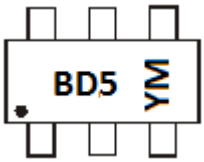
## Marking Information




BD5 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: A = 2013)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|
| Code | A | B | C | D | E | F |

| 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 | $I_{PP\_I/O}$ | 4.7 | A | I/O to $V_{SS}$, 8/20µs |
| Operating Voltage (DC) | $V_{DC}$ | 6 | V | $V_{CC}$ to $V_{SS}$ |
| ESD Protection – Contact Discharge | $V_{ESD\_I/O}$ | ±16 | kV | I/O to $V_{SS}$, per IEC 61000-4-2 |
| | $V_{ESD\_VCC}$ | ±30 | kV | $V_{CC}$ to $V_{SS}$, per IEC 61000-4-2 |
| ESD Protection – Air Discharge, per IEC 61000-4-2 | $V_{ESD\_I/O}$ | ±19 | kV | I/O to $V_{SS}$, per IEC 61000-4-2 |
| | $V_{ESD\_VCC}$ | ±30 | kV | $V_{CC}$ to $V_{SS}$, per IEC 61000-4-2 |

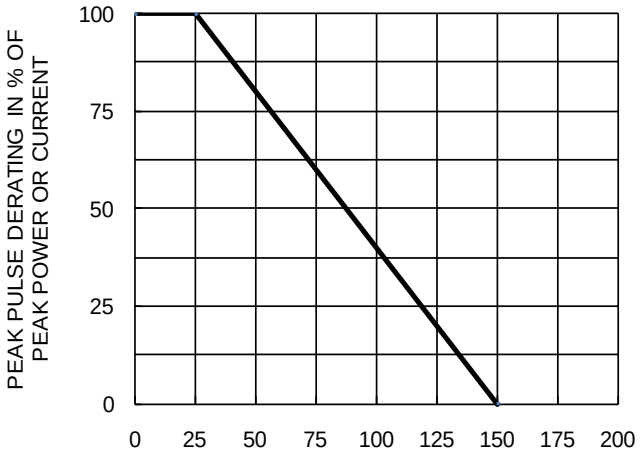
## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation Typical (Note 5) | $P_D$ | 300 | mW |
| Thermal Resistance, Junction to Ambient Typical (Note 5) | $R_{\theta JA}$ | 417 | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +150 | ºC |

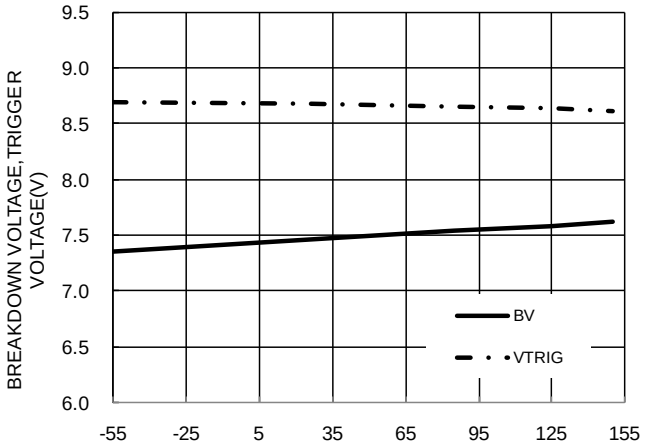
## Electrical Characteristics (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | — | — | 5.0 | V | $V_{CC}$ to $V_{SS}$ |
| Reverse Current (Note 6) | $I_{R(VCC\ to\ VSS)}$ | — | — | 5.0 | µA | $V_R = V_{RWM}$ = 5V, $V_{CC}$ to $V_{SS}$ |
| Reverse Current (Note 6) | $I_{R(IO\ to\ VSS)}$ | — | — | 1.0 | µA | $V_R = V_{RWM}$ = 5V, any I/O to $V_{SS}$ |
| Reverse Breakdown Voltage | VBR | 6.0 | — | 9.0 | V | $I_R$ = 1mA, $V_{CC}$ to $V_{SS}$ |
| Forward Clamping Voltage | $V_F$ | — | 0.8 | 1.0 | V | $I_F$ = 15mA, $V_{SS}$ to $V_{CC}$ |
| Reverse Clamping Voltage (Note 7) | $V_{C\_I/O}$ | — | 8.5 | — | V | $I_{PP}$ =4.7A, I/O to $V_{SS}$, 8/20µS |
| ESD Clamping Voltage | $V_{ESD\_VCC}$ | — | 10 | — | V | TLP, 20A, tp = 100 ns, $V_{CC}$ to $V_{SS}$ |
| | $V_{ESD\_I/O}$ | — | 12 | — | V | TLP, 20A, tp = 100 ns, I/O to $V_{SS}$ |
| Dynamic Resistance | $R_{DIF\_VCC}$ | — | 0.14 | — | Ω | TLP, 20A, tp = 100 ns, $V_{CC}$ to $V_{SS}$ |
| | $R_{DIF\_I/O}$ | — | 0.3 | — | Ω | TLP, 20A, tp = 100 ns, I/O to $V_{SS}$ |
| Channel Input Capacitance | $C_{I/O\ to\ VSS}$ | — | 0.55 | 0.65 | pF | $V_R$ = 2.5V, $V_{CC}$ = 5V, f = 1MHz |
| Channel Input Capacitance | $C_{I/O\ to\ VSS}$ | — | 0.65 | — | pF | $V_R$ = 2.5V, $V_{CC}$ = floating, f = 1MHz |
| Variation of Channel Input Capacitance | $C_{I/OMAX}$-$C_{I/OMIN}$ | — | 0.03 | — | pF | $V_{CC}$ = 5V, $V_{SS}$ = 0V, I/O = 2.5V, f =1MHz, T = +25°C , $C_{I/OMAX}$-$C_{I/OMIN}$ |
| Variation of Channel Input Capacitance | $C_{I/OMAX}$-$C_{I/OMIN}$ | — | 0.05 | — | pF | $V_{CC}$ =floating , $V_{SS}$ = 0V, I/O = 2.5V, f = 1MHz, T = +25°C , $C_{I/OMAX}$-$C_{I/OMIN}$ |

