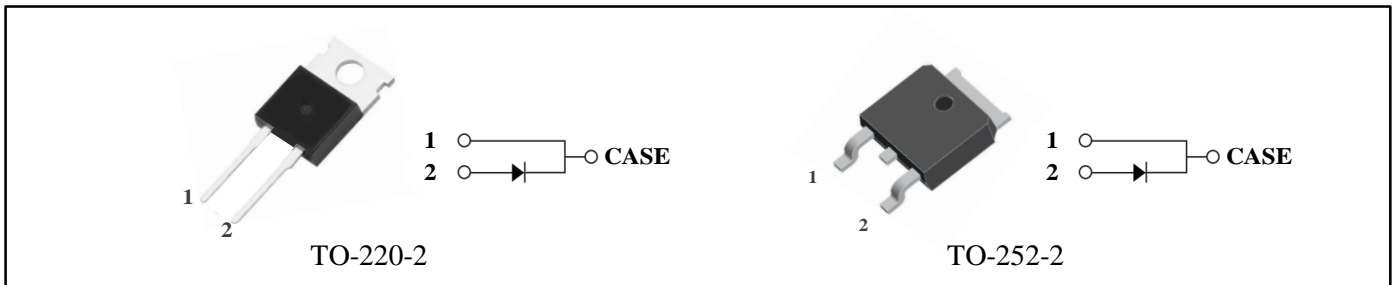


Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Temperature-independent Switching Behavior
- Positive Temperature Coefficient on V_F
- High-speed switching possible and surge current capability

Applications

- Switch Mode Power Supply (SMPS)
- Motor Drives
- Power Factor Correction(PFC)



Ordering Information

| Type NO. | Marking | Package |
|-----------|-----------|----------|
| MPCC2N65A | MPCC2N65A | TO-220-2 |
| MPCD2N65A | MPCD2N65A | TO-252-2 |

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$, unless otherwise noted

| Parameter | Symbol | Test Conditions | Value | Unit | Note |
|--|----------------|--|----------|------------------|-------|
| | | | 220-252 | | |
| Repetitive Peak Reverse Voltage | V_{RRM} | | 650 | V | |
| Surge Peak Reverse Voltage | V_{RSM} | | 650 | V | |
| DC Blocking Voltage | V_{DC} | | 650 | V | |
| Continuous Forward Current | I_F | $T_C = 25^\circ\text{C}$ | 8 | A | |
| | | $T_C = 160^\circ\text{C}$ | 2 | | |
| Non-Repetitive Forward Surge Current | I_{FSM} | $T_C = 25^\circ\text{C}$, $t_p=8.3\text{ms}$, Half Sine Wave | 20 | A | |
| Non-Repetitive Peak Forward Current | $I_{F,Max}$ | $T_C = 25^\circ\text{C}$, $t_p=10\mu\text{s}$, Pulse | 220 | A | |
| Power Dissipation | P_{tot} | $T_C = 25^\circ\text{C}$ | 39 | W | Fig.5 |
| Operating Junction and Storage Temperature | T_J, T_{stg} | | -55~+175 | $^\circ\text{C}$ | |



芯善物科技

MPCX2N65A Series

Silicon Carbide Schottky Diode

| Electrical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted | | | | | | | |
|--|--------|--|-------|------|------|------|-------|
| Parameter | Symbol | Test Conditions | Value | | | Unit | Note |
| | | | Min. | Typ. | Max. | | |
| Forward Voltage | V_F | $I_F = 2\text{A}, T_J = 25^\circ\text{C}$ | -- | 1.4 | 1.65 | V | Fig.1 |
| | | $I_F = 2\text{A}, T_J = 175^\circ\text{C}$ | -- | 1.7 | 2.3 | | |
| Reverse Current | I_R | $V_R = 650\text{V}, T_J = 25^\circ\text{C}$ | -- | 1 | 10 | uA | Fig.2 |
| | | $V_R = 650\text{V}, T_J = 175^\circ\text{C}$ | -- | 5 | 100 | uA | |
| Total Capacitance | C | $V_R = 0\text{V}, f=1\text{ MHz}$ | -- | 125 | -- | pF | Fig.3 |
| | | $V_R = 200\text{V}, f=1\text{ MHz}$ | -- | 12 | -- | | |
| | | $V_R = 400\text{V}, f=1\text{ MHz}$ | -- | 10 | -- | | |
| Total Capacitive charge | Q_c | $V_{DD} = 400\text{V}, T_J = 25^\circ\text{C},$ $Q_c = \int_0^{V_R} C(V)dV$ | | 5.4 | | nC | Fig.4 |

| Thermal Characteristics | | | | | |
|--|------------|---------|--|--------------------|-------|
| Parameter | Symbol | Typ. | | Unit | Note |
| | | 220-252 | | | |
| Thermal Resistance from Junction to Case | R_{thJC} | 3.8 | | $^\circ\text{C/W}$ | Fig.6 |

