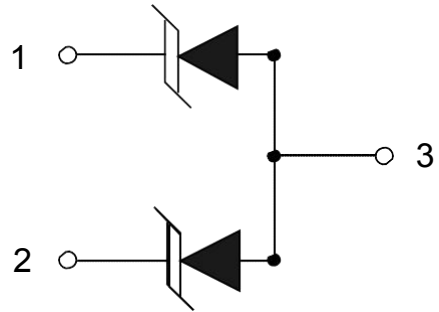


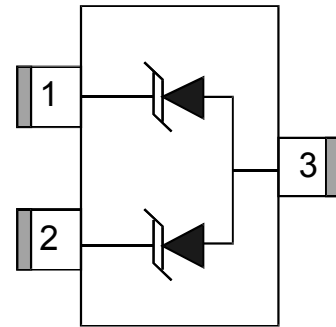
**Features**

- 45 Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Unidirectional configurations
- Low clamping voltage
- Low leakage current
- Low capacitance ( $C_j=0.7$  pF typ.)
- Protection two data lines
- IEC 61000-4-2  $\pm 15V$  contact  $\pm 15kV$  air
- IEC 61000-4-4 (EFT) 40A(5/50ns)
- IEC 61000-4-5 (Lightning) 3.5A (8/20 $\mu s$ )



**Applications**

- Dataline
- Automatic Teller Machines
- Net works
- Power line



SOT-23 (Top View)

**Absolute Maximum Rating**

| Rating                                                         | Symbol    | Value          | Units       |
|----------------------------------------------------------------|-----------|----------------|-------------|
| Peak Pulse Power ( $\pm 8/20\mu s$ )                           | $P_{PP}$  | 45             | Watts       |
| Peak Pulse Current ( $t_p=8/20\mu s$ )(note1)                  | $I_{pp}$  | 3.5            | A           |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | 15<br>15       | kV          |
| Lead Soldering Temperature                                     | $T_L$     | 260(10seconds) | $^{\circ}C$ |
| Junction Temperature                                           | $T_J$     | -55 to + 125   | $^{\circ}C$ |
| Storage Temperature                                            | $T_{stg}$ | -55 to + 125   | $^{\circ}C$ |

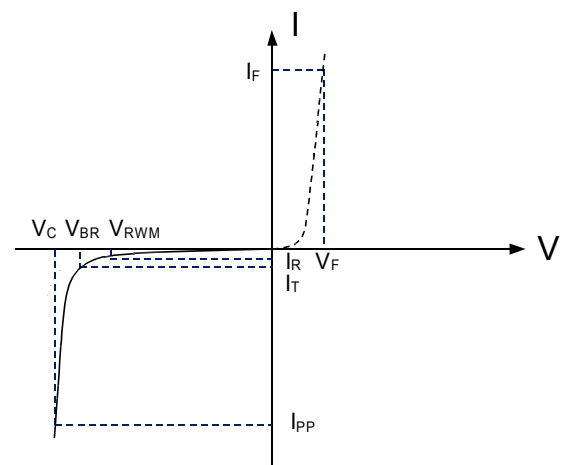
**Electrical Characteristics**

| Parameter                 | Symbol    | Conditions                   | Min | Typical | Max | Units   |
|---------------------------|-----------|------------------------------|-----|---------|-----|---------|
| Reverse Stand-Off Voltage | $V_{RWM}$ |                              |     |         | 5   | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T=1mA$                    | 6   | 7       | 8   | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=5V, T=25^{\circ}C$  |     | 0.5     | 1   | $\mu A$ |
| Peak Pulse Current        | $I_{PP}$  | $t_p=8/20\mu s$              |     |         | 3.5 | A       |
| Clamping Voltage          | $V_C$     | $I_{PP}=3.5A, t_p=8/20\mu s$ |     | 12      | 15  | V       |
| Junction Capacitance      | $C_j$     | $V_R=0V, f=1MHz$             |     | 0.7     | 0.8 | pF      |

**Electrical Parameters (TA=25°C unless otherwise noted)**

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

Note: 8/20 $\mu s$  pulse waveform.



Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

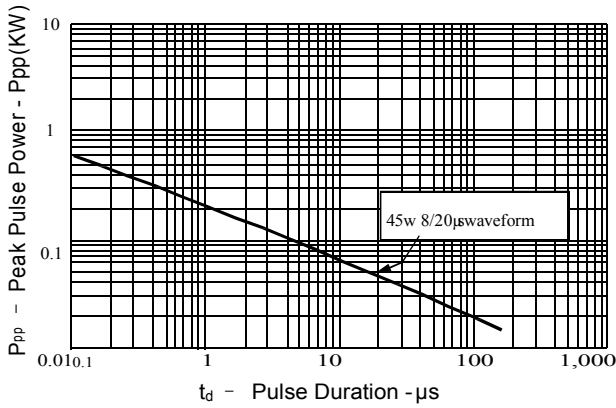


Figure 2: Power Derating Curve

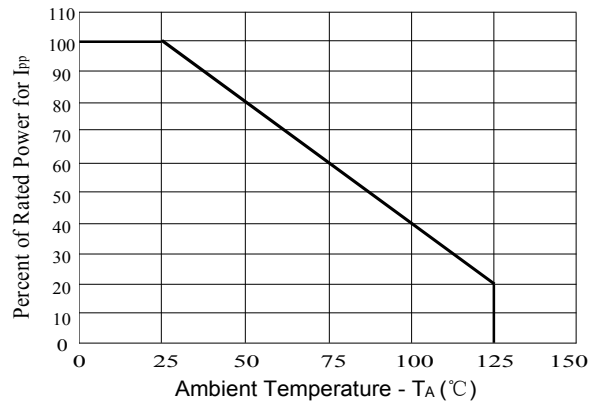


Figure 3: Pulse Waveform

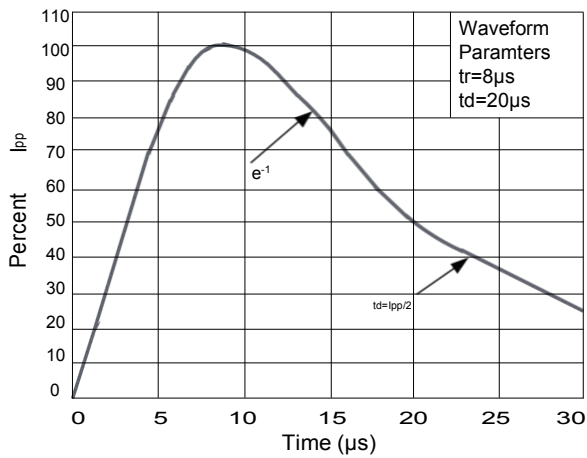
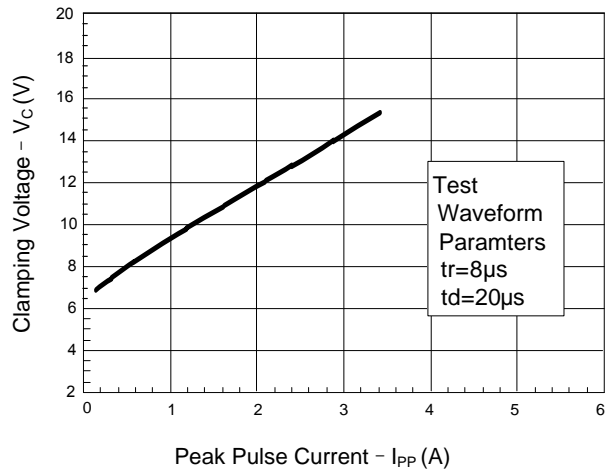
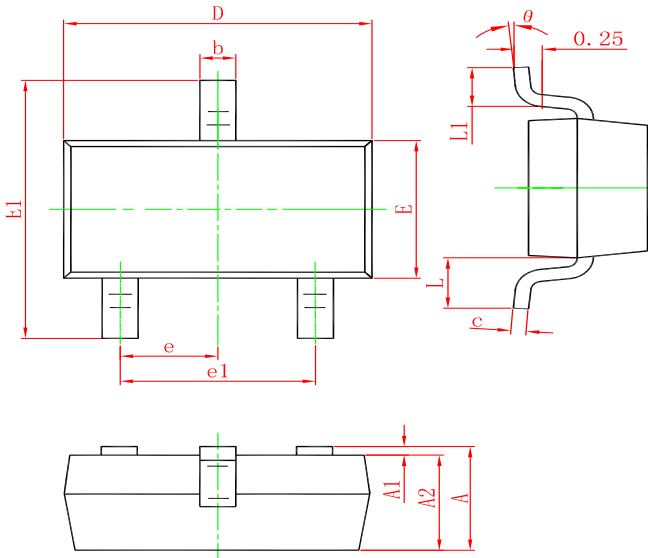


Figure 4: Clamping Voltage vs. Ipp

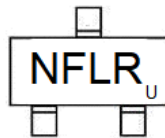


**SOT-23 PACKAGE OUTLINE DIMENSIONS**



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP.                |       | 0.037 TYP.           |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF.                |       | 0.022 REF.           |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

**Marking**



**Ordering information**

| Order code       | Package | Baseqty | Deliverymode  |
|------------------|---------|---------|---------------|
| UMW TPD2E009DBZR | SOT-23  | 3000    | Tape and reel |