



Features

- Fast impulse breakdown ($\leq 120\%$ of typical DC breakdown to $200\text{kV}/\mu\text{s}$)
- Tight DC breakdown voltage tolerance ($\pm 10\%$)
- Non-radioactive
- Low capacitance

Applications

- Antenna feedlines
- Test equipment
- Video displays
- Medical electronics
- Instrumentation circuits

Description

High Energy Devices' Uni-Imps high-speed transient surge protectors (0.55-20kV) provide the ultimate protection from high-energy, fast-rising transients such as Nuclear EMP. These devices are constructed using a proprietary semiconductor junction process that results in nanosecond response times combined with peak current ratings in the 5-10kA range. A unique benefit of this technology is that the breakdown voltage is virtually independent of the rise time of the transient. In addition, the low capacitance of these devices allows for direct placement on high-frequency lines and antenna feeds without excessive loading.

Standard Voltages

Series	DC Breakdown Voltage (Nom)	Unit
UBD	550	V
	600	V
	650	V
	750	V
	850	V
	1.0	kV
	1.2	kV
	1.5	kV
	2.0	kV
	2.5	kV
	3.0	kV
UBT and UGT	4.0	kV
	5.0	kV
	6.0	kV
	7.5	kV
	10.0	kV
	12.0	kV
	15.0	kV
	20.0	kV

Devices in the UBD/UBT/UGT Series with other breakdown voltages in the .55-20kV range are available upon request.

Ordering Information

A complete part number is represented by the digits below. Breakdown voltages are expressed in Volts for devices $< 1000\text{V}$ and kV for devices $\geq 1\text{kV}$. For example, UBD550 is a 550V UBD series device, UBT7.5 is a 7.5kV UBT series device and UGT10.0 is a 10kV UGT series device.

Product Series / Part Number	Breakdown Voltage
UBDXXX	550-950V
UBDX.X	1.0-4.0kV
UBTX.X	4.0-9.0kV
UBTXX.X	10.0-20.0kV
UGTX.X	4.0-9.0kV
UGTXX.X	10.0-20.0kV

All Uni-Imps are available with .360 O.D. endcaps. UBDs are available with a threaded male termination (#8-32) on one end while UGTs are also available with .250 O.D. endcaps.

Specifications (@25°C)

Parameter	Conditions	Symbol	UBD550			UBD600			UBD650			Units
			Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
Device Specifications												
DC Breakdown	100V/s	V_{BD}	495	550	605	540	600	660	585	650	715	V
Impulse Breakdown	5kV/ μ s	V_{bd}	-	-	660	-	-	720	-	-	780	V
Insulation Resistance	100V	IR	-	10^{10}	-	-	10^{10}	-	-	10^{10}	-	Ω
Capacitance	1MHz	C	-	-	20.0	-	-	20.0	-	-	20.0	pF
Life Ratings												
Surge Life	3kA (PW=15 μ s)	-	330	-	-	420	-	-	500	-	-	surges

Specifications (@25°C)

Parameter	Conditions	Symbol	UBD750			UBD850			UBD1.0			Units
			Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
Device Specifications												
DC Breakdown	100V/s	V_{BD}	675	750	825	765	850	935	900	1000	1100	V
Impulse Breakdown	5kV/ μ s	V_{bd}	-	-	900	-	-	1020	-	-	1200	V
Insulation Resistance	100V	IR	-	10^{10}	-	-	10^{10}	-	-	10^{10}	-	Ω
Capacitance	1MHz	C	-	-	20.0	-	-	20.0	-	-	15.0	pF
Life Ratings												
Surge Life	3kA (PW=15 μ s)	-	660	-	-	830	-	-	1,080	-	-	surges

Specifications (@25°C)

Parameter	Conditions	Symbol	UBD1.2			UBD1.5			UBD2.0			Units
			Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
Device Specifications												
DC Breakdown	100V/s	V_{BD}	1.08	1.20	1.32	1.35	1.50	1.65	1.80	2.00	2.20	kV
Impulse Breakdown	5kV/ μ s	V_{bd}	-	-	1.44	-	-	1.80	-	-	2.40	kV
Insulation Resistance	100V	IR	-	10^{10}	-	-	10^{10}	-	-	10^{10}	-	Ω
Capacitance	1MHz	C	-	-	15.0	-	-	15.0	-	-	10.0	pF
Life Ratings												
Surge Life	3kA (PW=15 μ s)	-	1,410	-	-	1,900	-	-	2,400	-	-	surges

Specifications (@25°C)

Parameter	Conditions	Symbol	UBD2.5			UBD3.0			UBD4.0			Units
			Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
Device Specifications												
DC Breakdown	100V/s	V_{BD}	2.25	2.50	2.75	2.70	3.00	3.30	3.60	4.00	4.40	kV
Impulse Breakdown	5kV/ μ s	V_{bd}	-	-	3.00	-	-	3.60	-	-	4.80	kV
Insulation Resistance	100V	IR	-	10^{10}	-	-	10^{10}	-	-	10^{10}	-	Ω
Capacitance	1MHz	C	-	-	10.0	-	-	5.0	-	-	5.0	pF
Life Ratings												
Surge Life	3kA (PW=15 μ s)	-	2,400	-	-	2,400	-	-	2,400	-	-	surges

Specifications (@25°C)

