

Ultra-High Voltage Ceramic Capacitors

Conformity to RoHS Directive

TSF Series (Non-insulated And Molded Type with Metal Terminals)

TSF Series are applicable to Gas Switch Gear.

RATED VOLTAGE Eac : 8kV 10kV 20kV

FEATURES

- Small size.
- Strong in the impulse voltage.
- Low dissipation factor.
- Excellent voltage-capacitance characteristics.
- High capacitance and low temperature characteristics of capacitance.



TSF Series

APPLICATIONS

High voltage surge absorber, gas circuit breaker in electric power transmitter and receiver devices, lightening arresters. Improve the voltage distribution of high voltage bushings, etc. Also for voltage distribution elements for the high voltage measuring devices. For impedance adjustment of a transformers and high voltage AC circuits.

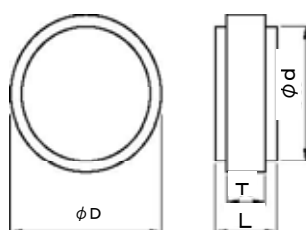
It is possible to use it in the SF₆ gas.



GAS switch gear (GCB/GIS)

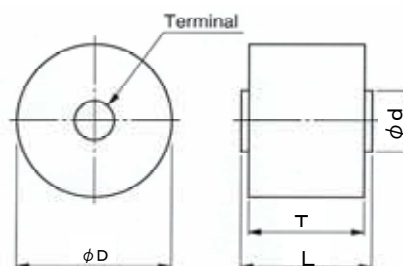
SHAPES AND DIMENSIONS Non-insulated Type

GA-14/H-11



SHAPES AND DIMENSIONS Molded Type

TSF-40C/TSF-301



molded with epoxide resin; alumina filler.

INITIAL CHARACTERISTICS

Type	NON-INSULATED TYPE	MOLDED TYPE
Operating temperature range	−30 to +85°C	−30 to +85°C
Rated voltage	AC. 10kV, 8kV	AC. 20kV
Insulation resistance	100,000MΩ min.	100,000MΩ min.
capacitance	1,700pF 2,900pF	400pF, 1,080pF
Capacitance tolerance	±10%	±10%
Dissipation factor(tanδ)	0.2% max.	0.2% max.
Capacitance temperature characteristics	Z5T: +22, −33%[+10 to +85°C, 25°C]	Z5T: +22, −33%[+10 to +85°C, 25°C]
AC Corona starting voltage	3PC* max. at AC.10kV, 8kV (50Hz rms)	3PC* max. at AC25kV (50Hz rms)
Withstanding voltage	AC. 20kV, 16kV, 60s (in Insulating liquid)	AC42kV, 60s (in Insulating liquid)

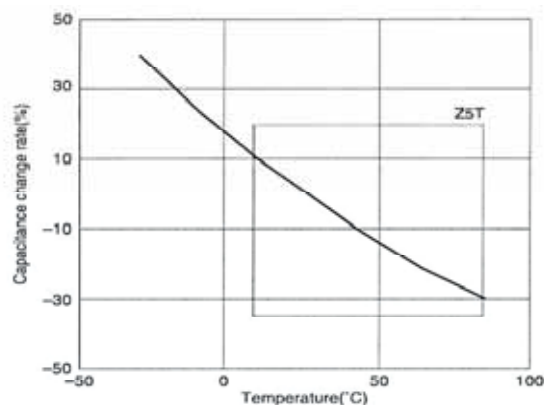
*PC: Pico coulomb

CAPACITANCE/ELECTRICAL CHARACTERISTICS / DIMENSIONS

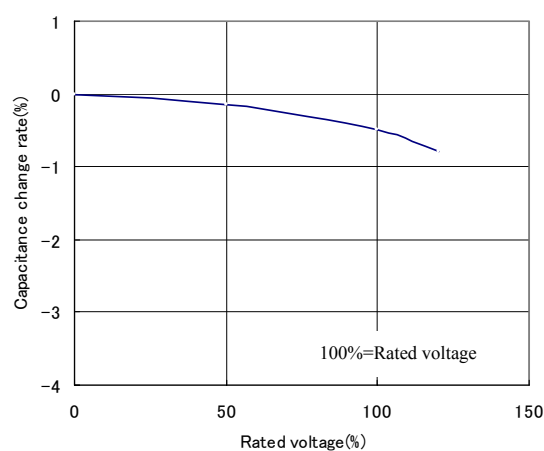
Type	Rated voltage	Capacitance (pF) $\pm 10\%$	Withstan dvoltage Erms(kV)	Insulation resistance (M Ω)/min.	AC corona starting Voltage Erms(kV) min. [3PC*]	Dimensions (mm)			
						ϕ D	T	L	ϕ d
GA-14	AC.10kV	1,700	20	100,000	10	40	10	16	35
H-11	AC. 8kV	2,900	16	100,000	8	40	8	11	35
TSF-40C	AC.20kV	1,080	42	100,000	25	40	29	33	15
TSF-301	AC.20kV	400	42	100,000	25	30	29	33	10

TYPICAL CAPACITANCE CHARACTERISTICS

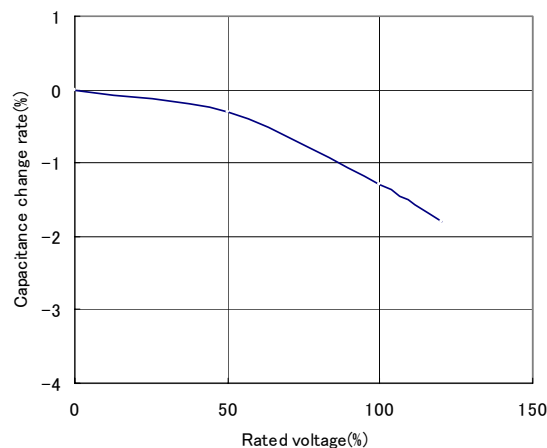
CAPACITANCE vs. TEMPERATURE CHARACTERISTICS



CAPACITANCE vs. AC VOLTAGE CHARACTERISTICS GA-14 /H-11



TSF-40C /TSF-301



PRECAUTIONS

(1) During transportation and storage

- Do not transport or store where the capacitor will be exposed to high temperature or high humidity.
- Do not expose to poisonous gases such as H₂SO₄, HCl, or HNO₃.
- Avoid excessive impact such as that caused by falling.

(2) During operation

- Avoid contact with electrolytes such as perspiration. Do not touch with bare hands.
- Avoid excessive impact such as that caused by falling.
- Do not apply solder to stud terminals.
- Do not re-machine the terminals.

(3) Usage

- Make sure that the capacitor is not exposed to radiant heat from chambers or transformers.

- For more information about the products of other capacitance or data, please contact us.

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.