

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

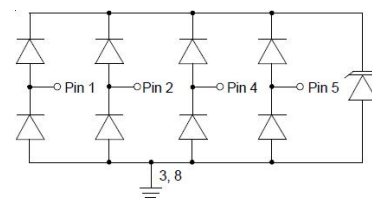
Applications

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

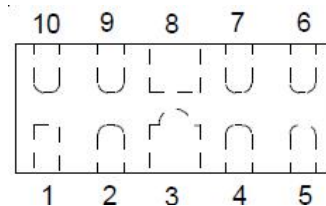
Ordering information

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

Circuit Diagram



PIN Diagram



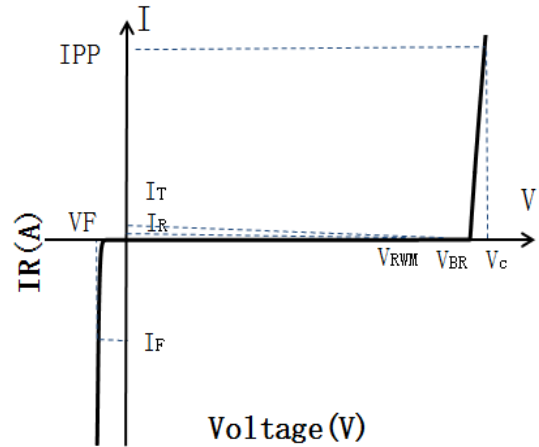
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

| 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 |

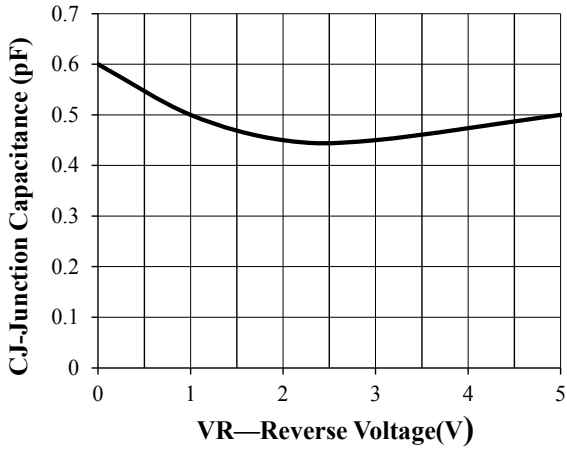
Portion Electronics Parameter



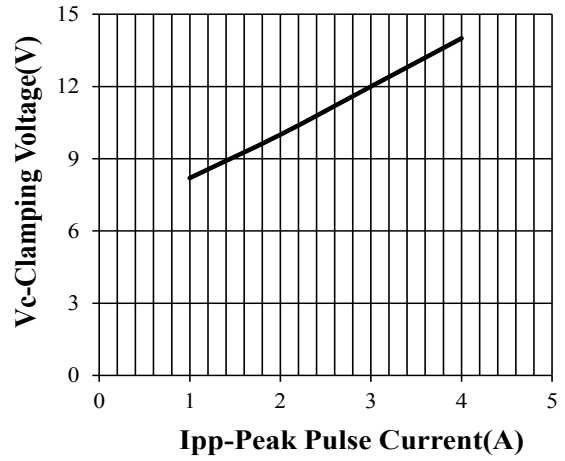
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

| 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 | μA |
| V_C | Clamping Voltage | $I_{PP} = 4.5\text{A}$ (8/20 μs) | | | 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 |

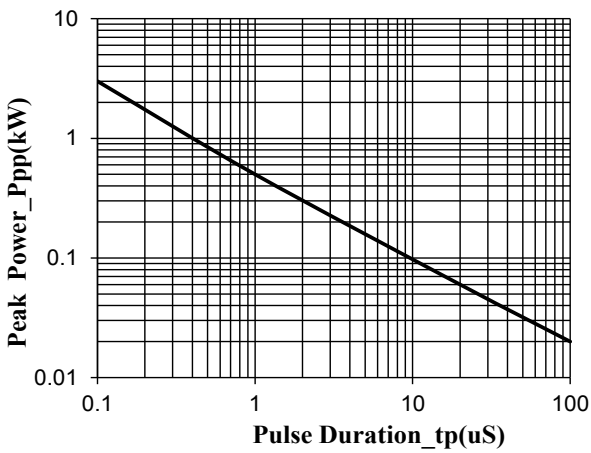
RATING AND CHARACTERISTIC CURVES (TPD4E05U06DQAR)



