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| SPECIFICATION SHEET NO. | S0427- ESD8D15V00S0YE | |
| ORIGINAL MFG/PART NO. | MDD Diodes/ESD8D15V | |
| NEXTGEN PART CODE | ESD8D15V00S0YE | Indicate This Code For RFQ /Order |
| DATE | Apr. 27, 2025 | |
| REVISION | A3 | Updated With Most Recent Data |
| DESCRIPTION AND MAIN PARAMETRICS | <p>SMD Plastic-Encapsulate ESD Protection Diodes, ESD8D Series</p> <p>Case DFN1006, 2 Pads, Uni-Directional Type</p> <p>Reverse Working Voltage (VRWM): 15V</p> <p>Clamping Voltage (VC): 23VC Max.@1.0A</p> <p>Operating Temperature Range (TOPT) -55°C ~+125°C</p> <p>Package in Tape/Reel, 10000pcs/Reel</p> <p>RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)</p> | |
| CUSTOMER | | |
| CUSTOMER PART NUMBER | | |
| CROSS REF. PART NUMBER | | |
| MEMO | | |

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| VENDOR APPROVE |
| <div>Issued/Checked/Approved</div> <div>    </div> |
| Effective Date: Apr. 27, 2025 |

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| CUSTOMER APPROVE |
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| Date: |

DESCRIPTION

The ESD8Dxxx Series is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications.



Image shown is a representation only. Exact specifications should be obtained from the product dimension.

MAIN FEATURE

- Peak Power Dissipation: 150mW (8/20 μ s)
- Transient protection for high-speed data lines
- IEC61000-4-2 (ESD) \pm 15kV (air), \pm 8kV (contact)
- Protects one directional I/O line
- Low Clamping Voltage
- Low leakage current
- Working voltages: 3.3V, 5V, 8V, 12V, 15V
- Meet MSL 1 Requirement
- Cross Competitors Parts and More.
- RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)



APPLICATION

- Cellular Handsets And Accessories
- Microprocessor Based Equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops And Servers
- Portable Instrumentation
- Peripherals and Pagers

ELECTRICAL CHARACTERISTICS

- See Page 5 ~Page 6.
- All Parameters are Subject To NextGen Components' Final Confirmation

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code ESD8D15V00S0YE For RFQ and Order.

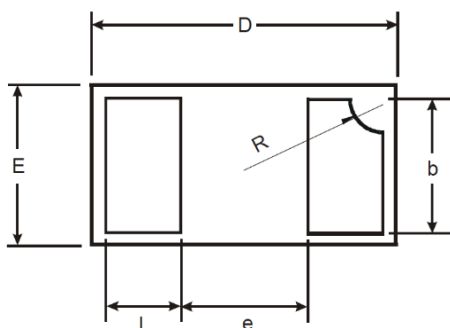
PART CODE GUIDE

RFQ
Request For Quotation

| CODE | NAME | KEY SPECIFICATION OPTION |
|-------|-----------------------------------|--|
| ESD8D | Product Series Code | SMD Plastic-Encapsulate ESD Protection Diodes, Case DFN1006, 2 pads, Uni-Directional Type |
| 15V | Parameters Code | Letter or Digits (A~Z, a~z or 0~9) |
| 00S0 | Internal Control Code | Letter or Digits (A~Z, a~z or 0~9) |
| YE | Marking Code | Marking "YE" or See Marking list For different part code |
| XX | Special/Custom Parameters Code | Letter or Digits (A~Z, a~z or 0~9) for Special Parametric Blank: N/A |

DIMENSION- Unit: mm, Case DFN1006 Outline

Top View

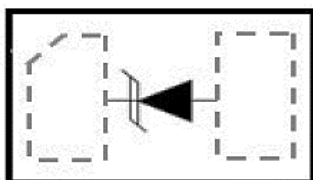


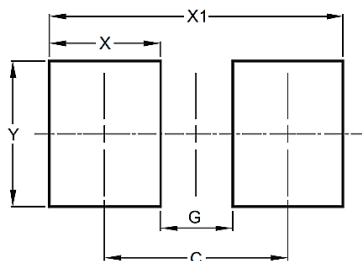
Side View



| SYMBOL | DIMENSION (MM) | | |
|--------|----------------|------|-------|
| | MIN. | Typ. | MAX. |
| A | 0.45 | 0.50 | 0.550 |
| b | 0.45 | 0.50 | 0.55 |
| D | 0.95 | 1.00 | 1.05 |
| E | 0.55 | 0.60 | 0.650 |
| e | - | 0.40 | - |
| L | 0.20 | 0.25 | 0.30 |
| R | 0.07 | 0.12 | 0.17 |