Typical Performance $T_j = 25^\circ\text{C}$, unless otherwise noted

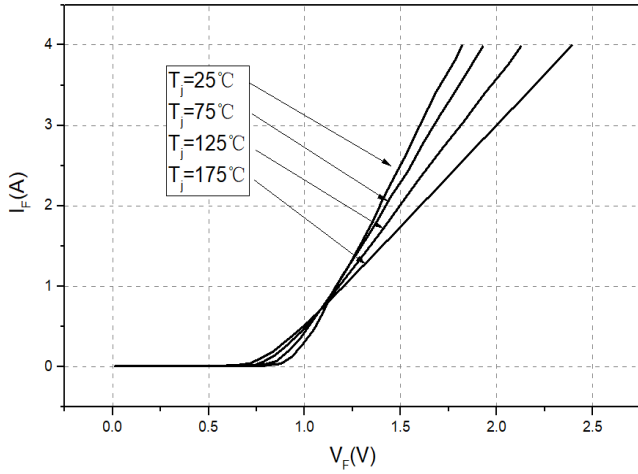


Figure 1. Forward Characteristics

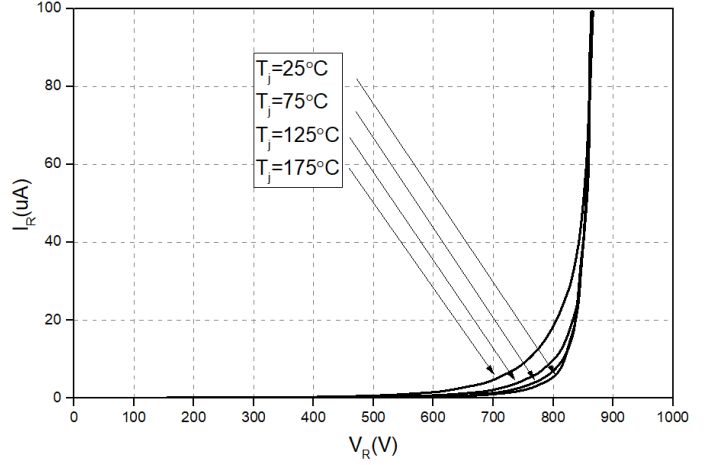


Figure 2. Reverse Characteristics

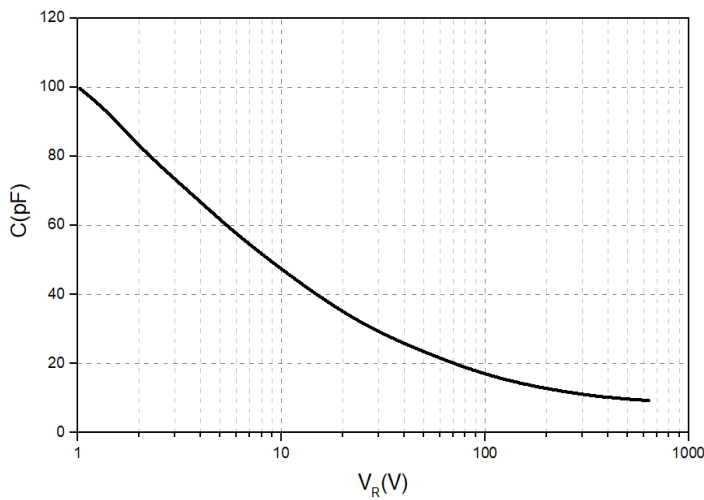


Figure 3. Capacitance vs. Reverse Voltage