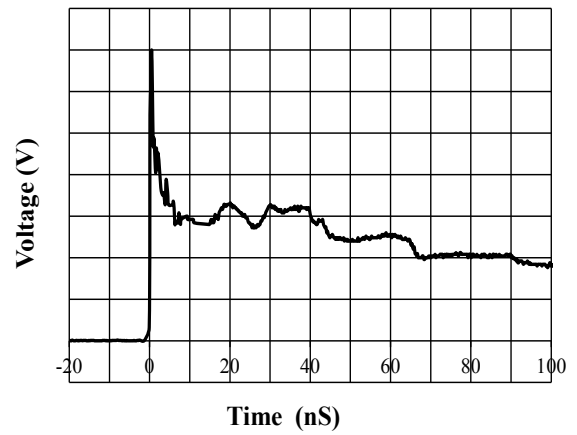
Junction Capacitance vs. Reverse Voltage



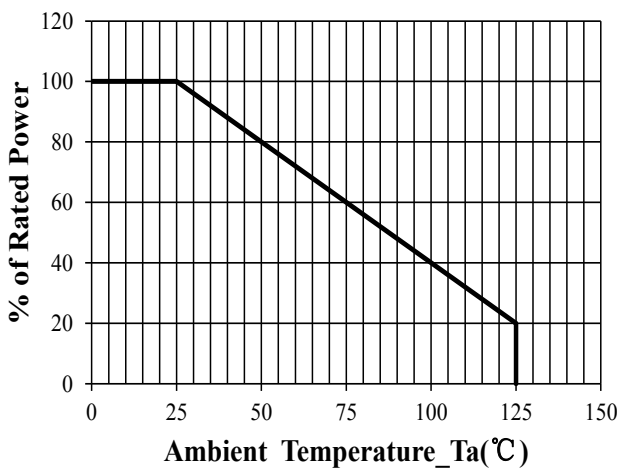
Clamping Voltage vs. Peak Pulse Current



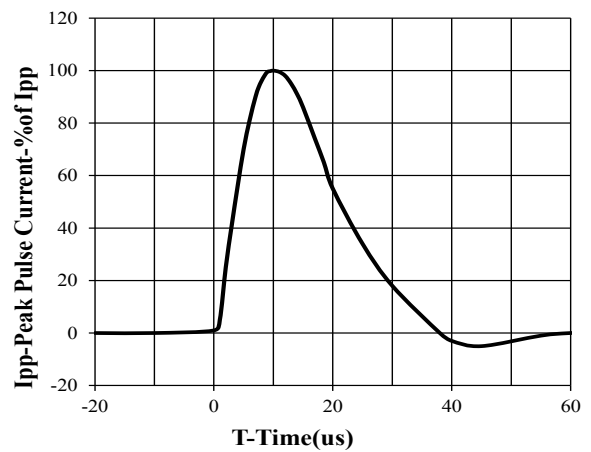
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

