# Transient Voltage Suppressors

YSM6W27

6 Watters TVS/Power Zener Diode

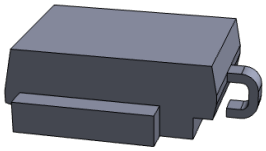
## Transient Voltage Suppressors family

*Transient Voltage Suppressor (TVS) will effectively limit the transient voltage to a safe level. The YSM6W27 series has been designed to protect sensitive automotive circuits against surges defined in ISO7637-2/ISO16750-2 and against electrostatic discharges according ISO10605. The YSM6W27 series device could compatible with high-end circuits where low leakage current and high junction temperature are required to provide reliability and stability over time.*

## Features

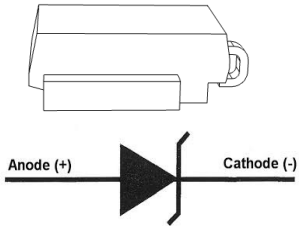
- High current capability
- Low Forward Voltage Drop
- Low reverse current
- Low thermal resistance
- Excellent high temperature stability
- Low power loss and high efficiency
- High forward surge capability
- Meets ISO7637-2 surge specification
- Meets ISO16750-2 surge specification
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified

DO-218



## Pin Information

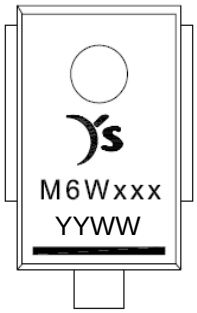
Polarity: Heatsink is anode




## Application

- High peak power
- High-temperature
- Clamping diode
- Load switching and lighting

## Marking Information




## Mechanical Data

- **Case:** DO-218 outline plastic package
- **Terminals:** Matte tin plated, solderable per MIL-STD-750, Method 2026, J-STD-002 and JESD 22-B102
- Molding Compound Flammability Rating:UL94-0
- HE3 suffix meets JESD 201 class 2 whisker test
- **Polarity**: Heatsink is anode

| Primary Characteristics | |
|---|---|
| $V_{WM}$ | 22 V |
| $V_{BR}$ | 27 V |
| $P_{PPM}$ (10 x 1000 uS) | 4600 W |
| $P_D$ | 6 W |
| $I_{FSM}$ | 600 A |
| Polarity | Uni-directional |
| Diode variation | Single |

## Maximum Ratings (TA = 25 °C unless otherwise noted)

| Parameter | | Symbol | Value | Units |
|---|---|---|---|---|
| Peak pulse power dissipation | 10/1000 μs waveform | $P_{PPM}$ | 4600 | W |
| Power dissipation on infinite heatsink at TC = 25 °C | | $P_D$ | 6.0 | W |
| Peak forward surge current 8.3 ms single half sine-wave | | $I_{FSM}$ | 600 | A |
| Operating junction and storage temperature range | | $T_J$, $T_{STG}$ | -55 to +175 | °C |

## Electrical Characteristics (TA = 25 °C unless otherwise noted)

| Part Number | Breakdown Voltage $V_{BR}$ (V) | | Test Current $I_T$ (mA) | Stand-OFF Voltage $V_{WM}$ (V) | Maximum Reverse Leakage at $V_{WM}$ $I_D$ (uA) | Maximum Leakage at $V_{WM}$ $T_J$ = 175 ℃ $I_D$ (uA) | Max. Peak Pulse Current at 10/10000 us Waveform (A) | Maximum Clamping Voltage at $I_{PPM}$ $V_C$ (V) |
|---|---|---|---|---|---|---|---|---|
| | Min. | Max. | | | | | | |
| YSM6W27 | 24 | 30 | 10.0 | 22.0 | 0.5 | 20.0 | 65 | 40 |

**Note:** VF = 0.93V(Typ.) at IF = 100A measured on a 300 μs square pulse width.

| **Thermal Characteristics** (TA = 25 °C unless otherwise noted) | | | |
|---|---|---|---|
| **Parameter** | **Symbol** | **Value** | **Units** |
| Typical thermal resistance, junction to case | $R_{\theta JC}$ | 0.95 | °C/W |

