# SE12TQ3BDDAH

## *ESD PROTECTION DIODE*

### *FEATURES*

· IEC61000-4-2(ESD) ±30kV(air), ±30kV(Contact)
· Bi-direction
· Low Clamping Voltage
· Low Reverse Current
· Suffix " H " indicated Halogen-free part, ex.SE12TQ3BDDAH

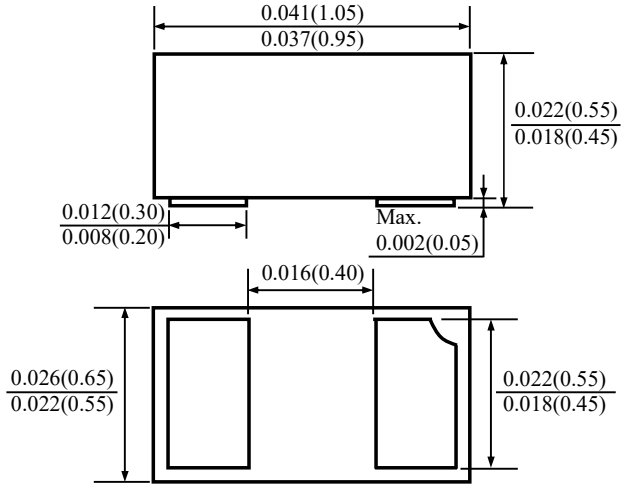
### *MECHANICAL DATA*

Case : DFN1006(0402) mold package

### *PIN CONFIGURATION*

Top View

**DFN1006(0402)**




**Dimensions in inch and (millimeter)**

## *Maximum Ratings* *(Rating at 25°C ambient temperature unless otherwise specified)*

| Parameter | Symbol | Value | Units |
|---|---|---|---|
| Peak Pulse Power (tp = 8/20μs) | $P_{PP}$ | 350 | W |
| Peak Pulse Current (tp = 8/20μs) | $I_{PP}$ | 14 | A |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | ±30<br>±30 | kV |
| Operating Temperature Range | $T_J$ | -55 to +125 | ℃ |
| Storage Temperature Range | $T_{STG}$ | -55 to +150 | ℃ |

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### *Electrical Characteristics Per line @ 25°C Unless Otherwise Specified*

| Parameter | Test Conditon | Symbol | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Reverse Stand-Off Voltage | - | $V_{RWM}$ | - | - | 12 | V |
| Reverse Breakdown Voltage | $I_R$=1mA | $V_{BR}$ | 13.3 | - | - | V |
| Reverse Leakage Current | $V_{RWM}$=12V | $I_R$ | - | - | 100 | nA |
| Clamping Voltage | $I_{PP}$=1A, $t_P$=8/20μs<br>$I_{PP}$=14A, $t_P$=8/20μs | $V_C$ | -<br>- | -<br>- | 17<br>25 | V |
| ESD Clamping Voltage | $I_{TLP}$=4A, $t_P$=0.2/100ns (TLP)<br>$I_{TLP}$=16A, $t_P$=0.2/100ns (TLP) | $V_C$ | -<br>- | 16.3<br>19.8 | -<br>- | V |
| Dynamic Resistance (Note 1) | - | $R_{DYN}$ | - | 0.3 | - | Ω |
| Junction Capacitance | $V_R$=0V, f=1MHz | $C_J$ | - | 36 | - | pF |

Note :

