



## UESD5V0U1B02

Preliminary

TVS

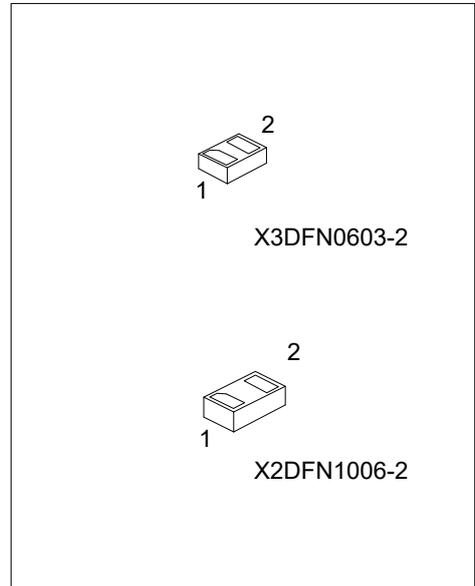
### ULTRA LOW CAPACITANCE TVS DIODE

#### DESCRIPTION

The UTC **UESD5V0U1B02** is ElectroStatic Discharge (ESD) protection diode in leadless ultra small Surface-Mounted Device (SMD) plastic package designed to protect one signal line from the damage caused by ESD and other transients.

#### FEATURES

- \* Bi-directional configurations
- \* 27Watts peak pulse power ( $t_p = 8/20\mu s$ )
- \* Solid-state silicon-avalanche technology
- \* Capacitance: 0.3pF typical
- \* Low clamping voltage
- \* Low leakage current
- \* Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 20KV$
    - Contact discharge:  $\pm 15KV$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 7A (8/20 $\mu s$ )



#### SYMBOL



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment		Packing
Lead Free	Halogen Free		1	2	
UESD5V0U1B02L-KAQ-R	UESD5V0U1B02G-KAQ-R	X3DFN0603-2	K	K	Tape Reel
UESD5V0U1B02L-KAZ-R	UESD5V0U1B02G-KAZ-R	X2DFN1006-2	K	K	Tape Reel

Note: Pin Assignment: K: Cathode

<p>UESD5V0U1B01G-KAQ-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) KAZ: X2DFN1006-2, KAZ: X2DFN1006-2 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING

X3DFN0603-2	X2DFN1006-2

■ ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT	
ESD Discharge	IEC61000-4-2	Air Discharge	$\pm 20$	kV	
		Contact Discharge	$\pm 15$	kV	
Peak Pulse Current	IEC61000-4-5	$t_p=8/20\mu\text{s}$	$I_{PP}$	7	A
Peak Pulse Power			$P_{PK}$	27	W
Operating Junction Temperature		$T_J$	-55 ~ +125	$^\circ\text{C}$	
Storage Temperature		$T_{STG}$	-55 ~ +150	$^\circ\text{C}$	

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 ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse Stand-Off Voltage	$V_{RWM}$				5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=0.1\text{mA}$	6	9.5		V
Reverse Current	$I_R$	$V_R=5\text{V}$			0.1	$\mu\text{A}$
ESD Dynamic Turn-on Resistance	$R_{dyn}$	IEC61000-4-2 0 ~ +8kV, Contact mode, $T_A=25^\circ\text{C}$		0.12		$\Omega$
Clamping Voltage	$V_{CL}$	$I_{PPM}=1.0\text{A}$ , $t_p=8/20\mu\text{s}$		1.7		V
		$I_{PPM}=7.0\text{A}$ , $t_p=8/20\mu\text{s}$		3.1	3.8	V
Junction Capacitance	$C_J$	$V_{DC}=2.5\text{V}$ , $f=1\text{MHz}$		0.3		pF

Note: The strong snap-back to a low holding voltage move into latch-up mode by an ESD event. When designing the Printed-Circuit Board (PCB), give careful consideration to impedance matching and signal coupling. Do not connect the data lines to unlimited DC current sources like, for example, a battery, to avoid the device is "locked" in conducting mode.

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