Circuit Diagram



Recommend Pad Layout - Tolerance: $\pm 0.05\text{mm}$


| SYMBOL | UNIT (MM) |
|--------|-----------|
| C | 0.90 |
| G | 0.40 |
| X | 0.50 |
| X1 | 1.10 |
| Y | 0.50 |

MECHANICAL CHARACTERISTICS

| CASE | FLAMMABILITY RATING | TERMINALS | MARKING |
|--------------------------------------|---------------------|---|--|
| JEDEC DFN1006 molded plastic body | UL 94V-0 | Gold plated, solderable per MIL-STD-750, method 2026 | See Marking list For different part code |

ABSOLUTE MAX. RATING & CHARACTERISTICS - $T_A=25^{\circ}\text{C}$ unless otherwise specified, For Reference Only

| PARAMETER | SYMBOLS | VALUE | UNITS |
|--|---------|-----------------|--------------------|
| ESD per IEC 61000-4-2 (Air) | VESD | ± 30 | KV |
| ESD per IEC 61000-4-2 (Contact) | VESD | ± 22 | KV |
| Total Power Dissipation on FR-5 Board (Note 2) @ $T_A=25^{\circ}\text{C}$ | PD | 150 | mW |
| Operating Temperature Range | TOPT | $-55 \sim +125$ | $^{\circ}\text{C}$ |
| Storage Temperature Range | TSTG | $-55 \sim +150$ | $^{\circ}\text{C}$ |
| Lead Solder Temperature- Max. (10 s Duration) | TL | 260 /10s | $^{\circ}\text{C}$ |

Note:

- Ratings are limiting values above which the serviceability of the diode may be impaired
- FR-5 = 1.0 x 0.75 x 0.62 inch

ELECTRICAL CHARACTERISTICS - TA=25°C unless otherwise specified, For Reference Only

| PART CODE | MAX. | MAX. | MIN. | IT | VC | | | | MAX. | MAX. | MARKING |
|----------------|-------|------|------|----|------|-----|------|-----|------|------|---------|
| | V RWM | IR | VB | | MAX. | @A | MAX. | @A | PPK | CJ | |
| | V | µA | V | | V | | V | | W | PF | |
| ESD8D3V300S0YA | 3.3 | 2.5 | 5.0 | 1 | 10.0 | 5.0 | 11.5 | 7.5 | 105 | 105 | YA |
| ESD8D5V000S0YB | 5.0 | 1 | 6.2 | 1 | 11.6 | 5.0 | 15.0 | 7.0 | 105 | 80 | YB |
| ESD8D8V000S0YC | 8.0 | 1 | 8.5 | 1 | 15.0 | 5.0 | 18.0 | 6.0 | 108 | 65 | YC |
| ESD8D12V00S0YD | 12 | 1 | 13.3 | 1 | 20.0 | 1.0 | 26.0 | 4.0 | 104 | 45 | YD |
| ESD8D15V00S0YE | 15 | 1 | 16.0 | 1 | 23.0 | 1.0 | 30.0 | 4.0 | 120 | 28 | YE |

RATINGS AND CHARACTERISTICS CURVES- For Reference Only, Ta=25°C Unless Otherwise Specified.

