

MR4045

Automotive Transient Voltage Suppressor

34 V – 45 V

Designed for Automotive Applications (Alternator) requiring Reverse Avalanche Capability for use as Transient Voltage Suppressor. Developed to suppress transients in automotive systems, this device operates in the forward mode as Standard Rectifier or in Reverse as Transient Voltage Suppressor for Centralized Protection.

For further information referring to Mounting or Operating Conditions, contact your nearest ON Semiconductor Sales Representative.

Mechanical Characteristics

- Finish: 100% Tin Plated
All External Surfaces are Corrosion Resistant
- Weight: 2.6 Grams (Approximately)

Packaging/Labeling

- Two Sealed Bags into a Cardboard Box
- Device Number Labeled on the Bag

Marking

- The Devices are Laser Marked on the Epoxy Surface

MAXIMUM RATING

| Rating | Symbol | Value | Unit |
|---|------------------------|----------------|------------------|
| DC Blocking Voltage | V_R | 30 | Volts |
| Average Forward Current (Single Phase, Resistive Load, $T_C = 185^\circ\text{C}$) | I_O | 40 | Amps |
| Peak Repetitive Reverse Surge Current (Time Constant = 10 ms, $T_C = 25^\circ\text{C}$) (Time Constant = 80 ms, $T_C = 25^\circ\text{C}$) | I_{RSM} I_{RSM} | 55 25 | Amps |
| Non-Repetitive Peak Surge Current (Halfwave, Single Phase, 50 Hz) | I_{FSM} | 500 | Amps |
| Storage Temperature Range | T_{stg} | -40 to +200 | $^\circ\text{C}$ |
| Maximum Operating Junction Temperature | T_J | 200 | $^\circ\text{C}$ |



ON Semiconductor™

<http://onsemi.com>



N SUFFIX
(Anode to Cup)
P SUFFIX
(Cathode to Cup)
CASE 193A

MARKING DIAGRAM



NL = Location Code
2N or 2P = Device Code and Polarity
YY = Year
WW = Work Week
= Assembly Lot Number

ORDERING INFORMATION

| Device | Package | Shipping |
|---------|------------|----------------|
| MR4045N | Button Can | 5000 Units/Box |
| MR4045P | Button Can | 5000 Units/Box |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Value | Unit |
|-------------------------------------|-----------------|-------|---------------|
| Thermal Resistance Junction to Case | $R_{\theta JC}$ | 0.4 | $^{\circ}C/W$ |

ELECTRICAL CHARACTERISTICS

| Characteristic | Symbol | Min | Max | Unit |
|---|--------------|--------|----------|----------------|
| Instantaneous Forward Voltage (Note 1.) ($I_F = 100$ Amps, $T_C = 25^{\circ}C$) | V_F | - | 1.1 | Volts |
| Reverse Current (Note 1.) ($V_R = 28$ Vdc, $T_C = 25^{\circ}C$) | I_R | - | 1.0 | μA |
| Breakdown Voltage (Note 1.) ($I_R = 100$ mA, $T_C = 25^{\circ}C$) | $V_{(BR)}$ | 34 | 45 | Volts |
| Breakdown Voltage ($I_R = 80$ Amps, $T_C = 25^{\circ}C$, $PW = 80 \mu s$) ($I_R = 80$ Amps, $T_C = 85^{\circ}C$, $PW = 80 \mu s$) | $V_{(BR)}$ | - | 53 55 | Volts |
| Breakdown Voltage Temperature Coefficient | $V_{(BR)TC}$ | 0.095* | | $\%/^{\circ}C$ |
| Forward Voltage Temperature Coefficient ($I_F = 10$ mA) | V_{FTC} | -2* | | $mV/^{\circ}C$ |

