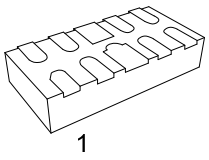
UESD5V0U4U01

ESD / TVS

ULTRA LOW CAPACITANCE ESD PROTECTION ARRAY FOR HIGH SPEED I/O PORT



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X1DFN2510-10

■ DESCRIPTION

The UTC **UESD5V0U4U01** is a design which includes ESD rated diode arrays to protect high speed data interfaces. The AZ1045-04F has been

specifically designed to protect sensitive components which are connected to data and transmission lines from over-voltage caused by Electrostatic Discharging (ESD).

The UTC **UESD5V0U4U01** is a unique design which includes ESD rated, ultra low capacitance steering diodes and a unique design of clamping cell which is an equivalent TVS diode in a single package. During transient conditions, the steering diodes direct the transient to either the internal ESD line or to ground line. The internal unique design of clamping cell prevents over-voltage on the internal ESD line and on the I/O line, which is protecting any downstream components.

The UTC **UESD5V0U4U01** may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (±15kV air, ±8kV contact discharge).

■ FEATURES

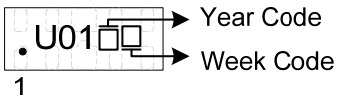
* Unidirectional device
* ESD Protect for Transition Minimized Differential Signaling (TMDS) channels
* Protects four I/O lines
* Provide ESD protection for each line to
  IEC 61000-4-2 (ESD) ±15kV (air), ±10kV (contact)
  IEC 61000-4-5 (Lightning) 5.0A (8/20μs)
* For operating voltage of 5V and below
* Ultra low capacitance : 0.55pF typical
* Fast turn-on and Low clamping voltage
* Array of ESD rated diodes with internal equivalent TVS (Transient Voltage Suppression) diode
* Simplified layout for HDMI connectors
* Solid-state silicon-avalanche and active circuit triggering technology

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UESD5V0U4U01L-KAV-R	UESD5V0U4U01G-KAV-R	X1DFN2510-10	Tape Reel

UESD5V0U4U01G-KAV-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) KAV: X1DFN2510-10 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ MARKING INFORMATION

W: Year Code

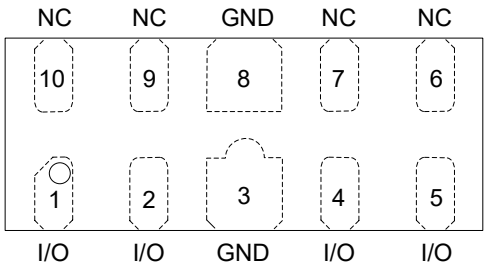
DATE	2XX0	2XX1	2XX2	2XX3	2XX4	2XX5	2XX6	2XX7	2XX8	2XX9
CODE	0	1	2	3	4	5	6	7	8	9

D: Week Code

Week	1	2	3	4	5	6	7	8	9	10	11	12
CODE	A	B	C	D	E	F	G	H	J	K	L	M
Week	13	14	15	16	17	18	19	20	21	22	23	24
CODE	N	P	Q	R	S	T	U	V	W	X	Y	Z
Week	25	26	27	28	29	30	31	32	33	34	35	36
CODE	5	6	7	8	9	A	B	C	D	E	F	G
Week	37	38	39	40	41	42	43	44	45	46	47	48
CODE	H	J	K	L	M	N	P	Q	R	S	T	U
Week	49	50	51	52	53							
CODE	V	W	X	Y	Z							

Note: Weeks 30 to 53 are marking with underlines.

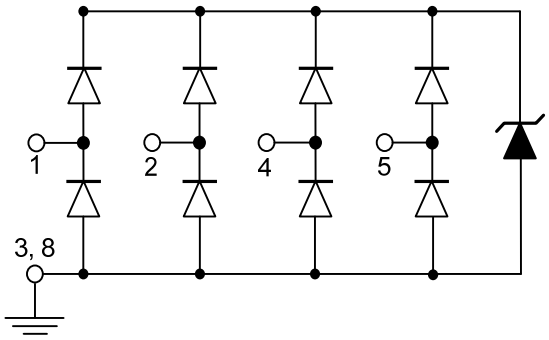
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	I/O	Terminal of ESD 1
2	I/O	Terminal of ESD 2
3, 8	GND	Ground
4	I/O	Terminal of ESD 3
5	I/O	Terminal of ESD 4

■ BLOCK DIAGRAM



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

PARAMETER			SYMBOL	RATINGS	UNIT
ESD Discharge	IEC61000-4-2	Air Discharge	V_{ESD}	±15	kV
		Contact Discharge		±12	kV
Peak Pulse Current	IEC61000-4-5	t_p=8/20μs	I_{PP}	5	A
Peak Pulse Power			P_{PP}	45	W
Operating Junction Temperature			T_J	-40 ~ +150	°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}	Pin 1, 2, 4, 5 to Pin 3, 8			5	V
Reverse Breakdown Voltage	V_{BR}	I_R=1mA, Pin 1, 2, 4, 5 to Pin 3, 8	6			V
Reverse Leakage Current	I_R	$V_{I/O}$ to GND=5V			1	μA
Forward Voltage	V_F	I_F=15mA, T_A=25°C, Pin 3, 8 to Pin 1, 2, 4, 5		0.9	1.1	V
ESD Clamping Voltage	$V_{clamping}$	IEC 61000-4-2 0 ~ +6kV Contact mode, any I/O Pin to Ground		12		V
ESD Dynamic Turn-on Resistance	$R_{dynarnic}$	IEC 61000-4-2 0 ~ +6kV Contact mode, any I/O Pin to Ground		0.3		Ω
Channel Input Capacitance	C_{IN}	$V_{Pin\ 3,\ 8}$=0V, V_{IN}=2.5V, f=1MHz, any I/O Pin to Ground		0.55	0.65	pF

■ TYPICAL CHARACTERISTICS