## Marking Information

U-DFN2510-10


BE7 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: I = 2021)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2015 | … | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | C | … | I | J | K | L | M | N | O | P | R | S |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

## Maximum Ratings (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit | Conditions |
|---|---|---|---|---|
| Peak Pulse Current, per IEC 61000-4-5 | $I_{PP}$ | 5.5 | A | I/O to $V_{SS}$, 8/20µs |
| Peak Pulse Power, per IEC 61000-4-5 | $P_{PP}$ | 60 | W | I/O to $V_{SS}$, 8/20µs |
| ESD Protection – Contact Discharge, per IEC 61000-4-2 | $V_{ESD\_CONTACT}$ | ±14 | kV | I/O to $V_{SS}$ |
| ESD Protection – Air Discharge, per IEC 61000-4-2 | $V_{ESD\_AIR}$ | ±16 | kV | I/O to $V_{SS}$ |
| Operating Temperature | $T_{OP}$ | -55 to +85 | °C | — |
| Storage Temperature | $T_{STG}$ | -55 to +150 | °C | — |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation Typical (Note 5) | $P_D$ | 350 | mW |
| Thermal Resistance, Junction to Ambient Typical (Note 5) | $R_{\theta JA}$ | 360 | °C/W |

## Electrical Characteristics (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | — | — | 3.3 | V | — |
| Reverse Current | $I_R$ | — | — | 0.5 | µA | $V_R$ = 3.3V, I/O to $V_{SS}$ |
| Reverse Breakdown Voltage | $V_{BR}$ | 6 | — | — | V | $I_R$ = 1mA, I/O to $V_{SS}$ |
| Forward Clamping Voltage | $V_F$ | -1.0 | -0.85 | — | V | $I_F$ = -15mA, I/O to $V_{SS}$ |
| Reverse Clamping Voltage (Note 6) | $V_C$ | — | 9 | 11 | V | $I_{PP}$ = 5.5A, I/O to $V_{SS}$, 8/20µs |
| Trigger Voltage | $V_{TRIG}$ | — | — | 9.5 | V | — |
| ESD Clamping Voltage | $V_{ESD}$ | — | 8.8 | — | V | TLP, 10A, $t_P$ = 100ns, I/O to $V_{SS}$ |
| Dynamic Reverse Resistance | $R_{DIF-R}$ | — | 0.3 | — | Ω | TLP, 10A, $t_P$ = 100ns, I/O to $V_{SS}$ |
| Dynamic Forward Resistance | $R_{DIF-F}$ | — | 0.25 | — | Ω | TLP, 10A, $t_P$ = 100ns, $V_{SS}$ to I/O |
| Channel Input Capacitance (Note7) | $C_{I/O}$ | — | 0.55 | 0.65 | pF | $V_{I/O}$ = 2.5V, $V_{SS}$ = 0V, f = 1MHz |
| Delta $C_{I/O}$ | $C_{I/OMAX}$-$C_{I/OMIN}$ | — | 0.04 | — | pF | $C_{I/OMAX}$-$C_{I/OMIN}$ |

Notes:
5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
6. Clamping voltage value is based on an 8 x 20µs peak pulse current ($I_{PP}$) waveform.
7. $C_{I/O1} = C_{PIN1} + C_{PIN10}$, $C_{I/O2} = C_{PIN2} + C_{PIN9}$, $C_{I/O3} = C_{PIN4} + C_{PIN7}$, $C_{I/O4} = C_{PIN5} + C_{PIN6}$.