1. Pulse Test: Pulse Width < 300 μs , Duty Cycle < 2%.

**Typical

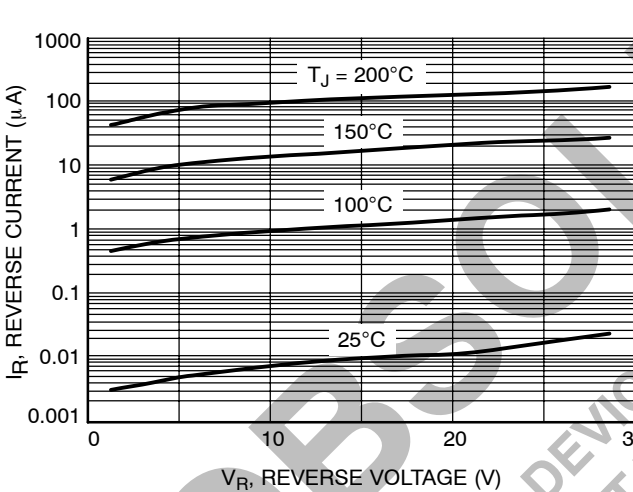


Figure 1. Typical Reverse Current

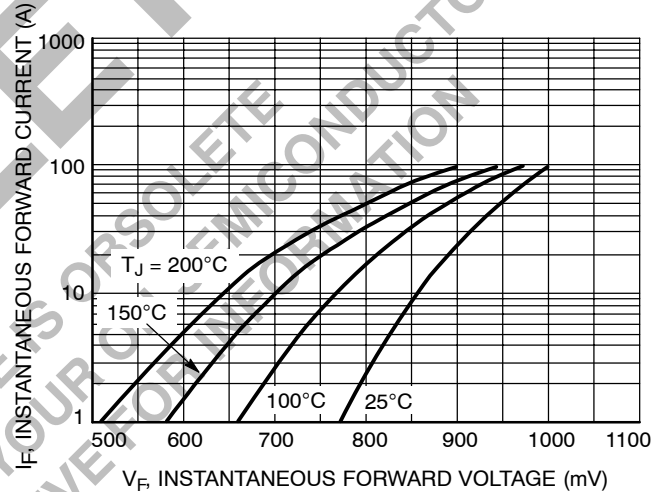


Figure 2. Typical Forward Voltage

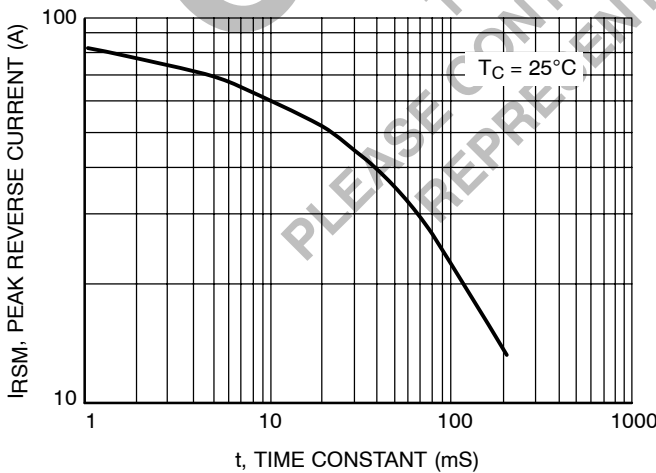


Figure 3. Maximum Peak Reverse Current

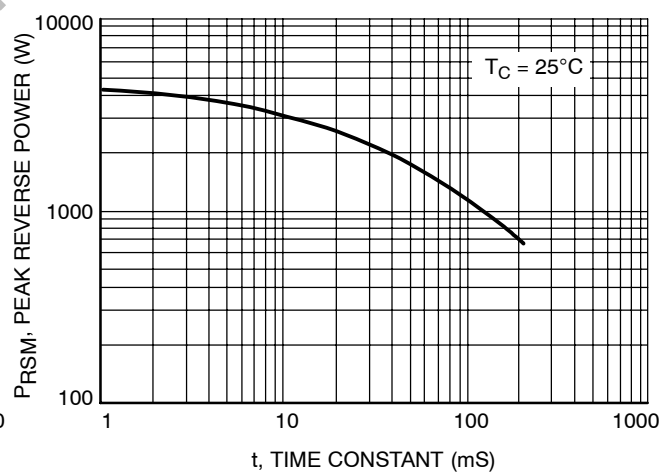


Figure 4. Maximum Peak Reverse Power

MR4045

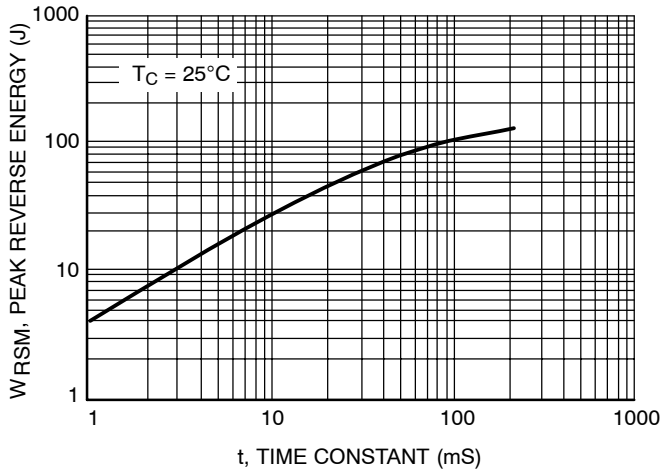


Figure 5. Maximum Reverse Energy

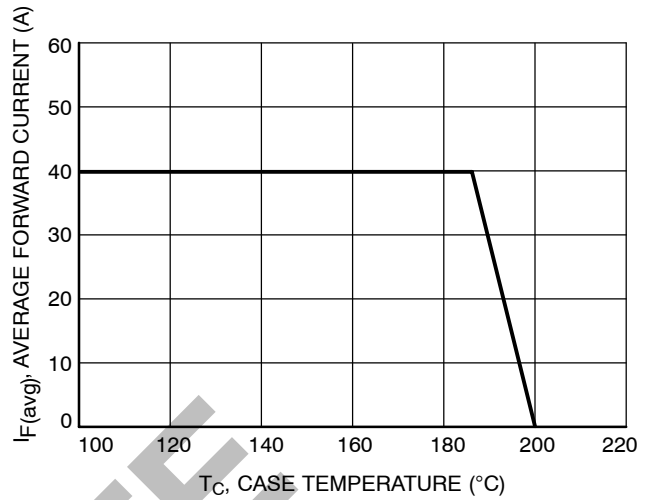


Figure 6. Maximum Current Rating

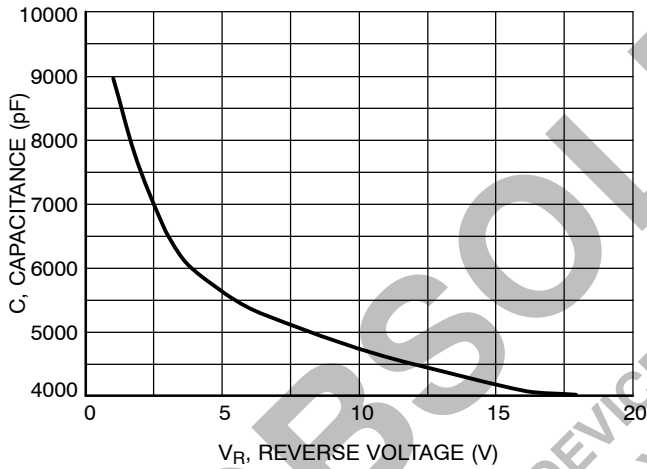


Figure 7. Typical Capacitance

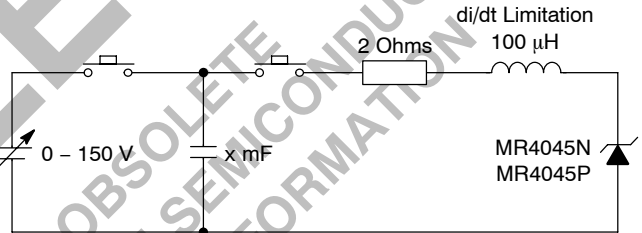