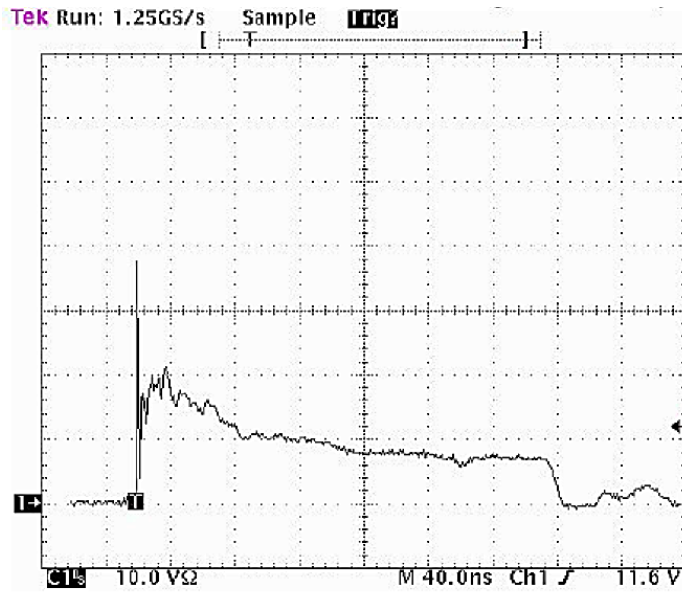


Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV contact per IEC 61000-4-2

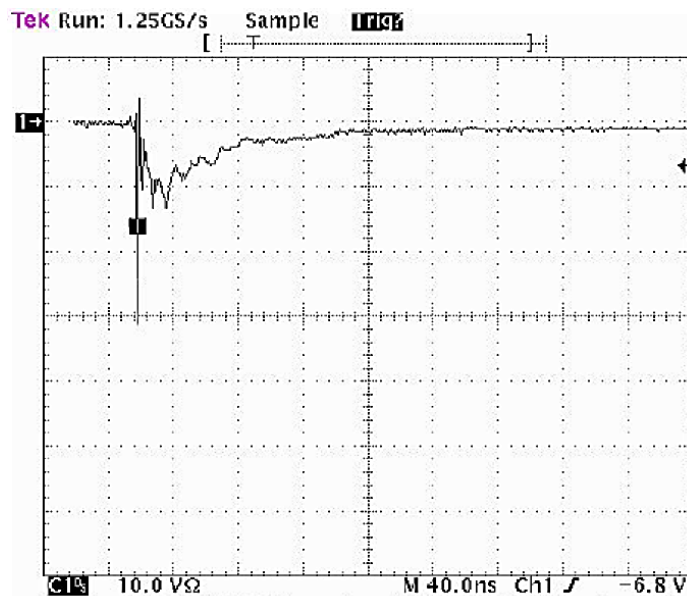
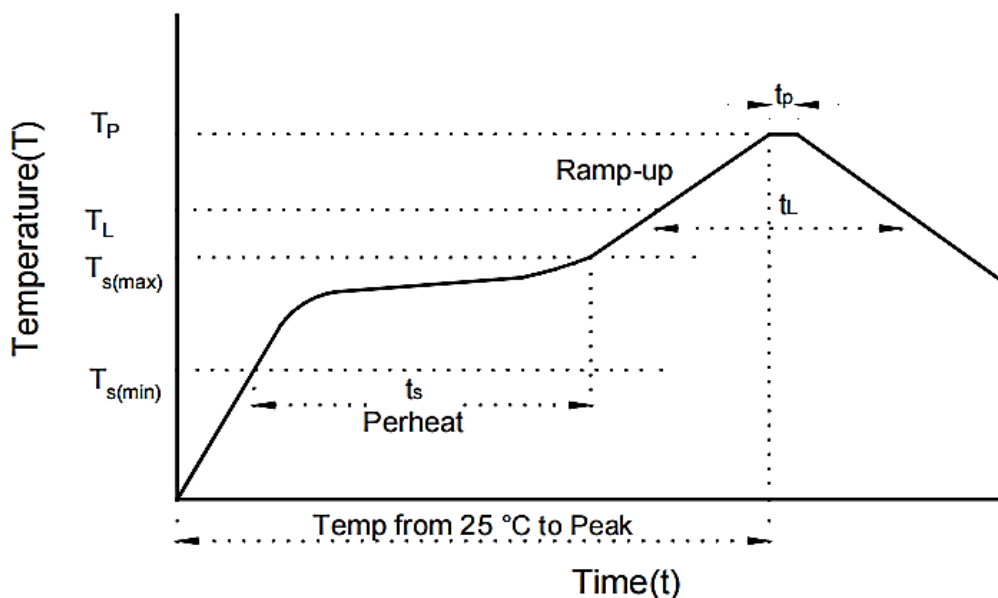


