ms	—	5kA×2	—	—	5A×2 1s	—	10/1,000μs 100A×2 300times	-40~90	4	7.2	

Q&A about GDT

Q1 What is Follow Current?

A1 Follow current is a phenomenon in which, after a GDT discharges due to a surge, the discharge continues even though it should normally stop. Instead, current supplied from the power source or the circuit continues to flow through the GDT.
When follow current occurs, it can cause abnormal heating, which may lead to component damage or burning. In addition, the circuit may remain short-circuited, resulting in issues such as fuse blowout. For these reasons, GDTs cannot be used alone on power lines or in environments where large amounts of current are available.

Q2 Can Follow Current Be Prevented?

A2 Follow current can be prevented by connecting a varistor or resistor in series with the GDT. Our AV/AV3P series are protection devices in which a varistor and a GDT are connected in series.

Q3 Service Life

A3 In general, we recommend replacing GDTs after 10 years of installation. However, the actual service life may vary depending on the magnitude and frequency of lightning surges and the operating environment. Therefore, periodic inspection of insulation resistance or DC sparkover voltage is recommended.

Q4 Is It Safe to Use a Spare GDT That Has Been Stored for Several Years?

A4 As long as the product has not been stored in high-temperature or high-humidity conditions, and there is no change in the DC sparkover voltage or insulation resistance, it can be used as is. Please note, however, that our warranty period is one year from the date of delivery, so the product will be outside the warranty when used.

Q5 Failure Modes

A5 The most common failure mode of a GDT is short-mode failure, typically caused by internal electrode welding after excessive surge stress.
In rare cases where the surge energy far exceeds the design limits, the ceramic insulator may break due to excessive internal pressure, resulting in an open-circuit failure, although this failure mode is uncommon.

Q6 How Can Deterioration Be Determined?

A6 Deterioration can be suspected if measurements taken with an arrester tester (PD-2N) show that the DC sparkover voltage or insulation resistance is outside the specified range. In addition, if there are obvious external abnormalities such as burn marks from surge events, the GDT may be deteriorated and replacement is recommended.

Q7 What Is a Fail-safe Mechanism?

A7 A fail-safe mechanism is a protective structure designed to ensure that equipment is kept in a safe condition even if the GDT enters an abnormal state. Under normal conditions, a GDT remains insulating and discharges only when a surge occurs. However, in rare cases, excessive surges or overloads can cause the internal structure to short-circuit. The fail-safe mechanism is designed to intentionally provide a controlled bypass path for current in such abnormal situations, thereby preventing further equipment damage or fire risk. (This feature is implemented in our 3H/3J series GDTs.)

Q8 What Is the Guideline for Selecting the DC Sparkover Voltage of a GDT?

A8 A GDT should be selected with sufficient voltage margin so that it does not affect the circuit during normal operation. In general, the following guidelines are used:

1. **Select a DC sparkover voltage approximately 1.5 to 2 times higher than the circuit's maximum operating voltage.**
   This ensures an adequate margin to prevent false operation (unwanted discharge) during normal voltage conditions.
2. **For signal lines such as communication circuits, select a voltage sufficiently higher than the signal voltage.**
   The sparkover voltage should be chosen to avoid interfering with normal communication levels defined by the relevant communication standard.

Typical examples include:

- For a DC operating voltage of **12 V → 75–90 V class**
- For a DC operating voltage of **24 V → 90–150 V class**
- For telephone and communication lines **→ 230 V class**

These values are commonly used, but the optimal voltage depends on the circuit specifications and the overall protection design. If you have any questions, please contact your local representative.

SANKŌSHA Our Strength

Quality

ISO 9001

Sankosha is the proud recipient of ISO-9001 Certification and controls the quality of all its products according to strictly established ISO-9001 standards.

ISO 14001

Sankosha is also the proud recipient of ISO-14001 Certification and controls the quality of all its products according to strictly established ISO-14001 standards.

RoHS Compliant

This product does not contain more than specified provisions for substances subject to regulation (10 substances) in the EU RoHS Directive (*), except for exemptions.
10 substances: Lead, Mercury, Cadmium, Hexavalent Chromium, PBB, PBDE, DEHP, BBP, DBP, DIBP.
* European Parliament / Council Directive 2011/65 / EU, (EU) 2015/863

100% Inspection

The DC Sparkover Voltage, Insulation Resistance and external dimension characteristics of all Sankosha arresters (100% sampling) are tested during the production process. Other performance characteristics are checked with appropriate sampling procedures.

AQL Sampling

The scope of Sankosha's sampling inspections and the maximum admissible number of defects are based on the Single Sampling Plan for General Inspection - Level-I and the Normal Inspection Procedures as defined by ISO 2859. The AQL at delivery is 0.65 for the DC Sparkover Voltage and Insulation Resistance characteristics of our arresters.

Warranty

Sankosha warrants its products for a period of one year after installation or fifteen months after shipment from the factory, whichever comes first. If defective product claims are found to be justifiable, replacement products meeting the applicable specification will be provided.

Radioactive Material Free

Sankosha's products contain no radioactive material. Other safer measures have been implimented to elminate the "dark effect" that found in gas discharge tubes that used to be corrected by using radioactive materials.

Packaging

Sankosha's arresters are normally packed 100 pieces in a plastic tray, 10 trays (1,000 pieces) to a standard box. Many are also available in tape and reel form. However, plastic bags may be substituted for plastic trays without prior notice.

Variety of line-ups

Sankosha's GDTs support the safety of communications, power, and electronic equipment worldwide, thanks to their high surge resistance, low static electricity, and highly reliable operation. Based on many years of experience, we have a wide product lineup that meets a variety of specifications and customer requirements, providing optimal solutions for a variety of markets and environments.

Customization Options

We offer customization options to meet your specific requirements.

Fail-Safe Device

A fail-safe (backup short-circuit mechanism) can be added to your selected GDT model.

Combined Products (IsoMOV)

We can develop customized products that combine GDTs and MOVs.

Lead Line

The length and thickness of the lead lines can be adjusted. Custom lead forming is also available upon request.