

PD026065E2H / PD026065E2H_G

650V Silicon Carbide Diode

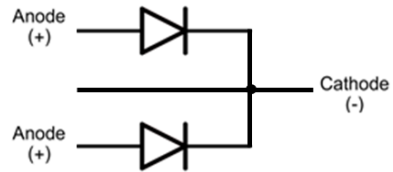
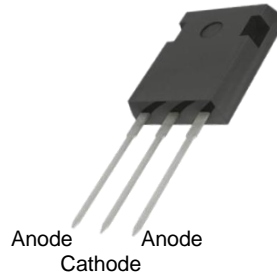
Features

- 650-Volt Schottky Rectifier
- Shorter recovery time
- High-speed switching possible
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on VF
- RoHS Compliant

Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives
- HID Lighting

Package Outline



Absolute Maximum Ratings

| Symbol | Parameter | Value | Units |
|----------------|---|----------------------|------------------|
| V_{RRM} | Repetitive Peak Reverse Voltage | 650 | V |
| V_{RSM} | Surge Peak Reverse Voltage | 650 | V |
| V_{DC} | DC Blocking Voltage | 650 | V |
| I_F | Continuous Forward Current $T_C = 25^\circ\text{C}$ $T_C = 135^\circ\text{C}$ | 28 / 56 13 / 26 | A |
| I_{FRM} | Repetitive Peak Forward Current $T_C = 110^\circ\text{C}$ | 67 / 130 | A |
| I_{FSM} | Non-Repetitive Forward Surge Current (PW=10ms sinusoidal) $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$ | 65 / 130 52 / 104 | A |
| P_D | Power Dissipation $T_C = 25^\circ\text{C}$ | 115 / 230 | W |
| T_J, T_{stg} | Operating Junction and Storage Temperature | -55 to +175 | $^\circ\text{C}$ |

* Per Leg / Per Device

Electrical Characteristics (Per Leg)T_C = 25°C unless otherwise noted

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Units |
|----------------|-------------------------|--|-----|------------|------------|-------|
| V _F | Forward Voltage | I _F = 13A, T _C = 25°C I _F = 13A, T _C = 175°C | -- | 1.5 2.0 | 1.8 2.4 | V |
| I _R | Reverse Current | V _R = 650V T _C = 25°C V _R = 650V T _C = 175°C | -- | 23 46 | 49 490 | uA |
| Q _C | Total Capacitive Charge | V _R = 400V | -- | 24 | -- | nC |
| C | Total Capacitance | V _R = 1V, T _J = 25°C, f = 1MHz V _R = 520V, T _J = 25°C, f = 1MHz | -- | 575 55 | -- | pF |

Thermal CharacteristicsT_C = 25°C unless otherwise noted

| Symbol | Parameter | Min | Typ | Max | Units |
|------------------|--------------------------------------|-----|---------------|--------------|-------|
| R _{θJC} | Thermal Resistance, Junction-to-Case | -- | 1.3 / 0.65 | 1.6 / 0.8 | °C/W |

* Per Leg / Per Device

Package Marking and Ordering Information

| Device Marking | Device | Package | Reel Size | Tape Width | Quantity |
|----------------|---------------|-----------|-----------|------------|----------|
| PD026065E2H | PD026065E2H | TO-247_3L | - | - | 30 |
| PD026065E2H_G | PD026065E2H_G | TO-247_3L | - | - | 30 |

* PD026065E2H_G : RoHS Compliant

Typical Characteristics (Per Leg)

