

### Features

- ◇ 60W (8/20 μs) Peak Pulse Power
- ◇ Low Capacitance ESD Protection
- ◇ Flow Through DFN2.5x1.0-10L Package
- ◇ RoHS Compliant
- ◇ Matte Tin Lead finish (Pb-Free)
- ◇ Protect Four High Speed Data Lines
- ◇ Meet IEC61000-4-2 Level 4:
  - Contact Discharge > 20kV
  - Air Discharge > 25kV

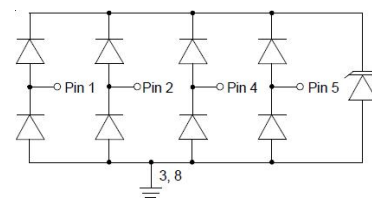
### Applications

- ◇ PCI Express
- ◇ MDDI Ports
- ◇ eSATA Interfaces
- ◇ Display Port Interface
- ◇ Digital Visual Interface (DVI)
- ◇ High Definition Multi-Media Interface (HDMI)

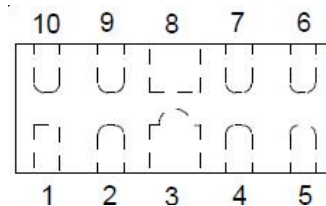
### Ordering information

Device	Package	Making
TPD4E05U06DQAR	USON-10(1X2.5)	96BRY

### Circuit Diagram



### PIN Diagram



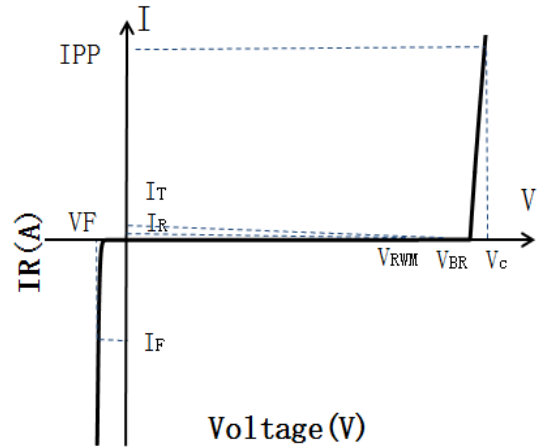
## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

Symbol	Parameter	Value	Unit
PPK	Peak Pulse Power	60	W
IPP	Peak Pulse Current	4.5	A
VESD (Contact)	Contact ESD Voltage per IEC61000-4-2	20	kV
VESD (Air)	Air ESD Voltage per IEC61000-4-2	25	kV
TJ	Junction Temperature	-55 to +125	°C
TSTG	Storage Temperature	-55 to +150	°C

