BORN SEMICONDUCTOR

# ESD7L5.0DT5G-N

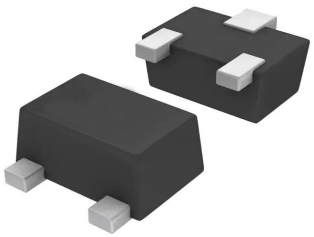
**ESD Protection Diode**

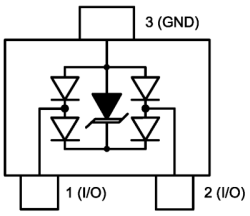
## Features

- 56W Peak pulse power per line (tp = 8/20μs)
- Unidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2 ±20kV contact ; ±25kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4A(8/20μs)

## Package

SOT-723





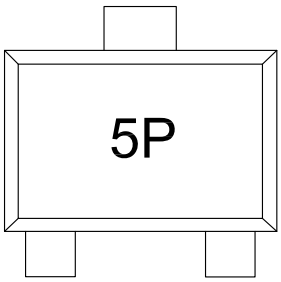

## Applications

- Digital TV
- Set-top box and Digital TV
- Mobile Phones and Accessories
- Cellular Handsets and Accessories

## Mechanical Characteristics

- SOT-723 package
- UL Flammability Classification Rating 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

## Marking




## Ordering information

| Order code | Package | Base qty | Delivery mode |
|---|---|---|---|
| ESD7L5.0DT5G-N | SOT-723 | 10K | Tape and reel |

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**Revision: 2022-Jan-1-A**

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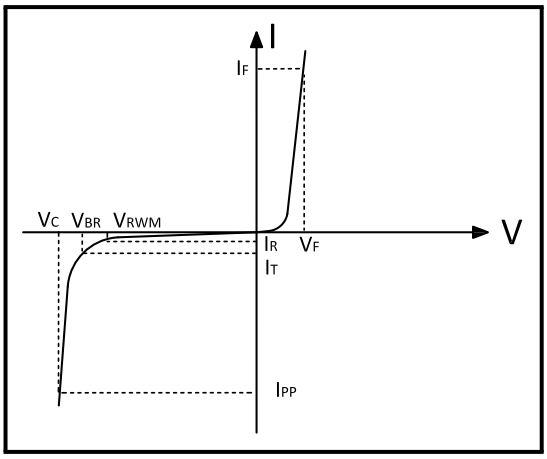
## Electrical Parameters ($T_A$ = 25°C unless otherwise noted)

| Symbol | Parameter |
|---|---|
| $V_{RWM}$ | Peak Reverse Working Voltage |
| $I_R$ | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$ | Breakdown Voltage @ $I_T$ |
| $I_T$ | Test Current |
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| | |
| | |
| | |




## Absolute Maximum Rating

| Rating | Symber | Value | Units |
|---|---|---|---|
| Peak Pulse Power ( tp =8/20μs ) | $P_{PP}$ | 56 | Watts |
| Peak Pulse Current (tp =8/20μs ) | $I_{PP}$ | 4 | A |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | 25<br>20 | KV |
| Lead Soldering Temperature | $T_L$ | 260(10seconds) | °C |
| Junction Temperature | $T_J$ | -55 to + 150 | °C |
| Storage Temperature | $T_{stg}$ | -55 to + 150 | °C |

## Electrical Characteristics

| Parameter | Symber | Conditions | Min | Typical | Max | Units |
|---|---|---|---|---|---|---|
| Reverse Stand-Off Voltage | $V_{RWM}$ | – | – | – | 5 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$=1mA | 6.0 | – | – | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=5V | – | – | 0.1 | uA |
| Peak Pulse Current | $I_{PP}$ | tp =8/20us | – | – | 4 | A |
| Clamping Voltage | $V_C$ | $I_{PP}$=4A, tp =8/20us | – | 12 | 14 | V |
| Junction Capacitance | $C_O$ | $V_{DC}$=0V,f=1MHZ(IO to IO) | – | 0.25 | 0.35 | pF |
| Junction Capacitance | $C_j$ | $V_{DC}$=0V,f=1MHZ(IO to GND) | – | 0.45 | 0.6 | pF |

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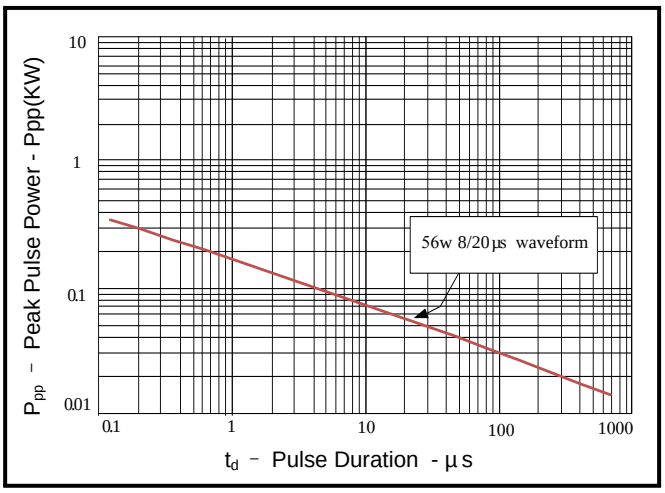
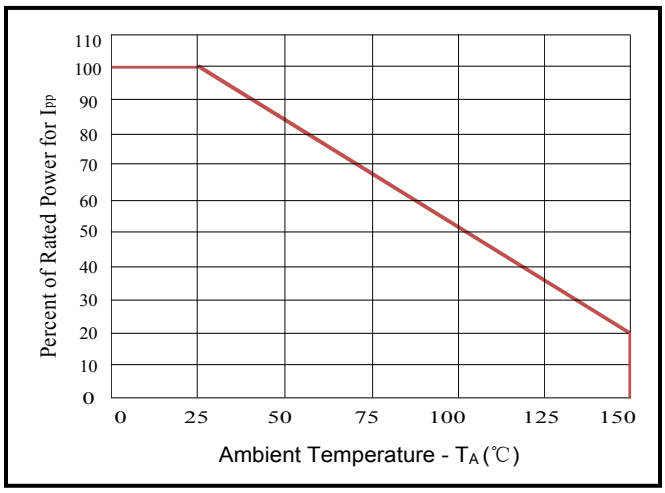
## Typical Characteristics