Figure 8. Load Dump Test Circuit

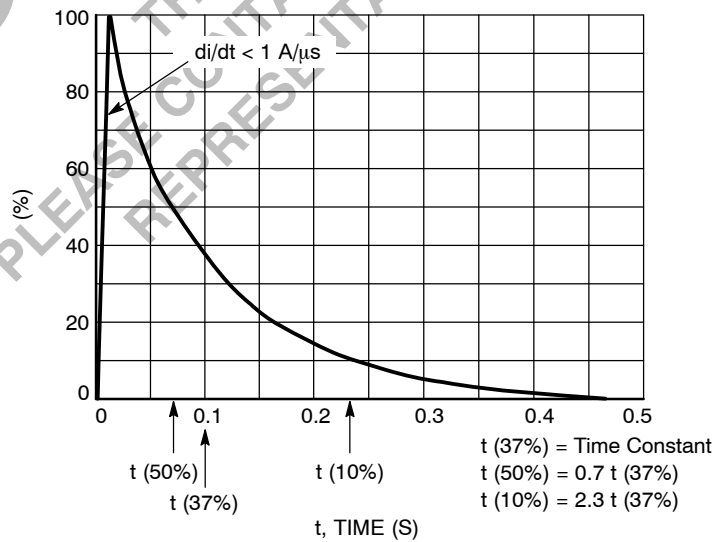
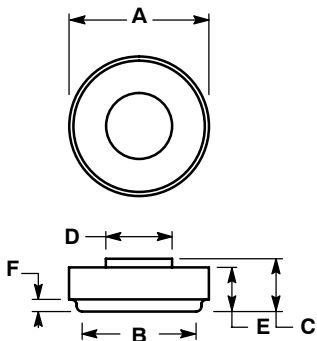


Figure 9. Load Dump Pulse Current

MR4045

PACKAGE DIMENSIONS


N SUFFIX
(Anode to Cup)
P SUFFIX
(Cathode to Cup)
CASE 193A-02
ISSUE A



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 11.4 | 11.6 | 0.449 | 0.457 |
| B | 9.3 | 9.7 | 0.366 | 0.382 |
| C | 4.3 | 4.9 | 0.169 | 0.193 |
| D | 5.4 | 5.6 | 0.213 | 0.220 |
| E | 3.6 | 4.2 | 0.142 | 0.165 |
| F | 1.0 | 2.0 | 0.039 | 0.079 |

OBSOLETE
THIS DEVICE IS OBSOLETE
PLEASE CONTACT YOUR ON SEMICONDUCTOR
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