# TPD4E05U06DQAR

Symbol	Parameter
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_C$

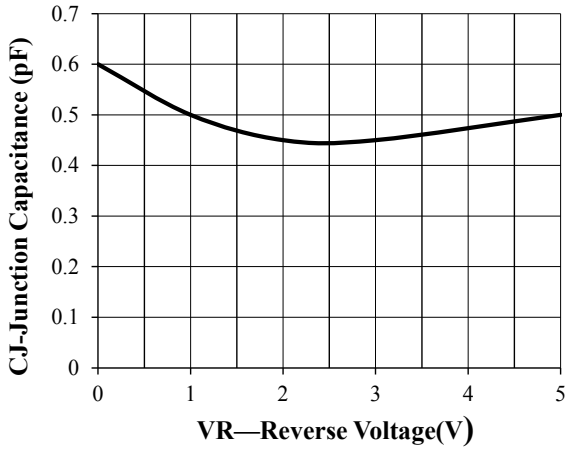
Portion Electronics Parameter



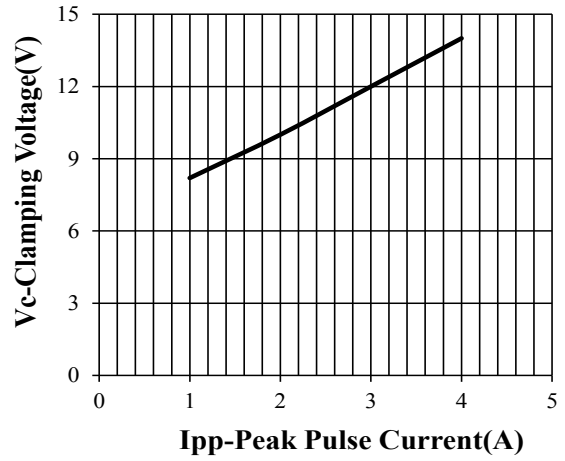
Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{RWM}$	Reverse Working Peak Voltage				5	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 1\text{mA}$	6	8	9	V
$I_R$	Reverse Leakage Current	$V_{RWM} = 5\text{V}$			1	$\mu\text{A}$
$V_C$	Clamping Voltage	$I_{PP} = 4.5\text{A}$ (8/20 $\mu\text{s}$ )			15	V
$C_J$	Capacitance	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ Between I/O pins		0.3	0.4	pF
$C_J$	Capacitance	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ Any I/O pin to ground		0.6	0.7	pF

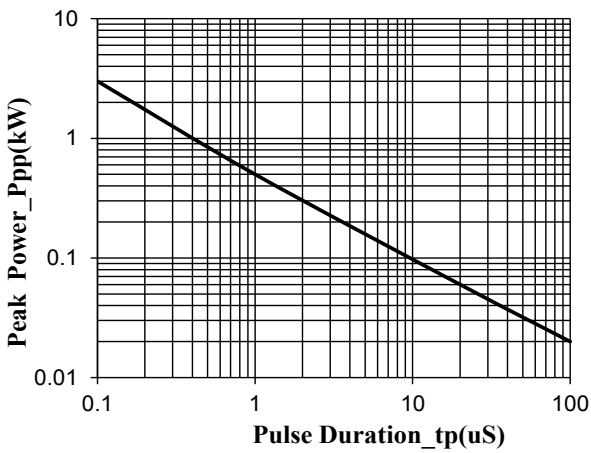
## RATING AND CHARACTERISTIC CURVES (TPD4E05U06DQAR)



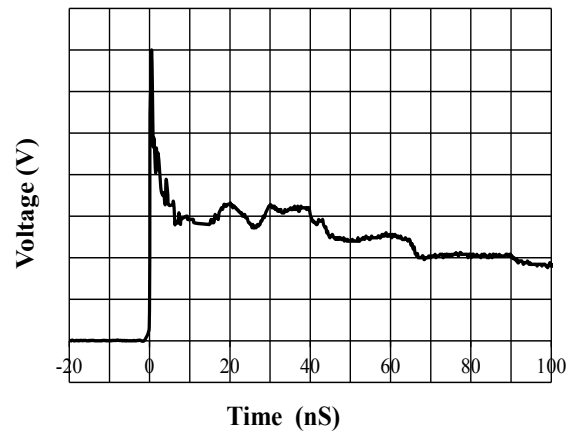
**Junction Capacitance vs. Reverse Voltage**



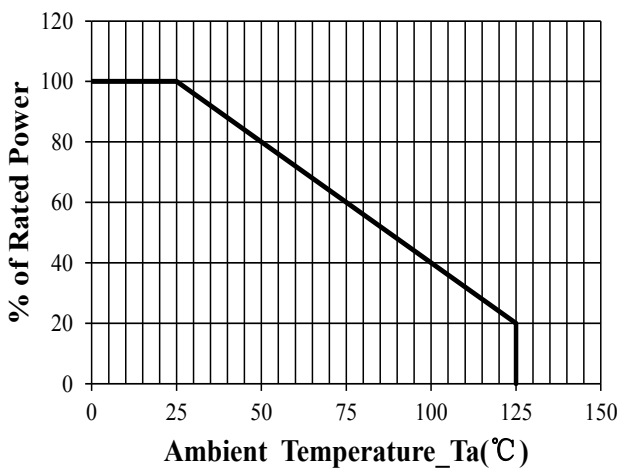
**Clamping Voltage vs. Peak Pulse Current**



