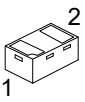
ESD PROTECTION DIODE



X1DFN1006-2

■ DESCRIPTION

The UTC **UESD1V8N1U01** is a design which includes one unidirectional surge rated clamping cell to protect one power line, or one control line, or one low speed data line in an electronic system. The UTC **UESD1V8N1U01** has been specifically designed to protect sensitive components which are connected to power and control lines from over-voltage damage caused by Electrostatic Discharging (ESD), Electrical Fast Transients (EFT), Lightning, and Cable Discharge Event (CDE).

The UTC **UESD1V8N1U01** is a unique design which includes proprietary clamping cell in a single package.

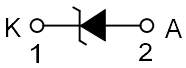
During transient conditions, the proprietary clamping cell prevents over-voltage on the power line or control/data lines, protecting any downstream components.

The UTC **UESD1V8N1U01** may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (±15kV air, ±8kV contact discharge).

■ FEATURES

* ESD Protection for 1 line with Unidirectional
* Provide ESD protection for the protected line to
  IEC 61000-4-2 (ESD) ±30kV (air/contact)
  IEC 61000-4-4 (EFT) 80A (5/50ns)
  IEC 61000-4-5 (Lightning) 15A (8/20ms)
* For low operating voltage applications: 1.8V
* Protect one I/O line or power line
* Fast turn-on and low clamping voltage
* Solid-state silicon-avalanche and active circuit triggering technology
* Green & Pb Free

■ SYMBOL



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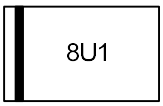
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment		Packing
		1	2	
UESD1V8N1U01G-KAA-R	X1DFN1006-2	K	A	Tape Reel

Note: Pin Assignment: K: Cathode

UESD1V8N1U01G-KAA-R (1)Packing Type (2)Package Type (3)Green Package	 (1) R: Tape Reel (2) KAA: X1DFN1006-2 (3) G: Halogen Free and Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
ESD Discharge	IEC61000-4-2	Air Discharge	V_{ESD}	±30	kV
		Contact Discharge		±30	kV
Peak Pulse Current	IEC61000-4-5	t_p=8/20μs	I_{PP}	40	A
Peak Pulse Power			P_{PK}	500	W
Operating Junction Temperature			T_J	-55 ~ +150	°C
Operating Temperature			T_{OPR}	-55 ~ +125	°C
Storage Temperature			T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

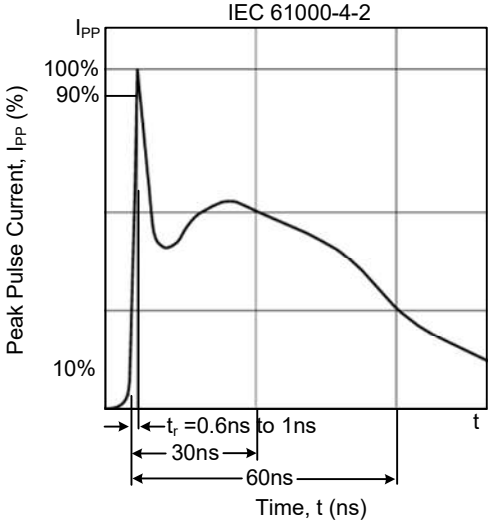
■ ELECTRICAL CHARACTERISTICS (T_A = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse Stand-Off Voltage	V_{RWM}				1.8	V
Reverse Breakdown Voltage	V_{BR}	I_R=1mA	2.2			V
Reverse Current	I_R	V_R=1.8V			0.5	μA
Forward Voltage	V_F	I_F=200mA	0.6		1.2	V
Diode capacitance	C_d	V_R=0V, f=1MHz		120		pF
Surge Clamping Voltage(Note 3)	V_{CL}	I_{PP}=40A, t_P=8/20μs			12.5	V
Dynamic Resistance (Note 1)	R_{DYN}			0.1		Ω