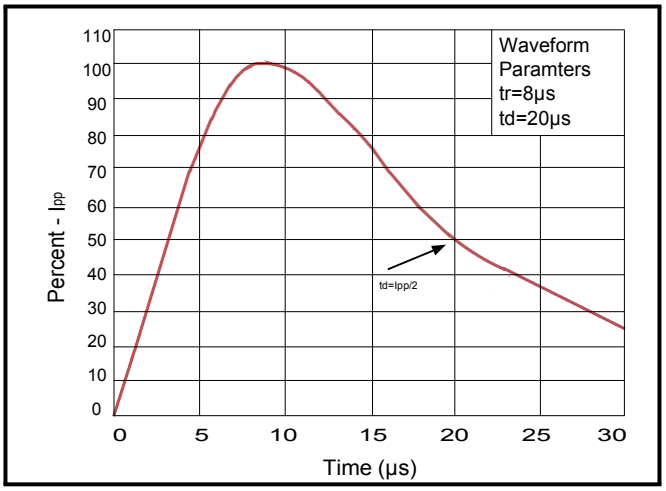
### Figure 1: Peak Pulse Power vs. Pulse Time



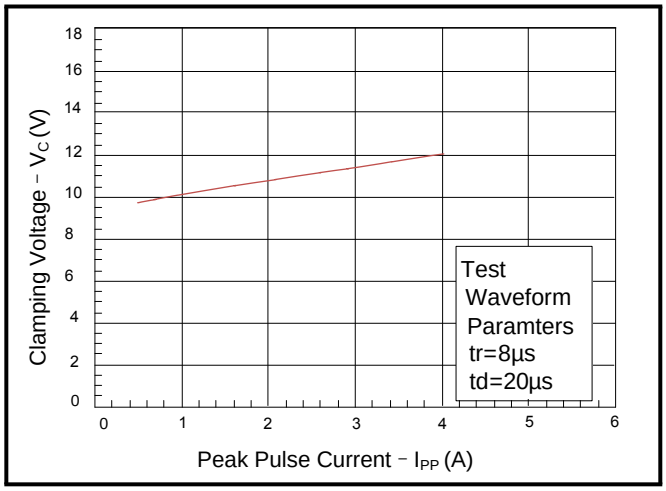

### Figure 2: Power Derating Curve




### Figure 3: Pulse Waveform




### Figure 4: Clamping Voltage vs. $I_{PP}$

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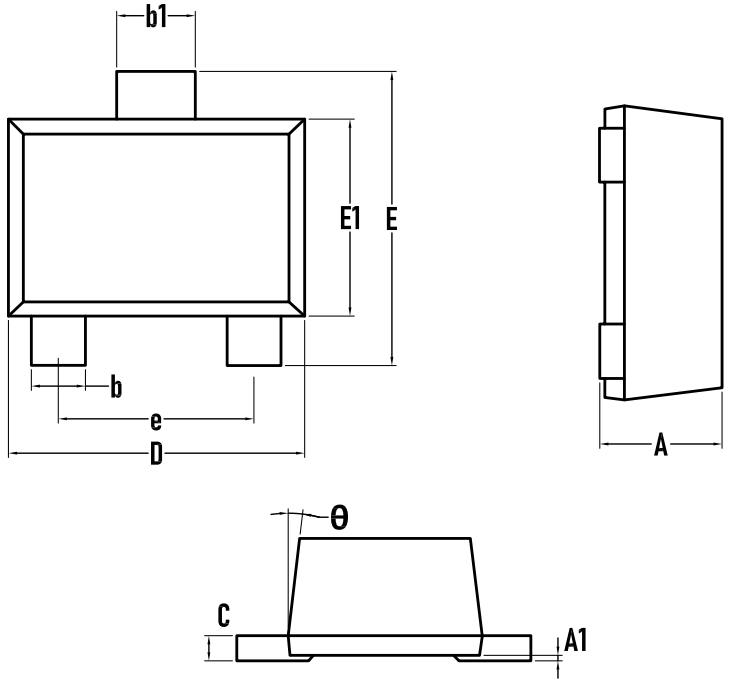
## Outline Drawing – SOT-723




| SYMBOL | MILLIMETER | | |
|---|---|---|---|
| | MIN. | Typ. | MAX. |
| A | 0.350 | – | 0.490 |
| A1 | 0.000 | – | 0.100 |
| b | 0.170 | 0.220 | 0.270 |
| b1 | 0.225 | – | 0.370 |
| C | 0.080 | 0.110 | 0.150 |
| D | 1.150 | 1.200 | 1.250 |
| E | 1.150 | 1.200 | 1.250 |
| E1 | 0.750 | – | 0.850 |
| e | 0.800TYP. | | |
| θ | 0° | – | 7° |

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