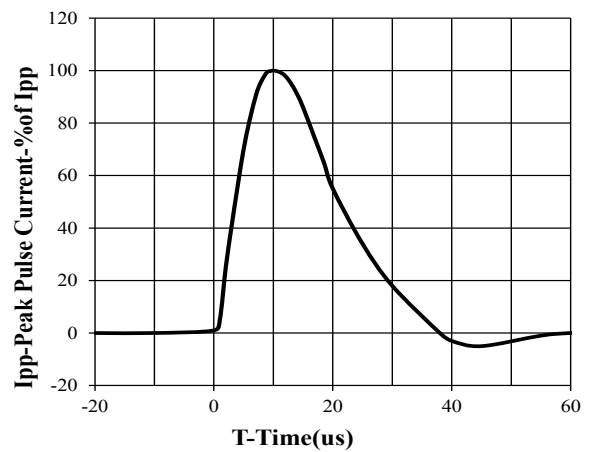
**Peak Pulse Power vs. Pulse Time**



**IEC61000-4-2 Pulse Waveform**

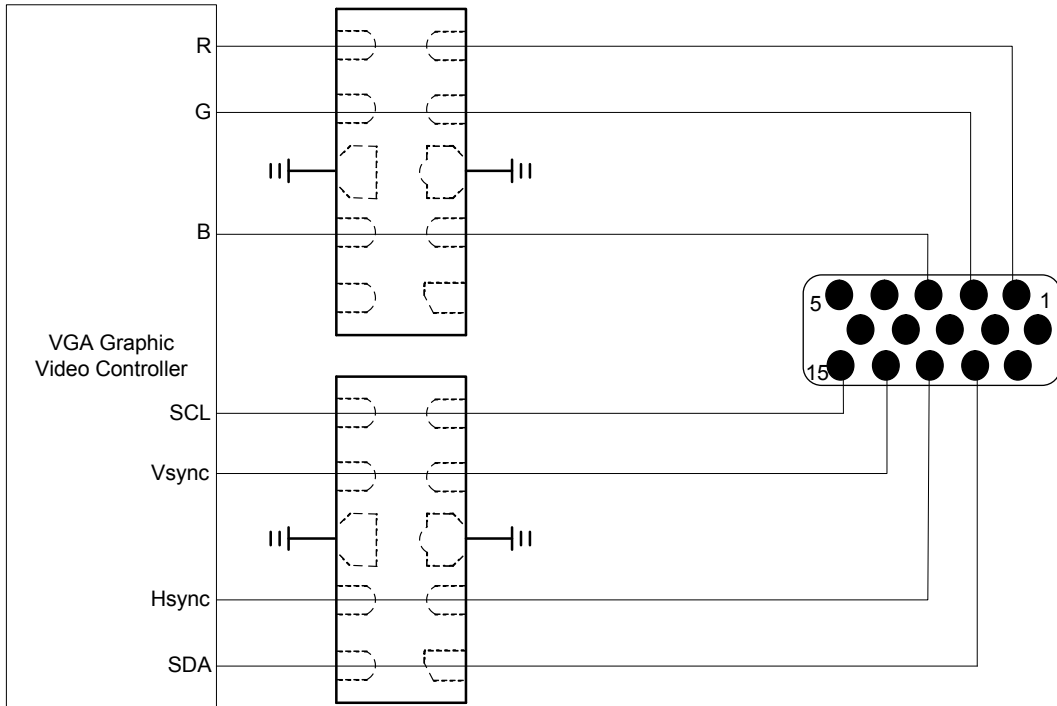


**Power Derating Curve**

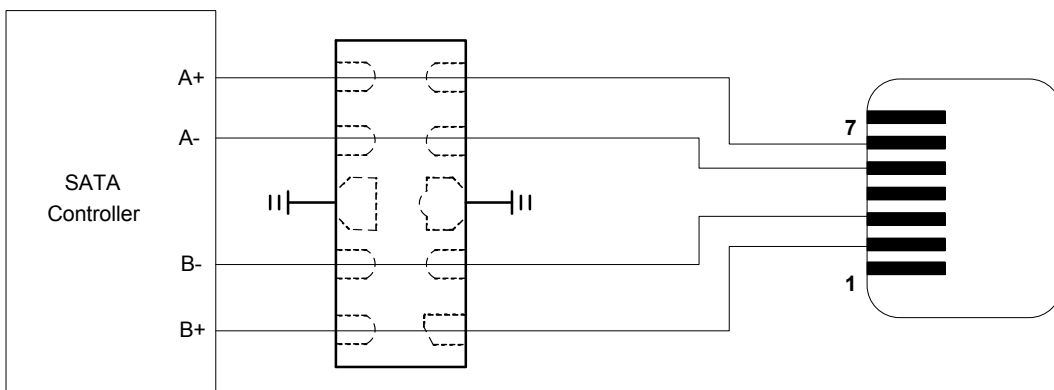


**8 X 20us Pulse Waveform**

## TPD4E05U06DQAR on VGA Port Application

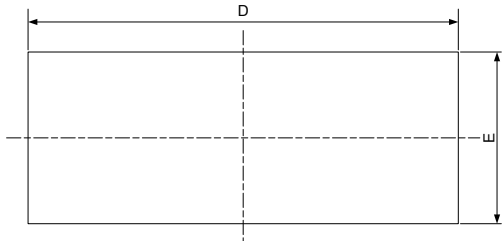


## TPD4E05U06DQAR on eSATA Port Application

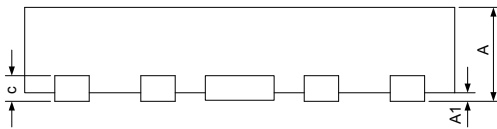




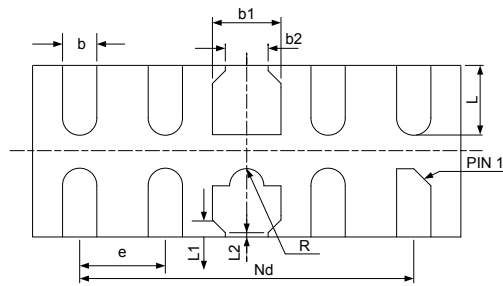
## USON-10(1X2.5) Package Outline Drawing



**TOP VIEW**



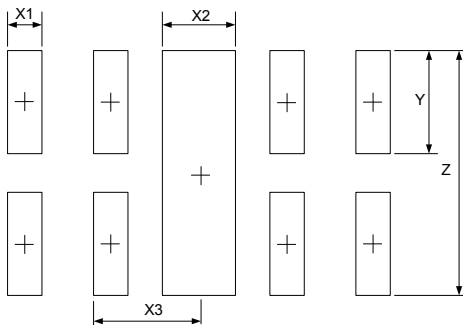
**SIDE VIEW**



**BOTTOM VIEW**

SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.15	0.20	0.25	0.006	0.008	0.010
b1	0.35	0.40	0.45	0.014	0.016	0.018
b2	0.20	0.25	0.30	0.008	0.010	0.012
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.45	2.50	2.55	0.098	0.100	0.102
e	0.50BSC			0.020BSC		
Nd	2.00BSC			0.080BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018
L1	0.075REF			0.003REF		
L2	0.050REF			0.002REF		
h	0.08	0.12	0.15	0.003	0.005	0.006
R	0.05	0.10	0.15	0.002	0.004	0.006

### Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X1	0.200	0.008
X2	0.400	0.016
X3	0.500	0.020
Y	0.600	0.024
Z	1.400	0.056

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