

Features

- Low reverse current
- Good surge current capability
- Low capacitive charge
- No reverse recovery current
- Halogen free, RoHs compliant

| | | |
|--------------------------|---|---------|
| V_{RRM} | = | 650 V |
| $I_F (T_C=160^{\circ}C)$ | = | 4 A |
| Q_C | = | 10.6 nC |

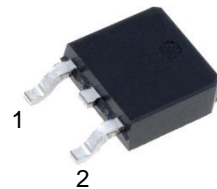
Benefits

- System efficiency improvement over Si diodes
- Higher switching frequency
- Increased power density
- Essentially no switching losses

Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- Motor drives
- UPS

Package



TO-252-2



| Part Number | Package | Marking |
|-------------|----------|-------------|
| ASZD004065D | TO-252-2 | ASZD004065D |

Maximum Ratings (T_c=25°C unless otherwise noted)

| Symbol | Parameter | Test conditions | Value | Unit |
|--------------------|--------------------------------------|---|--------------|------------------|
| V _{RRM} | Repetitive peak reverse voltage | | 650 | V |
| V _{RSM} | Non-repetitive peak reverse voltage | | 650 | V |
| I _F | Continuous forward current | T _C =25°C T _C =135°C T _C =160°C | 14 7 4 | A |
| I _{FRM} | Repetitive forward surge current | T _C =25°C, t _p =10ms, Half Sine Pulse T _C =110°C, t _p =10ms, Half Sine Pulse | 23 15 | A |
| I _{FSM} | Non-Repetitive forward surge current | T _C =25°C, t _p =10ms, Half Sine Pulse T _C =110°C, t _p =10ms, Half Sine Pulse | 36 28 | A |
| ∫i ² dt | i ² t value | T _C =25°C, t _p =10ms, Half Sine Pulse T _C =110°C, t _p =10ms, Half Sine Pulse | 6.5 3.9 | A ² S |
| P _{tot} | Power dissipation | T _C =25°C T _C =110°C | 51 22 | W |
| T _j | Operating junction temperature | | -55~175 | °C |
| T _{stg} | Storage temperature | | -55~150 | °C |

Electrical Characteristics (T_j=25°C unless otherwise noted)

Static Characteristics

| Symbol | Parameter | Test conditions | Value | | | Unit |
|-----------------|-----------------------|---|-------|------------|-----------|------|
| | | | Min. | Typ. | Max. | |
| V _{DC} | DC blocking voltage | T _j =25°C | 650 | | | V |
| V _F | Diode forward voltage | I _F =4A T _j =25°C I _F =4A T _j =175°C | | 1.3 1.5 | 1.5 | V |
| I _R | Reverse current | V _R =650V T _j =25°C V _R =650V T _j =175°C | | 10 40 | 50 150 | μA |

AC Characteristics

| Symbol | Parameter | Test conditions | Value | | | Unit |
|----------------|-------------------------|--|-------|-----------------|------|------|
| | | | Min. | Typ. | Max. | |
| Q _C | Total capacitive charge | V _R =400V T _j =25°C Q _C = ∫ ₀ ^{V_R} C(V)dV | | 10.6 | | nC |
| C | Total capacitance | V _R =1V f=1MHz V _R =200V f=1MHz V _R =400V f=1MHz | | 203 21 16 | | pF |

Thermal Characteristics

| Symbol | Parameter | Value | | | Unit |
|---------------------|--|-------|------|------|------|
| | | Min. | Typ. | Max. | |
| R _{th(jc)} | Thermal resistance from junction to case | | 2.90 | | °C/W |