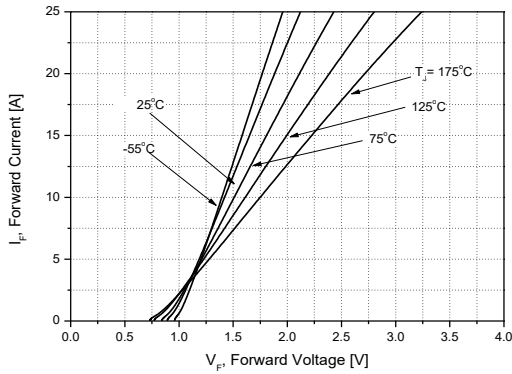


Figure 1. Forward Characteristics

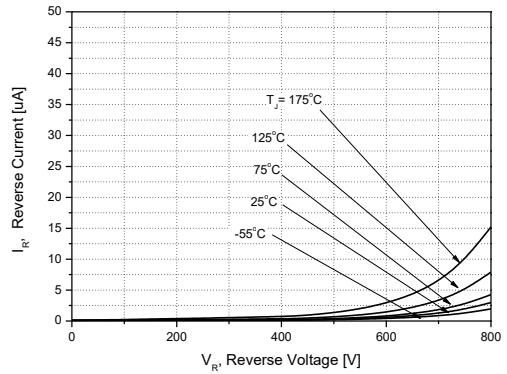


Figure 2. Reverse Characteristics

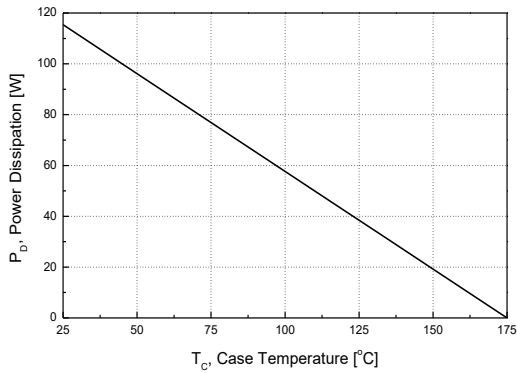


Figure 3. Power Dissipation

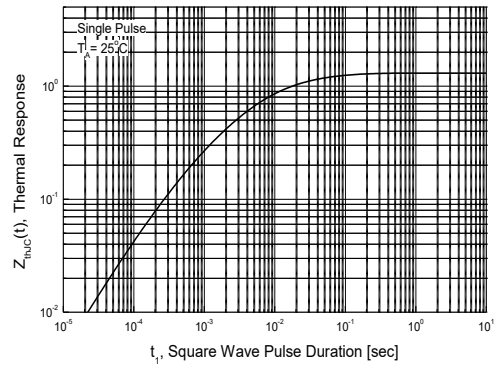


Figure 4. Transient Thermal Resistance

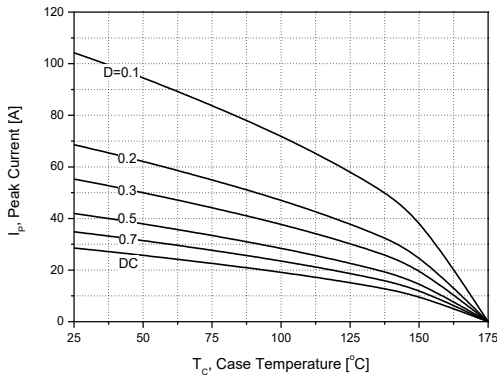


Figure 5. Peak Forward Current Derating

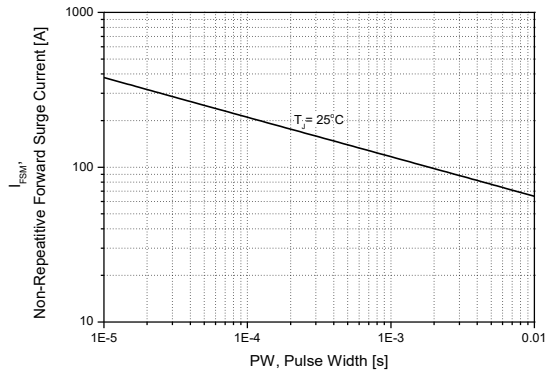


Figure 6. Non-Repetitive Peak Forward Surge Current vs. Pulse Duration

Typical Characteristics (Per Leg)