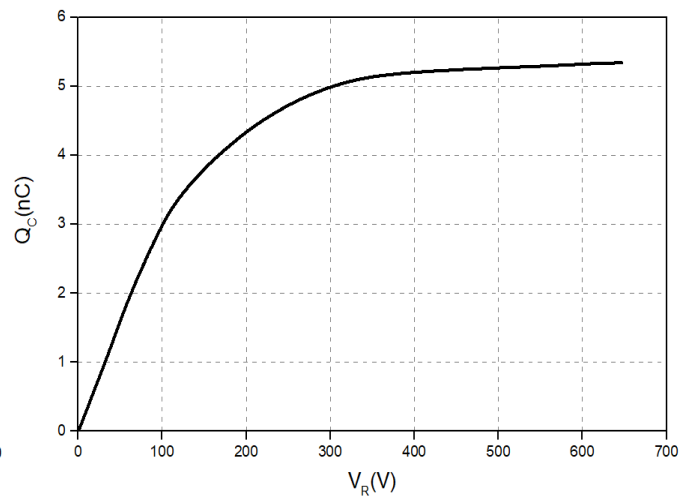


Figure 4. Total Capacitance Charge vs. Reverse Voltage

Typical Performance $T_J = 25^\circ\text{C}$, unless otherwise noted

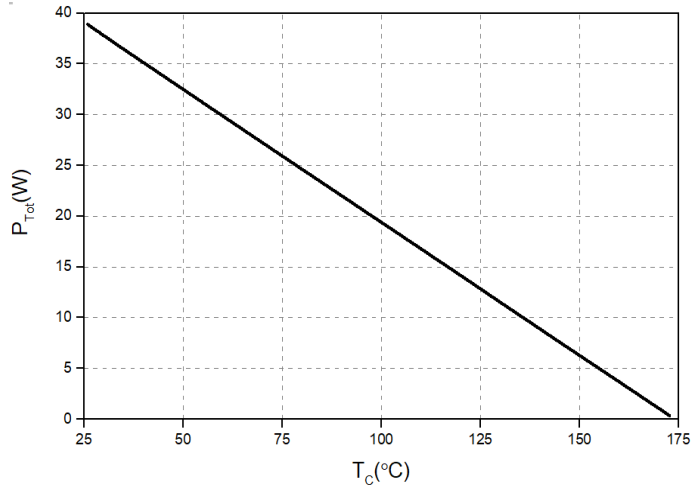


Figure 5. Power derating

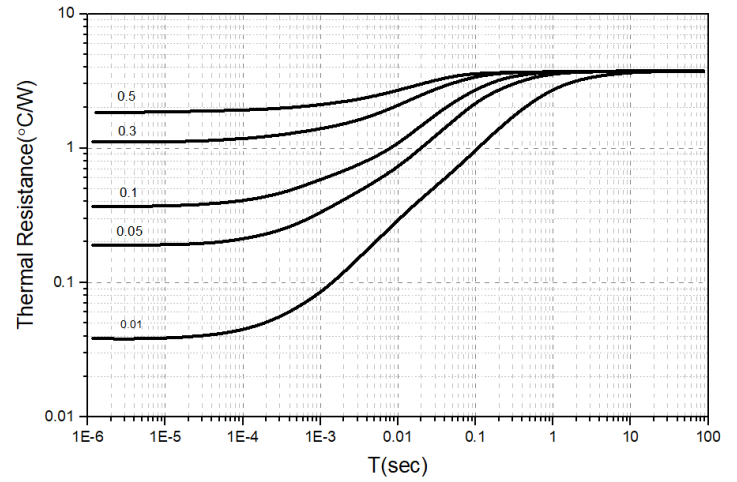
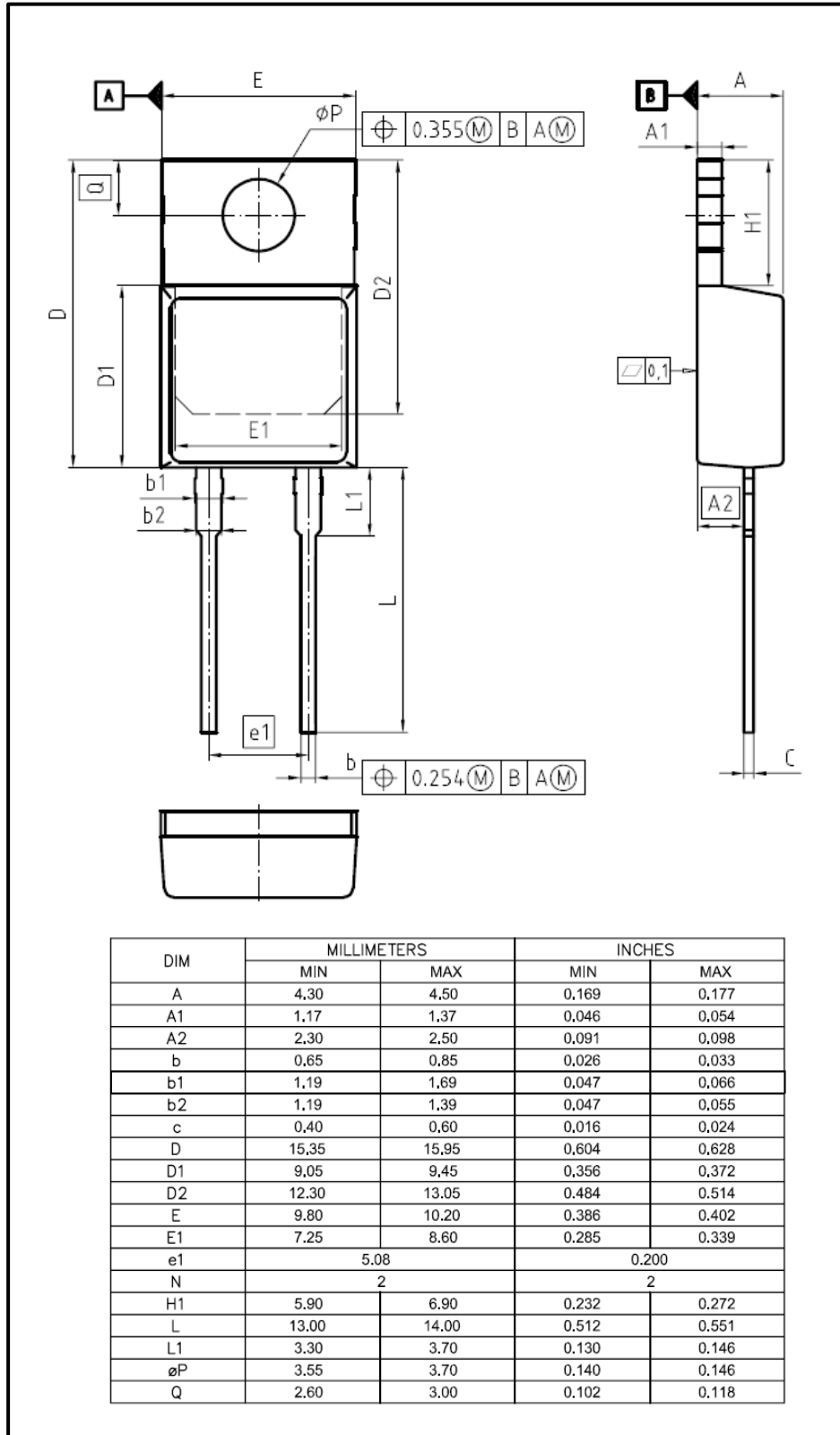