Typical Performance

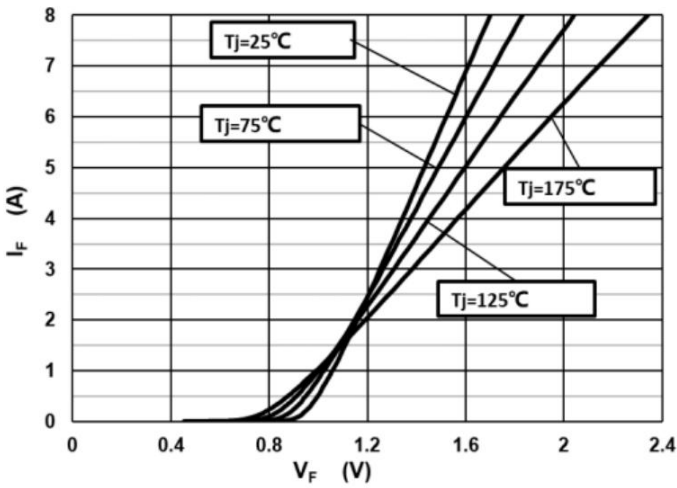


Figure 1. Typical forward characteristics

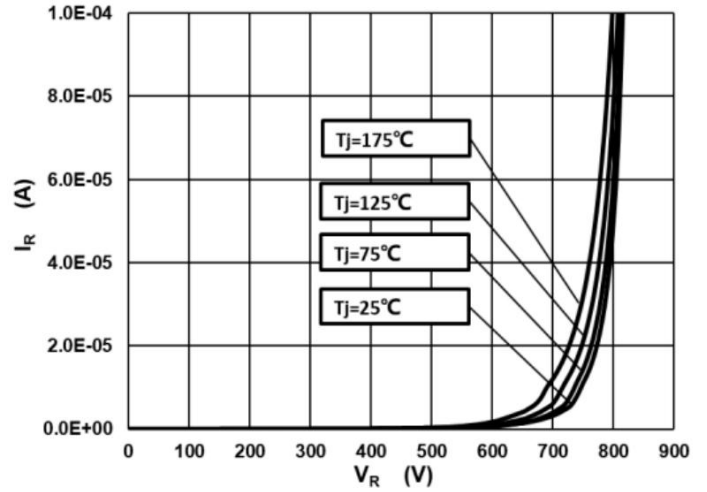


Figure 2. Typical reverse current as function of reverse voltage

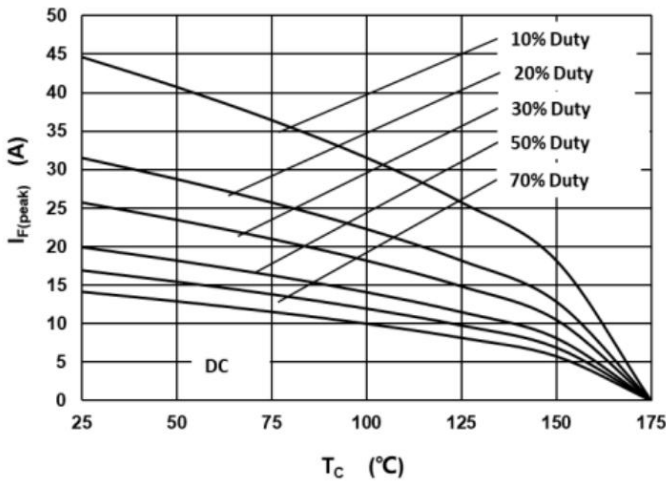


Figure 3. Diode forward current as function of temperature, D=duty cycle

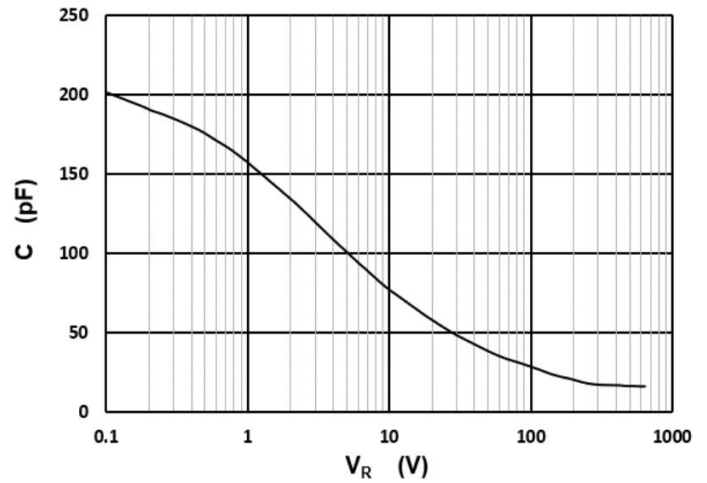


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_J=25^\circ\text{C}$

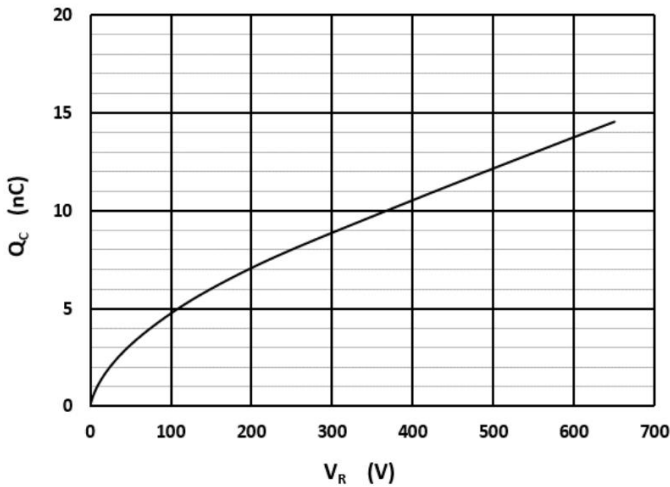


Figure 5. Typical reverse charge as function of reverse voltage

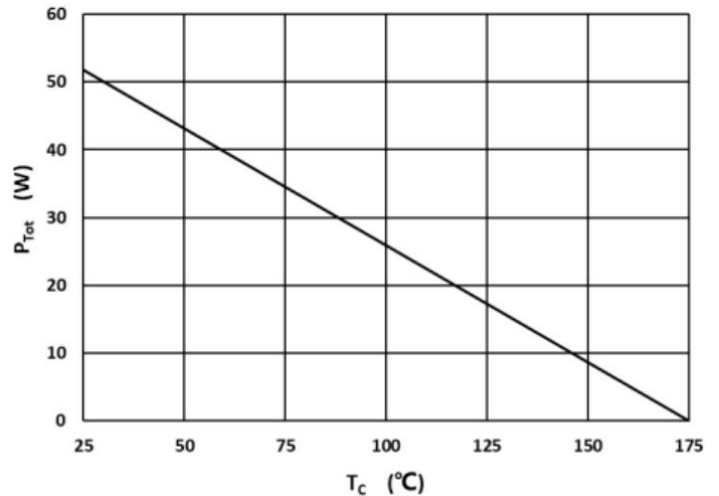