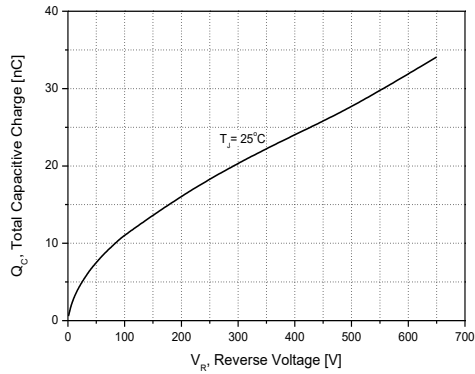


Figure 7. Total Capacitive Charge

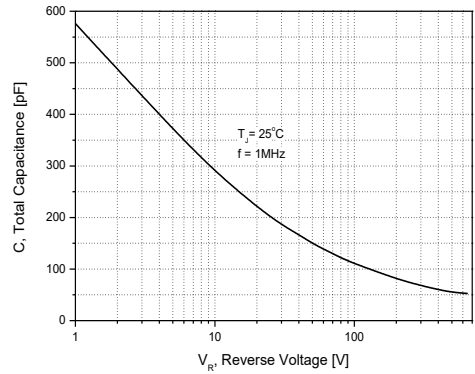


Figure 8. Total Capacitance

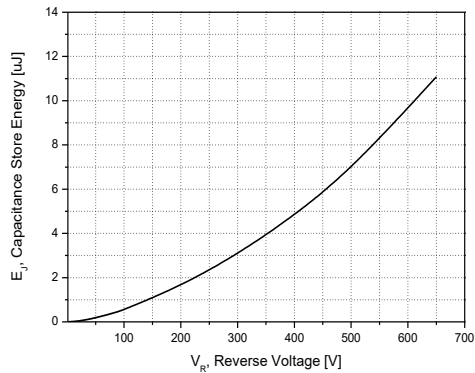


Figure 9. Capacitance Store Energy

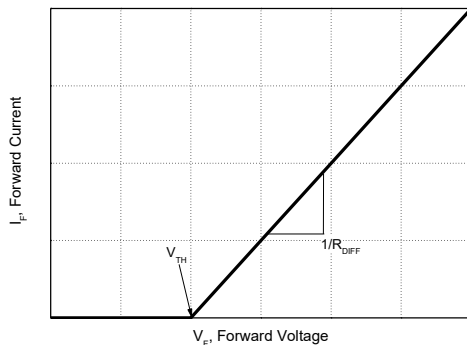


Figure 10. Equivalent Forward Current Curve

$$V_F = V_{TH} + R_{DIFF} \times I_F$$

Threshold Voltage (V_{TH})

$$V_{TH}(T_j) = -0.001 \times (T_j) + 0.950 \text{ [V]}$$

Differential Resistance (R_{DIFF})

$$R_{DIFF}(T_j) = A \times T_j^2 + B \times T_j + C \text{ [\Omega]}$$

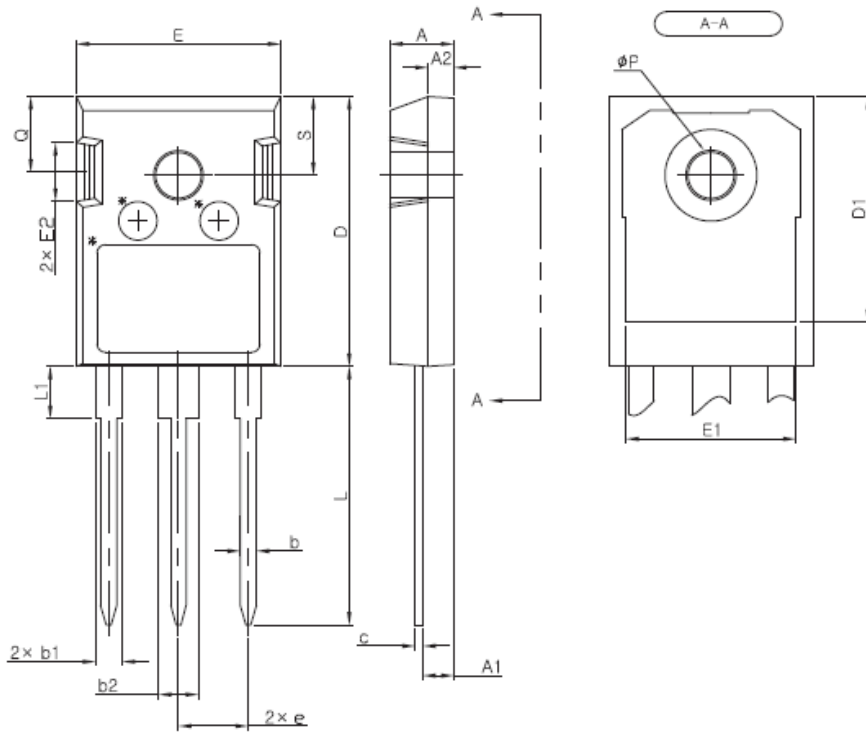
$$A = 1.28 \times 10^{-6}$$

$$B = 1.49 \times 10^{-4}$$

$$C = 4.39 \times 10^{-2}$$

$$[T_j \text{ [}^\circ\text{C]}; -55^\circ\text{C} \leq T_j \leq 175^\circ\text{C}; I_F \leq 13 \text{ A}]$$