Figure 6. Transient Thermal Impedance

Outline Dimensions

Unit: um

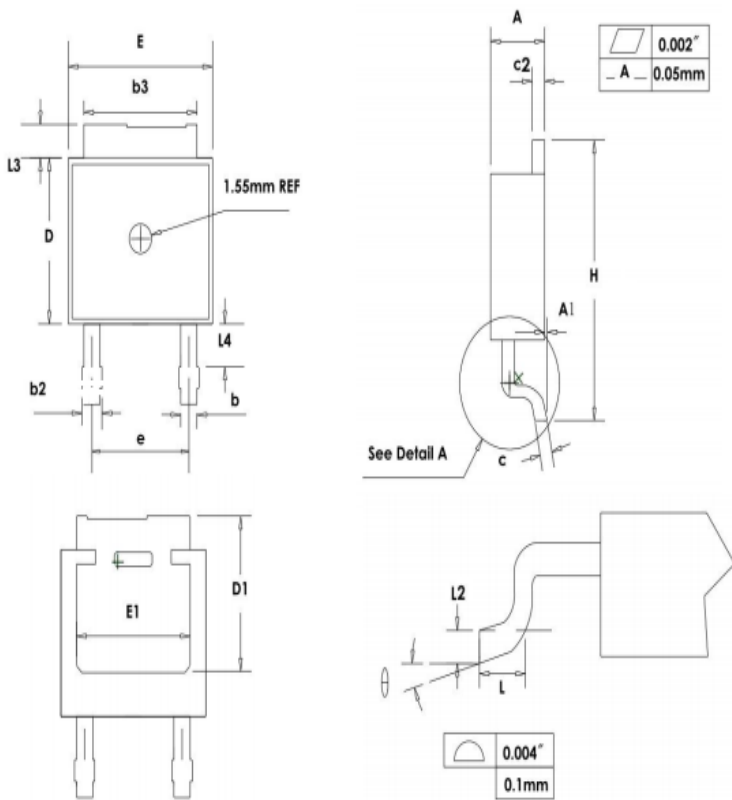
TO-220-2



Outline Dimensions

Unit: μm

TO-252-2



| SYMBOL | MILLIMETERS | |
|----------|-------------|--------|
| | MIN | MAX |
| A | 2.159 | 2.413 |
| A1 | 0 | 0.13 |
| b | 0.64 | 0.89 |
| b2 | 0.653 | 1.143 |
| b3 | 5.004 | 5.6 |
| c | 0.457 | 0.61 |
| c2 | 0.457 | 0.864 |
| D | 5.867 | 6.248 |
| D1 | 5.21 | - |
| E | 6.35 | 7.341 |
| E1 | 4.32 | - |
| e | 4.58 BSC | |
| H | 9.65 | 10.414 |
| L | 1.106 | 1.78 |
| L2 | 0.51 BSC | |
| L3 | 0.889 | 1.27 |
| L4 | 0.64 | 1.01 |
| θ | 0° | 8° |