Parameter	Conditions	Symbol	UBT4.0 UGT4.0			UBT5.0 UGT5.0			UBT6.0 UGT6.0			Units
			Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
Device Specifications												
DC Breakdown	100V/s	V_{BD}	3.60	4.00	4.40	4.50	5.00	5.50	5.40	6.00	6.60	kV
Impulse Breakdown	5kV/ μ s	V_{bd}	-	-	4.80	-	-	6.00	-	-	7.20	kV
Insulation Resistance	100V	IR	-	10^{10}	-	-	10^{10}	-	-	10^{10}	-	Ω
Capacitance	1MHz	C	-	-	5.0	-	-	3.0	-	-	3.0	pF
Life Ratings												
Surge Life	10kA (PW=15 μ s)	-	1,300	-	-	1,300	-	-	1,300	-	-	surges

Specifications (@25°C)

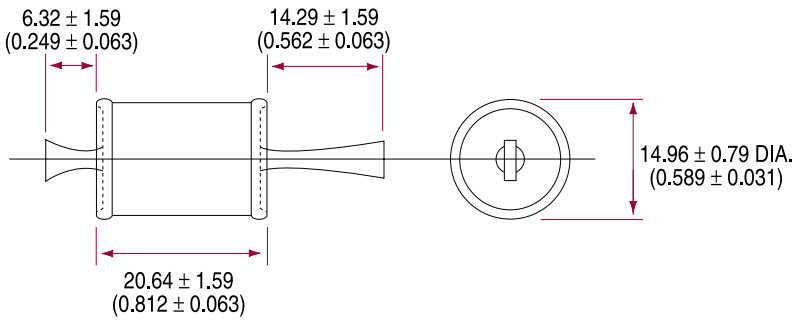
Parameter	Conditions	Symbol	UBT7.5 UGT7.5			UBT10.0 UGT10.0			UBT12.0 UGT12.0			Units
			Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
Device Specifications												
DC Breakdown	100V/s	V_{BD}	6.75	7.50	8.25	9.00	10.00	11.00	10.80	12.00	13.20	kV
Impulse Breakdown	5kV/ μ s	V_{bd}	-	-	9.00	-	-	12.00	-	-	14.40	kV
Insulation Resistance	100V	IR	-	10^{10}	-	-	10^{10}	-	-	10^{10}	-	Ω
Capacitance	1MHz	C	-	-	2.0	-	-	2.0	-	-	2.0	pF
Life Ratings												
Surge Life	10kA (PW=15 μ s)	-	1,300	-	-	1,300	-	-	1,300	-	-	surges

Specifications (@25°C)

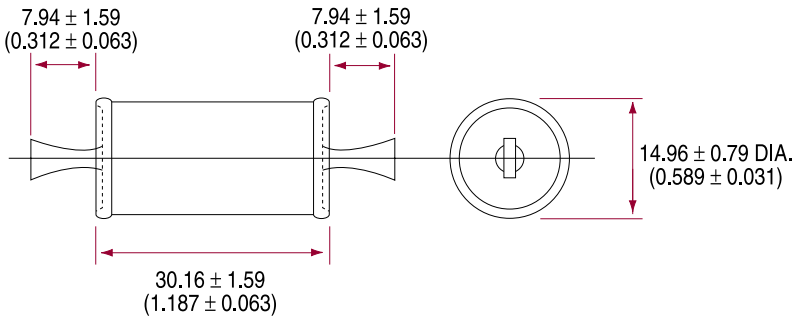
Parameter	Conditions	Symbol	UBT15.0 UGT15.0			UBT20.0 UGT20.0			Units
			Min	Nom	Max	Min	Nom	Max	
Device Specifications									
DC Breakdown	100V/s	V_{BD}	13.5	15.0	16.5	18.0	20.0	22.0	kV
Impulse Breakdown	5kV/ μ s	V_{bd}	-	-	18.0	-	-	24.0	kV
Insulation Resistance	100V	IR	-	10^{10}	-	-	10^{10}	-	Ω
Capacitance	1MHz	C	-	-	2.0	-	-	2.0	pF
Life Ratings									
Surge Life	10kA (PW=15 μ s)	-	1,300	-	-	1,300	-	-	surges

MECHANICAL DIMENSIONS
mm/(inches)

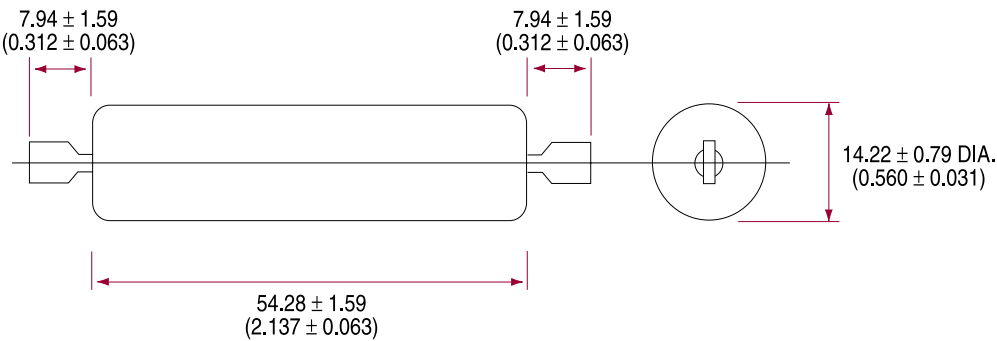
UBD Series



UBT Series



UGT Series



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Specification: UBD/UBT/UGT Series
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