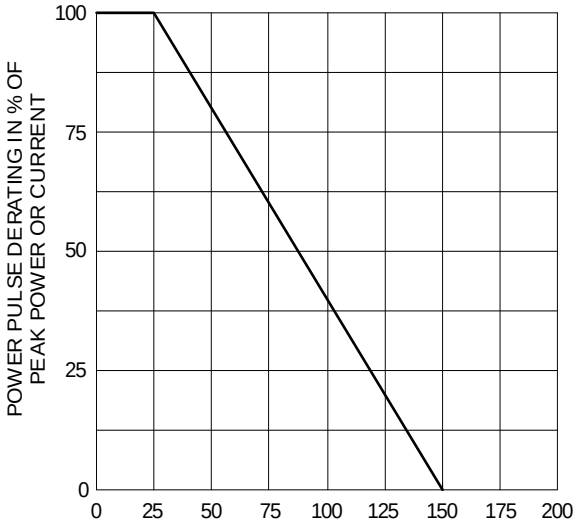


Figure 1 Pulse Derating Curve

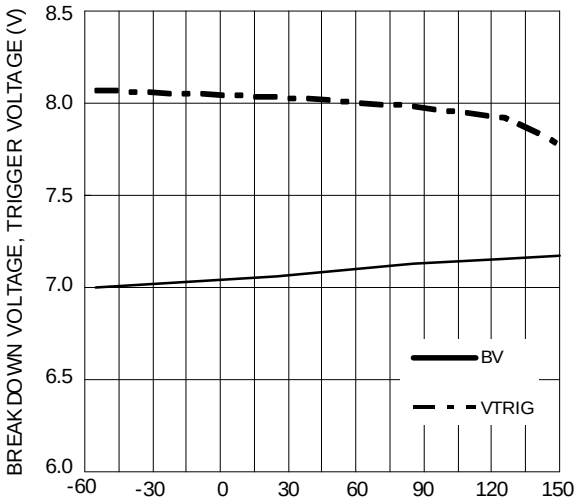


Figure 2 BV, Trigger Voltage vs. Ambient Temperature

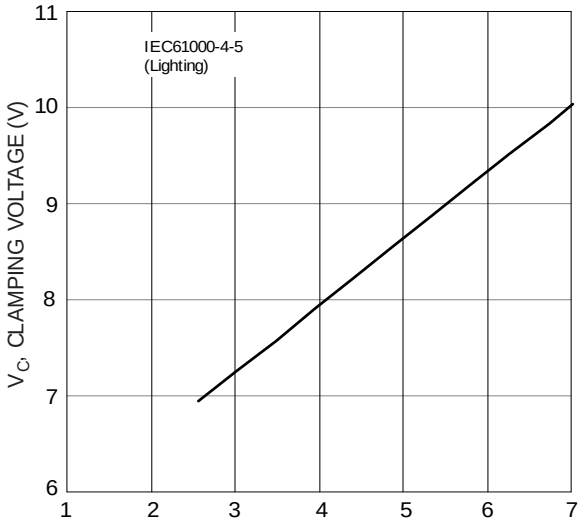


Figure 3 Clamping Voltage Characteristic

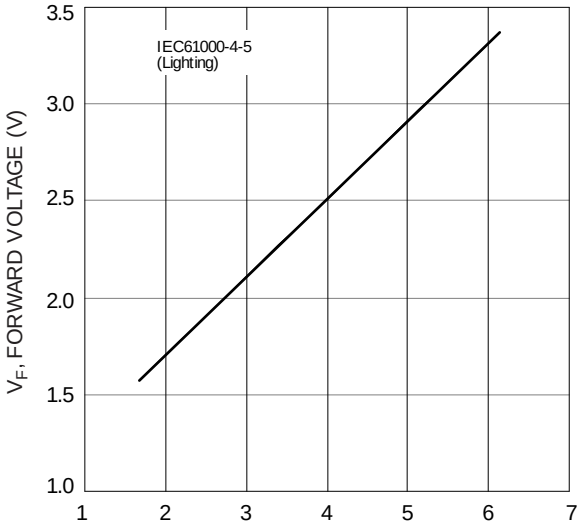


Figure 4 Forward Voltage Characteristic

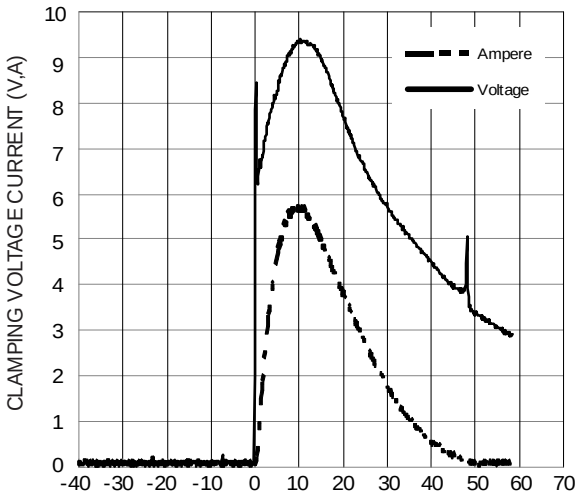


Figure 5 Waveform of Clamping Voltage, Current vs. Time (8/20µs, I/O to $V_{SS}$)