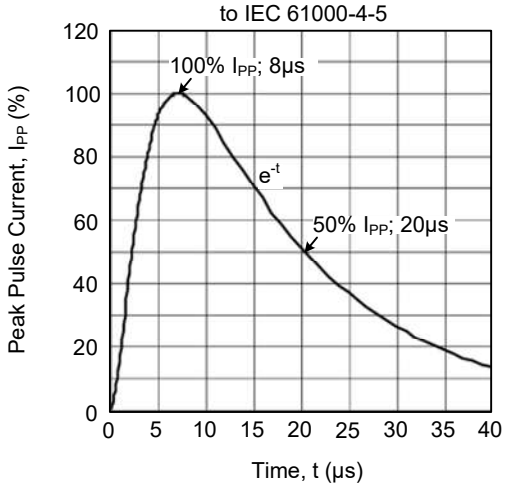
Notes: 1. TLP Parameter: Z_0=50Ω, t_p=100ns, t_r=2ns, Averaging Window from 60ns to 80ns. R_{DYN} is Calculated from 4A to 16A.
2. Contact Discharge Mode, According to IEC61000-4-2.
3. Non-repetitive Current Pulse, According to IEC61000-4-5.

■ TYPICAL CHARACTERISTICS

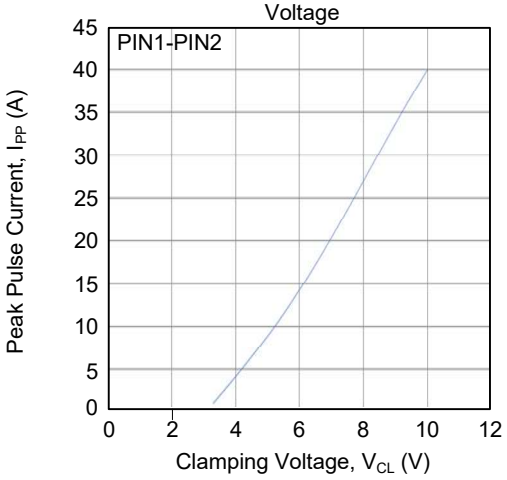
ESD pulse waveform according to IEC 61000-4-2



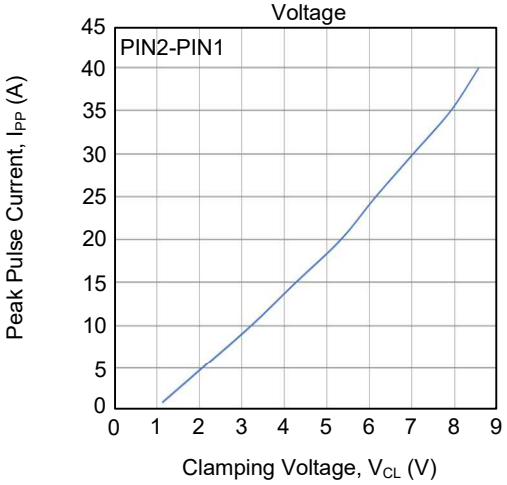
8/20 μs pulse waveform according to IEC 61000-4-5



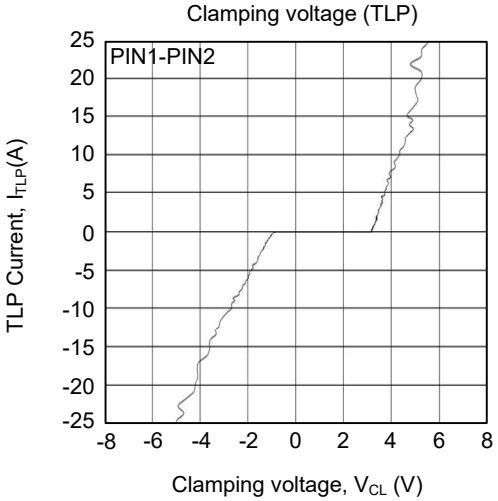
Peak Pulse Current vs. Clamping Voltage



Peak Pulse Current vs. Clamping Voltage



Clamping voltage (TLP)



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