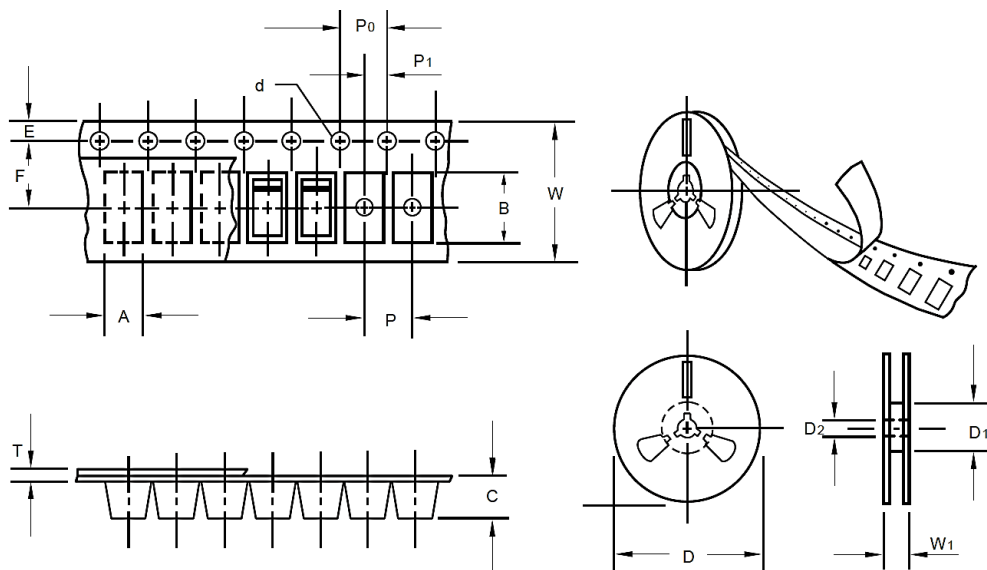
Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV contact per IEC 61000-4-2

RECOMMENDED SOLDERING PARAMETERS – FOR REFERENCE ONLY



| PROFILE FEATURE | | PB-FREE ASSEMBLY |
|--|----------------------------------|-------------------|
| Average Ramp-up Rate (T_L Max to T_p) | | 3°C/second Max |
| Preheat | Temperature Min (T_s Min.) | 150°C |
| | Temperature Max (T_s Max.) | 200°C |
| | Time (t_s Min. to t_s Max.) | 60 ~ 180 seconds |
| Time maintained above | Temperature (T_L) | 217°C |
| | Time (t_L) | 60 ~ 150 seconds |
| Peak/Classification Temperature (T_p) | | 260 °C |
| Time within 5°C of actual Peak Temperature (t_p) | | 10 seconds Max. |
| Ramp-down Rate | | 6 °C /Second Max. |
| Time 25 °C to Peak Temperature | | 8 Minutes Max. |
| Suggest reflow times | | 3 Times Max. |

TAPE/REEL - Unit: mm, All Devices are packed in accordance with EIA standard RS-481-A and specifications



| ITEM | SYMBOL | TOLERANCE | DFN1006 |
|-------------------------|--------|-----------|---------|
| Carrier width | A | 0.1 | 2.10 |
| Carrier Length | B | 0.1 | 4.00 |
| Carrier Depth | C | 0.1 | 1.60 |
| Sprocket hole | d | 0.05 | 1.55 |
| 7"Reel outside diameter | D | 2 | 178 |
| 7"Reel inner diameter | D1 | Min. | 50.0 |
| Feed hole diameter | D2 | 0.5 | 13.0 |
| Sprocket hole position | E | 0.1 | 1.75 |
| Punch hole position | F | 0.1 | 3.50 |
| Punch hole pitch | P | 0.1 | 4.00 |
| Sprocket hole pitch | P0 | 0.1 | 4.00 |
| Embossment center | P1 | 0.1 | 2.00 |
| Overall tape thickness | T | 0.1 | 0.25 |
| Tape width | W | 0.3 | 8.15 |
| Reel width | W1 | 1 | 10.5 |
| Qty. Per Reel (pcs) | 10000 | | |

IMPORTANT NOTES AND DISCLAIMER

1. **ROHS COMPLIANCE:** The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained at Download Center.
2. **REACH COMPLIANCE:** REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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