1. Dynamic Resistance calculated from $I_{TLP}$=4A to $I_{TLP}$=16A.

## *RATINGS AND CHARACTERISTIC CURVES*

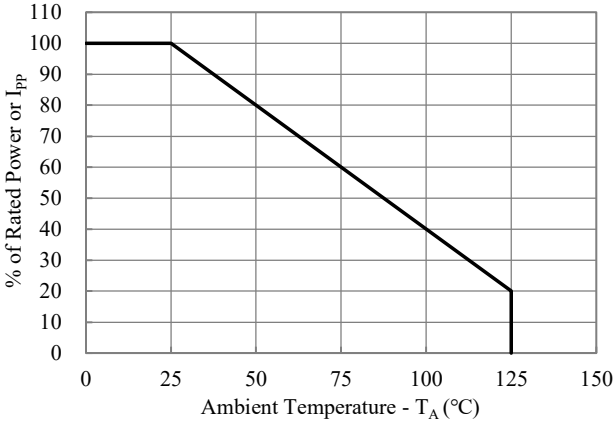


**Fig. 1 Power Derating Curve**

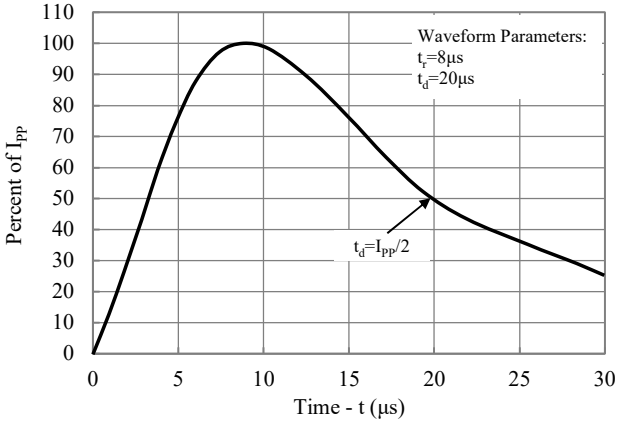


**Fig. 2 Pulse Waveform**

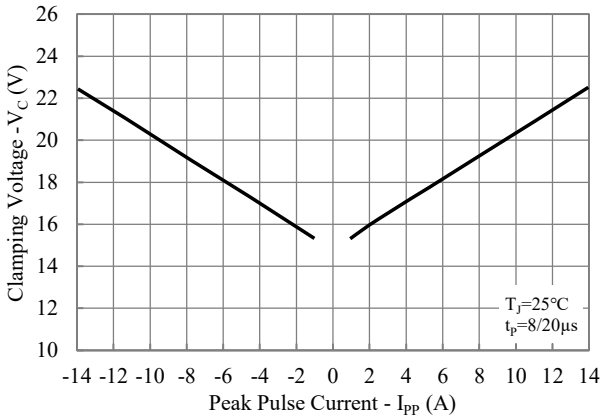


**Fig. 3 Clamping Voltage vs. Peak Pulse Current**

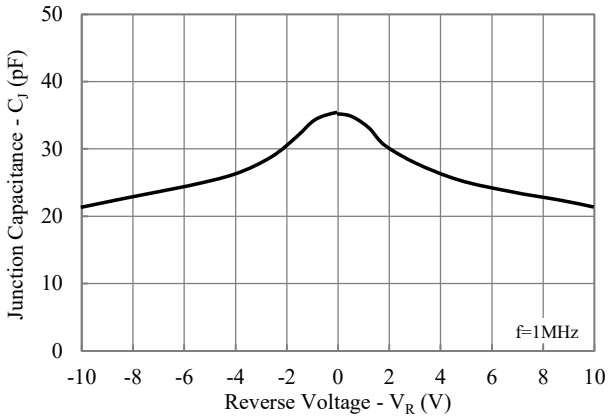


**Fig. 4 Junction Capacitance vs. Reverse Voltage**

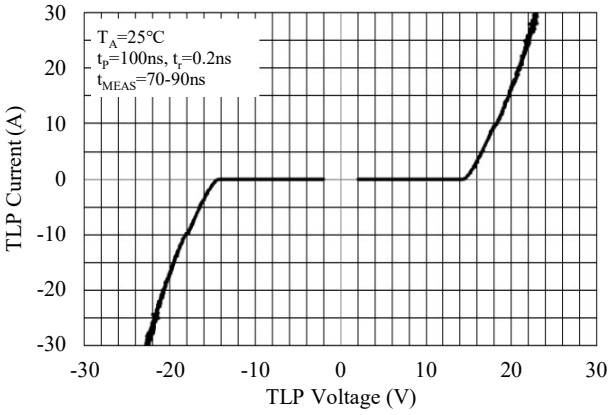


**Fig. 5 TLP Characteristic**

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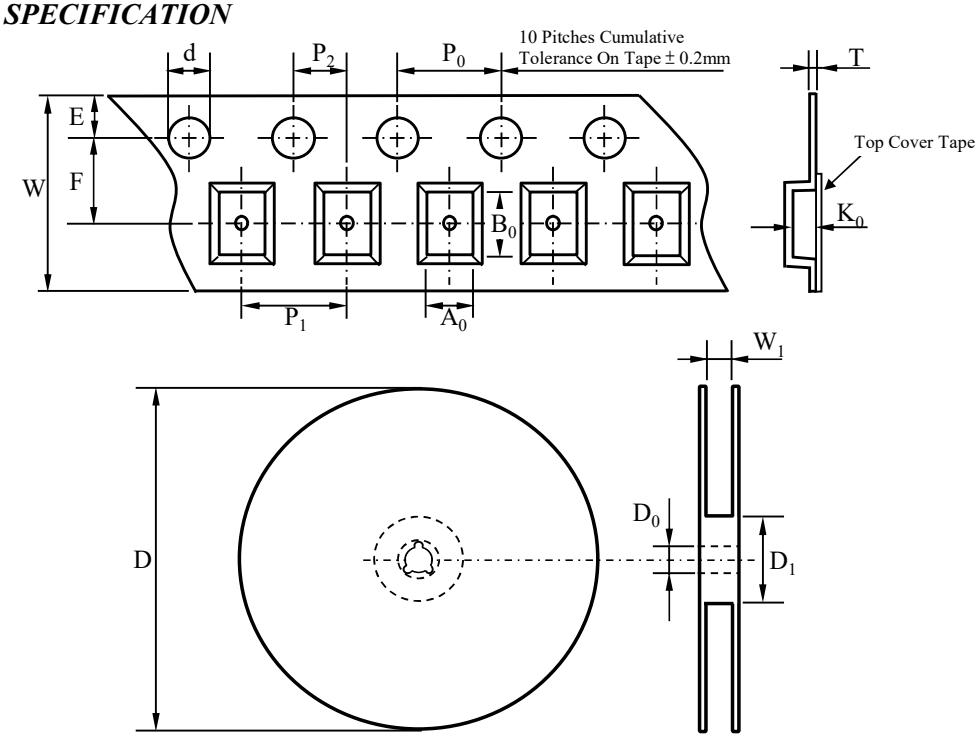
## *ESD PROTECTION DIODE*

### *TAPE & REEL SPECIFICATION*



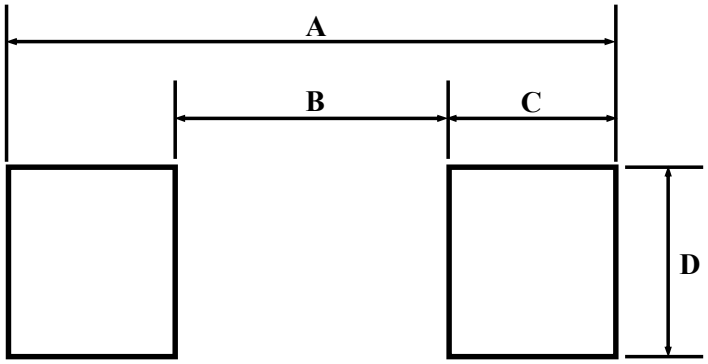

| Item | Symbol | DFN1006(0402) |
|---|---|---|
| Carrier width | $A_0$ | * |
| Carrier length | $B_0$ | |
| Carrier depth | $K_0$ | |
| Sprocket hole | d | 1.50 ± 0.10 |
| Reel outside diameter | D | 178.00 ± 2.00 |
| Feed hole width | $D_0$ | 13.00 ± 0.50 |
| Reel inner diameter | $D_1$ | MIN. 54.00 |
| Sprocke hole position | E | 1.75 ± 0.10 |
| Punch hole position | F | 3.50 ± 0.10 |
| Sprocke hole pitch | $P_0$ | 4.00 ± 0.10 |
| Punch hole pitch | $P_1$ | 2.00 ± 0.10 |
| Embossment center | $P_2$ | 2.00 ± 0.10 |
| Overall tape thickness | T | MAX. 0.60 |
| Tape width | W | 8.00 ± 0.30 |
| Reel width | W1 | 8.40 ± 1.50 |

Note *: $A_0$, $B_0$, and $K_0$ are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min. to 0.5 mm max.

### *ORDER INFORMATION*

| Part Number | Marking Code | Reel Size | Quantity |
|---|---|---|---|
| SE12TQ3BDDAH | FK | 7" | 10,000 |

***SUGGESTED SOLDER PAD LAYOUT***




**Unit :mm**

| **PACKAGE** | A | B | C | D |
|---|---|---|---|---|
| **DFN1006** | 1.10 | 0.30 | 0.40 | 0.60 |