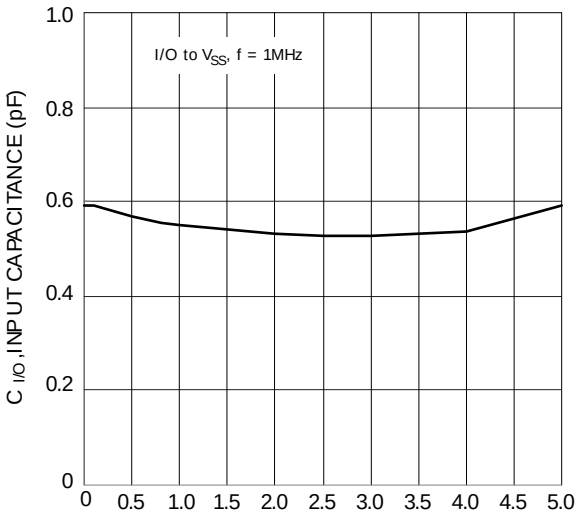


Figure 6 Input Capacitance vs. Input Voltage

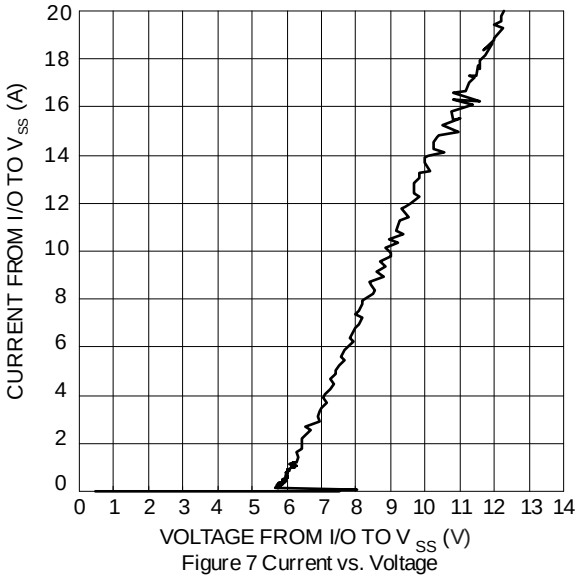
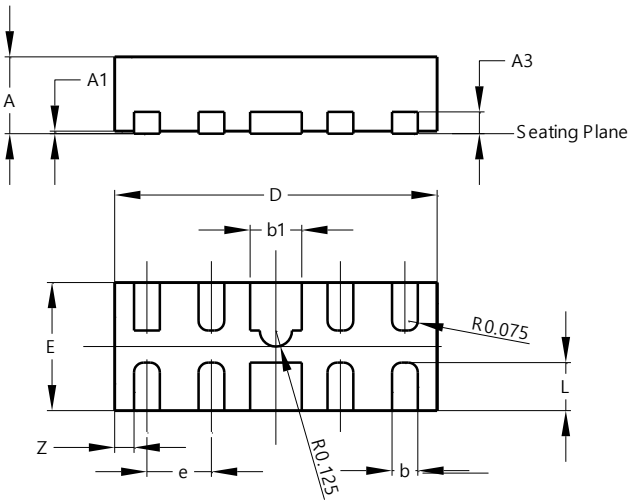



Figure 7 Current vs. Voltage

## Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

**U-DFN2510-10**

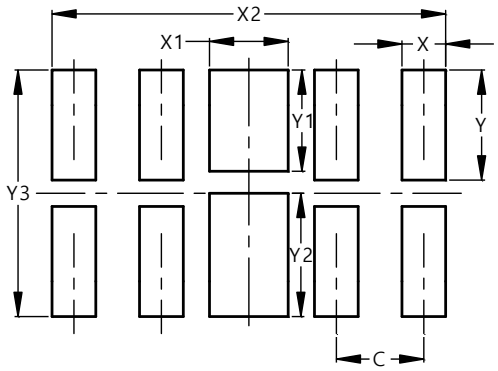



| U-DFN2510-10 | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 0.545 | 0.605 | 0.575 |
| **A1** | 0.00 | 0.05 | 0.03 |
| **A3** | - | - | 0.13 |
| **b** | 0.15 | 0.25 | 0.20 |
| **b1** | 0.35 | 0.45 | 0.40 |
| **D** | 2.450 | 2.575 | 2.500 |
| **e** | - | - | 0.50 |
| **E** | 0.950 | 1.075 | 1.000 |
| **L** | 0.325 | 0.425 | 0.375 |
| **z** | - | - | 0.150 |
| **All Dimensions in mm** | | | |

## Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

**U-DFN2510-10**




| Dimensions | Value (in mm) |
|---|---|
| **C** | 0.500 |
| **X** | 0.250 |
| **X1** | 0.450 |
| **X2** | 2.250 |
| **Y** | 0.625 |
| **Y1** | 0.575 |
| **Y2** | 0.700 |
| **Y3** | 1.400 |

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