Package Information



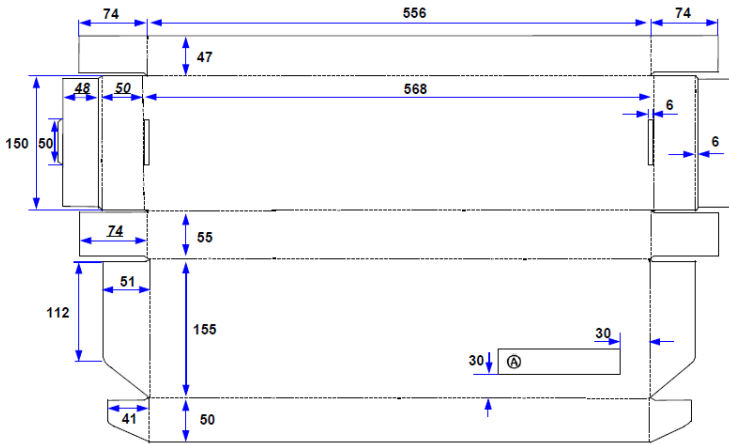
| SYMBOL | MIN | NOM | MAX |
|----------|----------|-------|-------|
| A | 4.80 | 5.00 | 5.20 |
| A1 | 2.29 | 2.41 | 2.54 |
| A2 | 1.90 | 2.00 | 2.10 |
| b | 1.10 | 1.20 | 1.30 |
| b1 | 1.91 | 2.10 | 2.20 |
| b2 | 2.92 | 3.10 | 3.20 |
| c | 0.50 | 0.60 | 0.70 |
| D | 20.80 | 21.07 | 21.34 |
| D1 | 17.43 | 17.63 | 17.83 |
| E | 15.75 | 15.94 | 16.13 |
| E1 | 13.06 | 13.26 | 13.46 |
| E2 | 4.32 | 4.58 | 4.83 |
| e | 5.45 BSC | | |
| L | 19.81 | 20.19 | 20.57 |
| L1 | 3.81 | 4.07 | 4.32 |
| ϕP | 3.55 | 3.60 | 3.65 |
| Q | 5.59 | 5.90 | 6.20 |
| S | 6.15 BSC | | |

NOTE

1. THESE DIMENSION DO NOT INCLUDE MOLD PROTRUSION

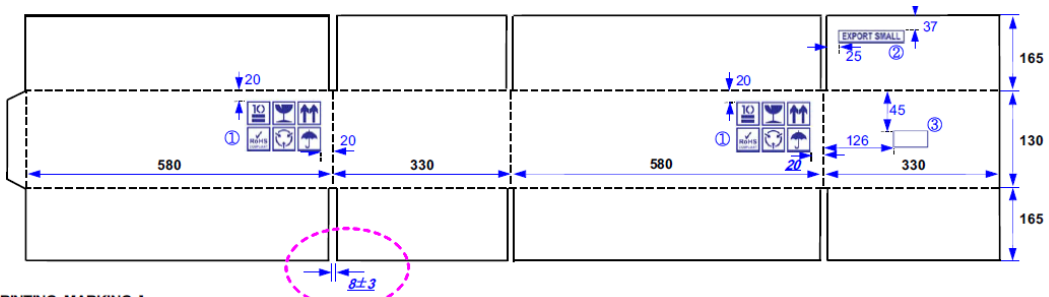
Package Information

Inner Box



| | | | |
|-------------------------|--------------|---------|------|
| LOT NO | PKG type | QTY | DATE |
| PART ID | BOX NO | | |
| YESPOWERTECHNIX co.,ltd | | | |

Outer Box



[BOX PRINTING MARKING]



MARKING SIZE (Each Symbol 30*30)
COLOR (DARK BLUE)

- ② EXPORT SMALL
MARKING SIZE (112*20)
COLOR (DARK BLUE)
- ③
LABEL MARKING SIZE (75*35)
COLOR (DARK BLUE)

[NOTE]

- 1. MATERIAL : KLB175*K180*KLB175*K180*KLB175
(SUK175*K200*K200*K200*SUK175)
- 2. NAIL QTY : 3 PCS
- 3. PRINTING TOLERANCE : MARKING SIZE(±3)
MARKING POSITION(±5)

| | |
|-------------------------|------|
| PART ID | DATE |
| LOT NO | |
| QTY | |
| | |
| YESPOWERTECHNIX co.,ltd | |

Notes

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