Figure 6. Power dissipation as function of case temperature

Typical Performance

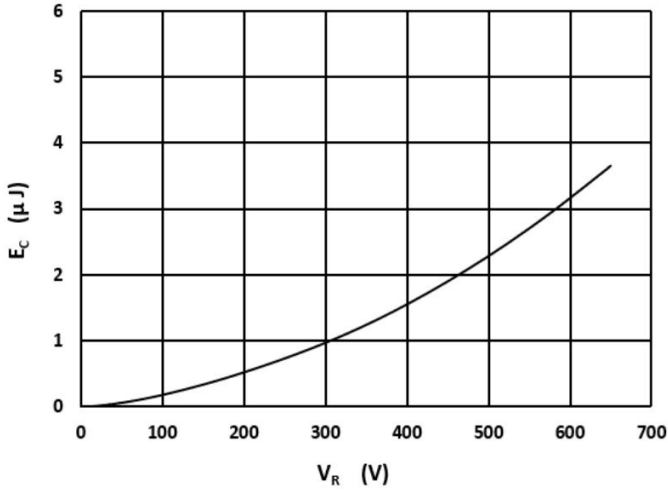


Figure 7. Capacitance stored energy

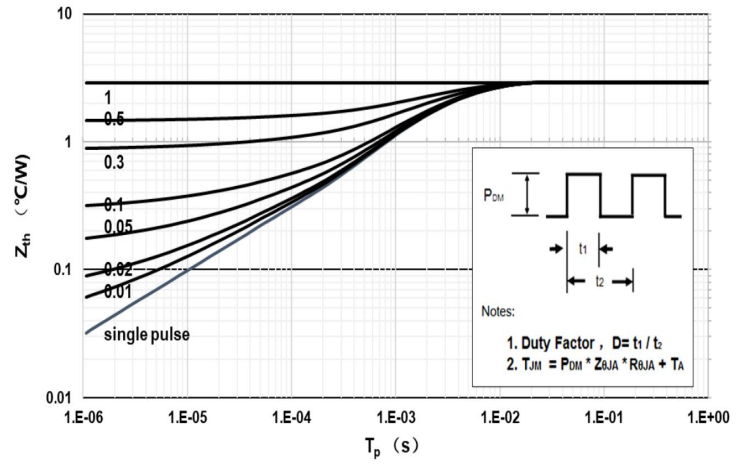
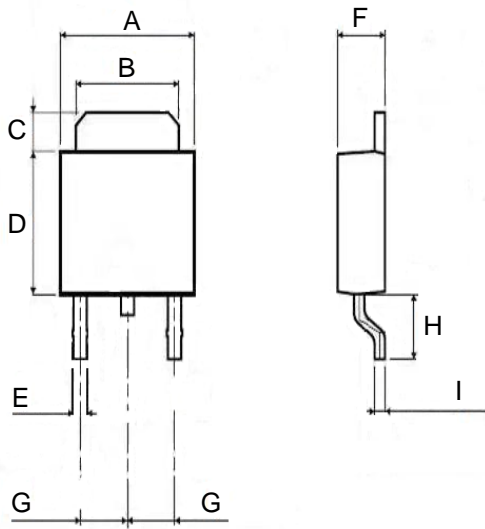


Figure 8. Max. transient thermal impedance

Package Dimensions

Package TO-252-2



| Symbol | Min. (mm) | Typ. (mm) | Max. (mm) |
|--------|-----------|-----------|-----------|
| A | 6.30 | 6.60 | 6.73 |
| B | 5.21 | 5.34 | 5.46 |
| C | 0.89 | 1.08 | 1.27 |
| D | 6.00 | 6.12 | 6.23 |
| E | 0.64 | 0.76 | 0.88 |
| F | 2.20 | 2.30 | 2.40 |
| G | - | 2.286 BSC | - |
| H | - | 2.743 REF | - |
| I | - | 0.508 BSC | - |