## Typical Performance Characteristics

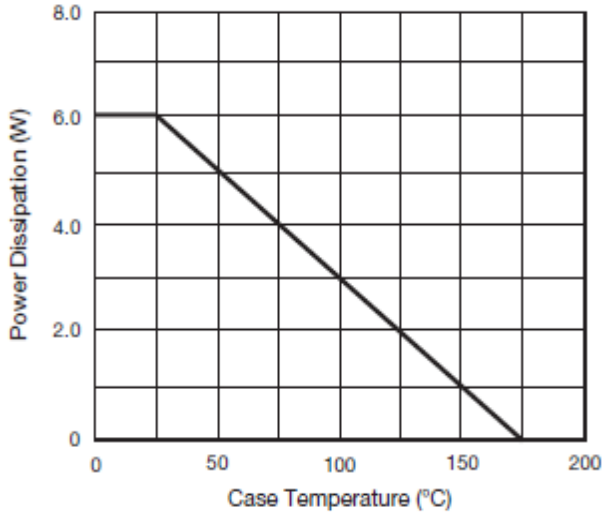



Fig. 1 - Power Derating Curve

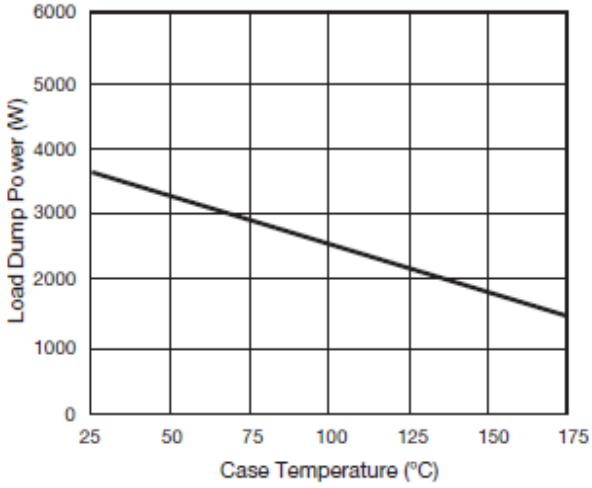



Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

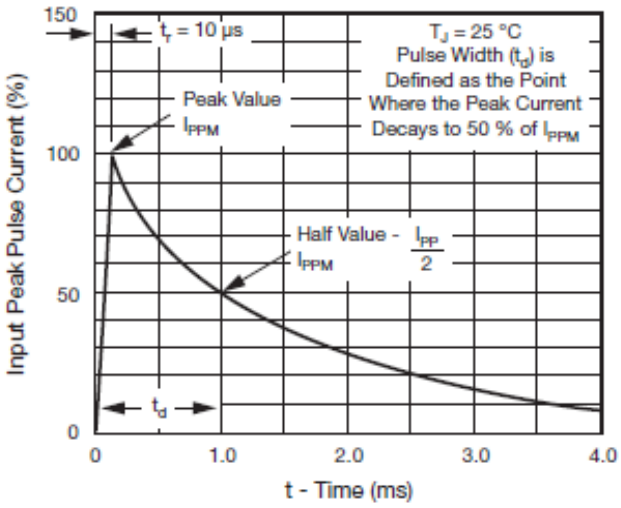



Fig. 3 - Pulse Waveform

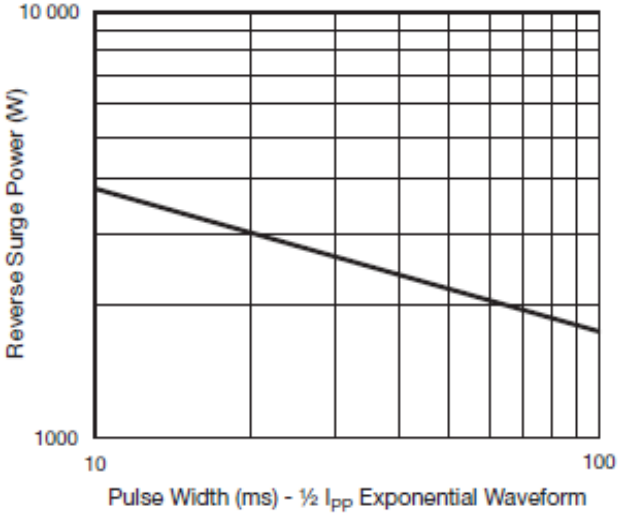



Fig. 4 - Reverse Power Capability

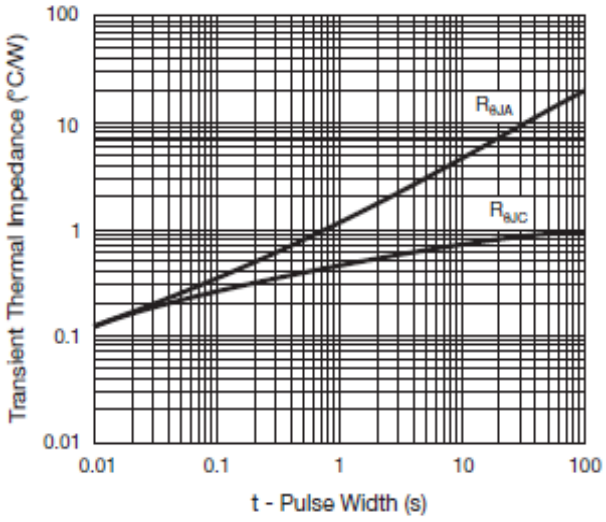



Fig. 5 - Typical Transient Thermal Impedance

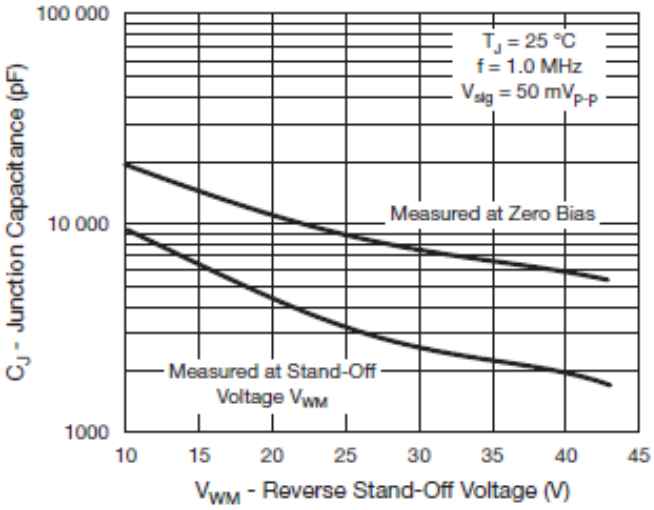
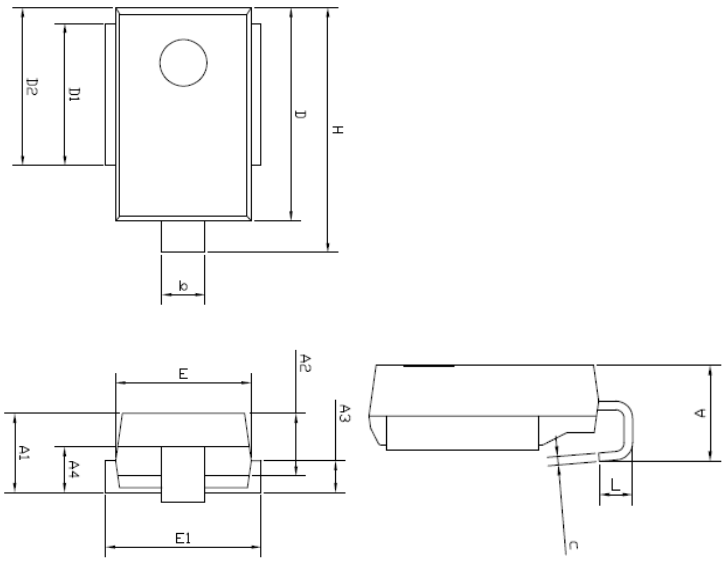



Fig. 6 - Typical Junction Capacitance

## Phisical Dimensions

**DO-218**




NOTE :
1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.
2. COPLANARITY : 0.1mm
3. DIMENSION L IS MEASURED IN GAUGE PLANE.

| SYMBOLS | DIMENSIONS IN MILLIMETERS | | |
|---|---|---|---|
| | MIN | NOM | MAX |
| A | 4.70 | - | 5.70 |
| A1 | 4.70 | 5.00 | 5.25 |
| A2 | 3.45 | 3.95 | 4.25 |
| A3 | 1.70 | 2.00 | 2.50 |
| A4 | 2.65 | 3.10 | 3.55 |
| b | 2.30 | - | 3.00 |
| c | 0.45 | - | 0.90 |
| D | 13.20 | 13.50 | 13.80 |
| D1 | 8.70 | 9.00 | 9.30 |
| D2 | 9.70 | 10.00 | 10.30 |
| E | 8.20 | 8.50 | 8.80 |
| E1 | 9.50 | - | 10.00 |
| H | 15.00 | 15.50 | 16.00 |
| L | 1.50 | 2.00 | 2.50 |

## Foot Print Recommendation (mm)