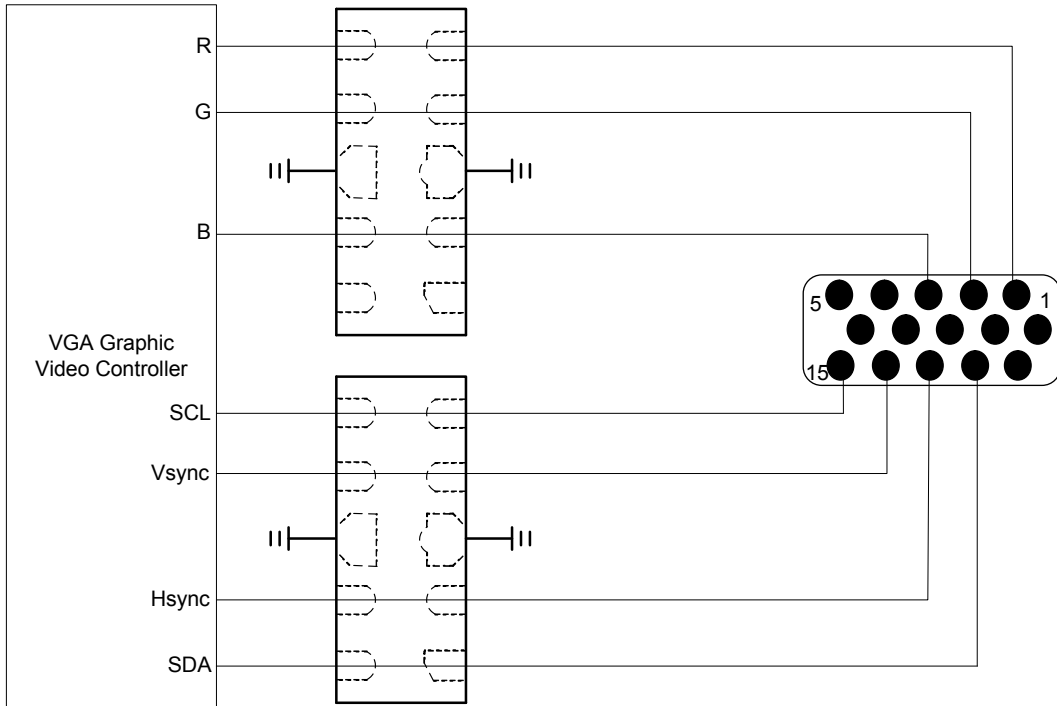


Power Derating Curve

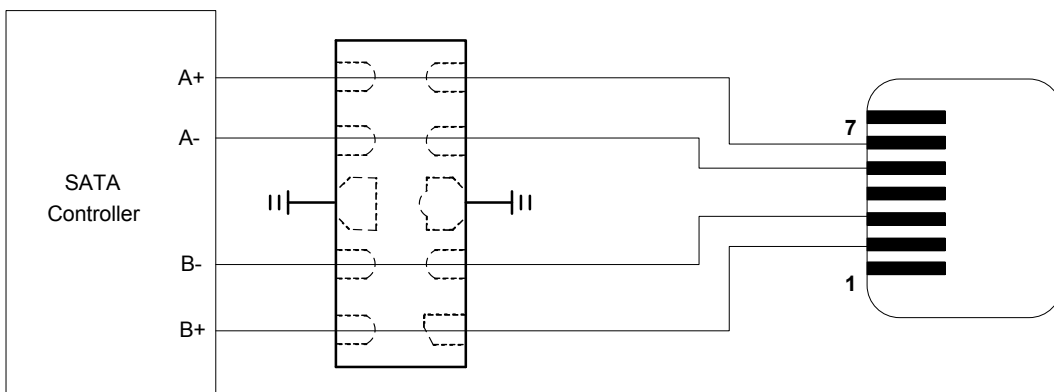


8 X 20us Pulse Waveform

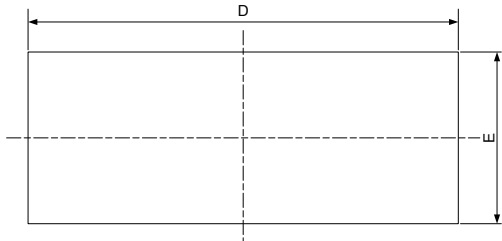
TPD4E05U06DQAR on VGA Port Application



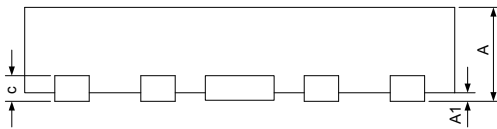
TPD4E05U06DQAR on eSATA Port Application



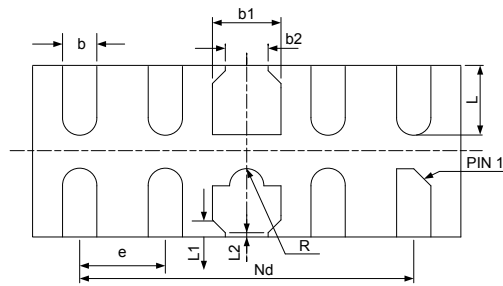
USON-10(1X2.5) Package Outline Drawing



TOP VIEW



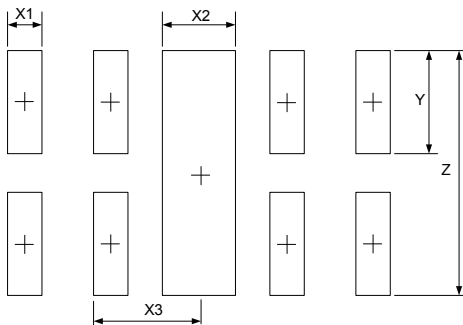
SIDE VIEW



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 |