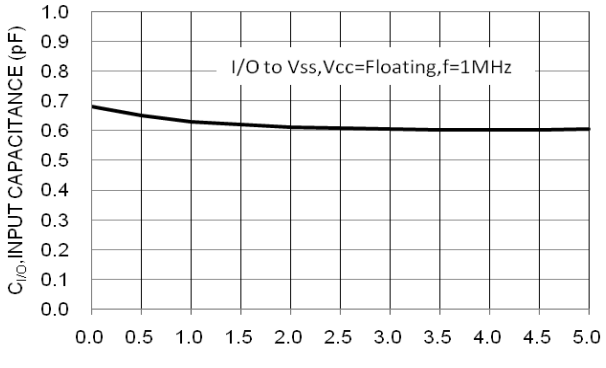
Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at http://www.diodes.com.
6. Short duration pulse test used to minimize self-heating effect.
7. Clamping voltage value is based on an 8x20µs peak pulse current ($I_{pp}$) waveform.



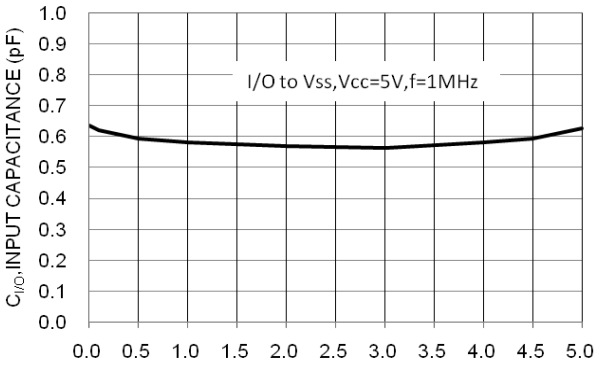

$T_A$,AMBIENT TEMPERATURE(°C)
Figure1. Pulse Derating Curve



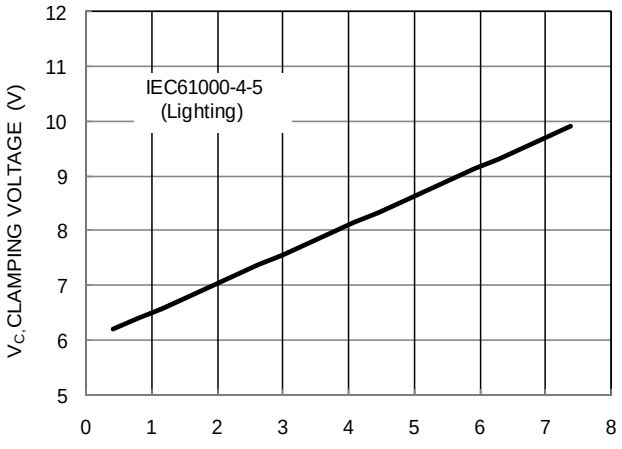

$T_A$, AMBIENT TEMPERATURE (°C)
Figure 2. BV, Trigger Voltage vs. Ambient Temperature



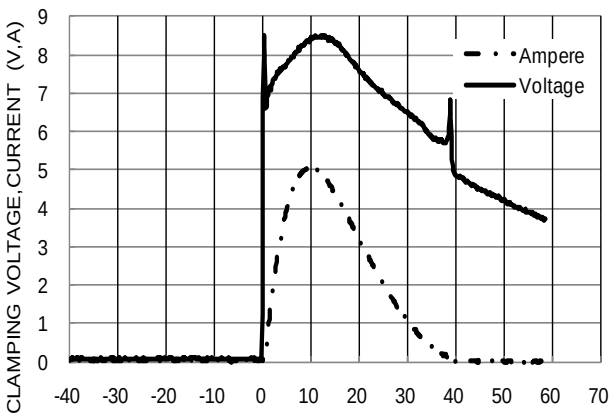

$V_{I/0}$, INPUT VOLTAGE (V)
Figure 3. Input Capacitance vs. Input Voltage




$V_{I/O}$, INPUT VOLTAGE (V)
Figure 4. Input Capacitance vs. Input Voltage




CURRENT FROM I/O TO Vss(A)
Figure 5. Clamping Voltage Characteristic




t,TIME（us）
Figure 6. Waveform of Clamping Voltage,Current vs. Time(8/20us,I/O to Vss)

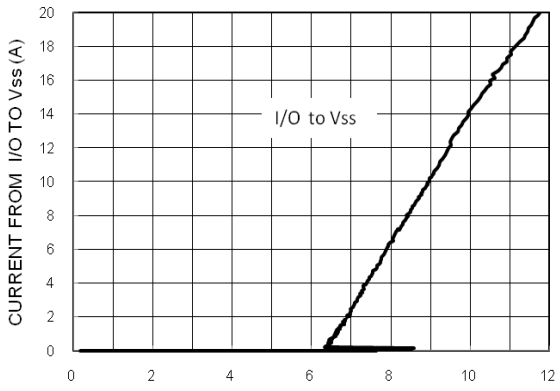


Figure 7. Transmission Line Pulsing (TLP) Measurement Current vs. Voltage

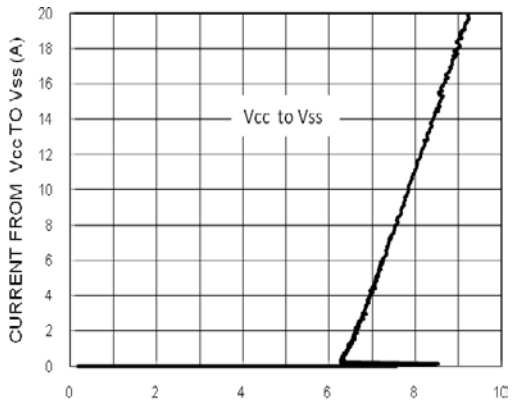
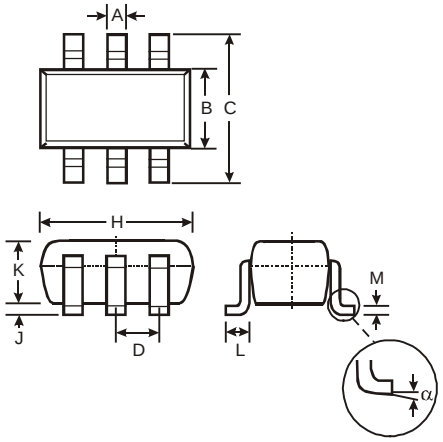


Figure 8. Transmission Line Pulsing (TLP) Measurement Current vs. Voltage

## Package Outline Dimensions

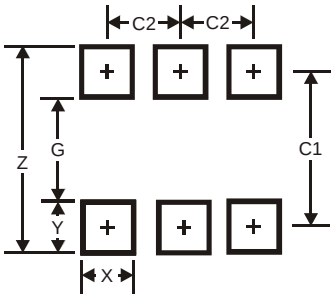
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.




| SOT26 | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 0.35 | 0.50 | 0.38 |
| **B** | 1.50 | 1.70 | 1.60 |
| **C** | 2.70 | 3.00 | 2.80 |
| **D** | — | — | 0.95 |
| **H** | 2.90 | 3.10 | 3.00 |
| **J** | 0.013 | 0.10 | 0.05 |
| **K** | 1.00 | 1.30 | 1.10 |
| **L** | 0.35 | 0.55 | 0.40 |
| **M** | 0.10 | 0.20 | 0.15 |
| **α** | 0° | 8° | — |
| **All Dimensions in mm** | | | |

## Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.




| Dimensions | Value (in mm) |
|---|---|
| **Z** | 3.20 |
| **G** | 1.60 |
| **X** | 0.55 |
| **Y** | 0.80 |
| **C1** | 2.40 |
| **C2** | 0.95 |

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