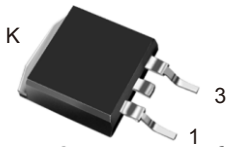
# GSD35120D3

Glass Passivated General Purpose Rectifier

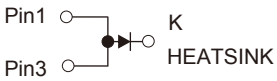
Reverse Voltage 1200V  Forward Current 35A

## Features

- Plastic package has underwriters laboratory flammability classification 94V-0
- Glass passivated chip
- Low VF, low power loss
- Flexible solution for reliable AC power rectification
- High surge capability
- Meets JESD 201 class 2 whisker test
- High temperature soldering guaranteed: 260°C/10s at terminals
- Component in accordance to RoHS 2015/863/EU




**Package: TO-263**




**Schematic Diagram**

## Mechanical Data

- Case: JEDEC TO-263
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked

## Applications

- Input rectification
- Bypass diode
- Polarity reverse protection
- EV/HEV battery chargers

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

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Maximum Repetitive Peak Reverse Voltage | $V_{RRM}$ | 1200 | V |
| Maximum Average Forward Rectified Current, D=0.5, $T_C$=118℃ | $I_{F(AV)}$ | 35 | A |
| Surge Non Repetitive Forward Current $t_P$=10ms Sinusoidal | $I_{FSM}$ | 435 | A |
| Maximum Operating Junction Temperature | $T_J$ | 150 | ℃ |
| Storage Temperature Range | $T_{stg}$ | -55 to +150 | ℃ |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | 0.9 | ℃/W |
| Typical Thermal Resistance Junction to Ambient[1] | $R_{\theta JA}$ | 62 | |

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

| Parameter | Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Breakdown Voltage | $V_{BR}$ | $I_R$=10μA | | 1200 | - | - | V |
| Blocking Voltage | $V_R$ | | | | | | |
| Instaneous Forward Voltage[2] | $V_F$ | $T_J$=25℃ | $I_F$=5A | - | 0.87 | - | V |
| | | | $I_F$=25A | - | 1.02 | - | |
| | | | $I_F$=35A | - | 1.08 | 1.20 | |
| | | $T_J$=150℃ | $I_F$=5A | - | 0.71 | - | |
| | | | $I_F$=25A | - | 0.92 | - | |
| | | | $I_F$=35A | - | 1.00 | - | |
| Reverse Current[3] | $I_R$ | $T_J$=25℃ | $V_R$=1200V | - | - | 2.0 | μA |
| | | $T_J$=125℃ | | - | - | 200 | μA |
| | | $T_J$=150℃ | | - | - | 800 | |
| Junction Capacitance | $C_J$ | 4V, 1MHz | | - | 100 | - | pF |

Notes:
1. When mounted on 1" square (650mm²) PCB of FR-4
2. Pulse test: 300μs pulse width, 1% duty cycle
3. Pulse test: pulse width ≤ 40ms

## Ratings and Characteristics Curves ($T_A$=25°C unless otherwise noted)

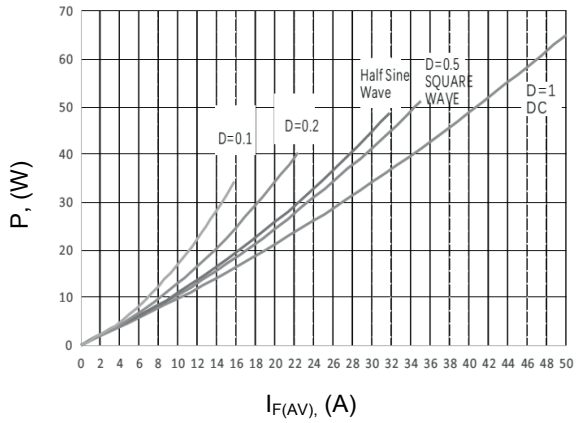



**Figure 1. Conduction Losses vs. Average Current**

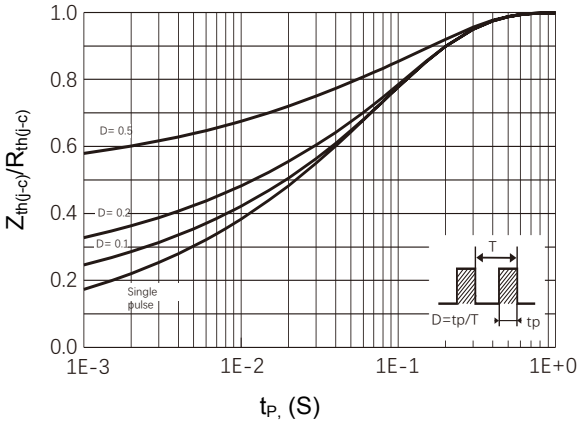



**Figure 2. Relative Variation of Thermal Impedance Junction to Case vs. Pulse Duration**

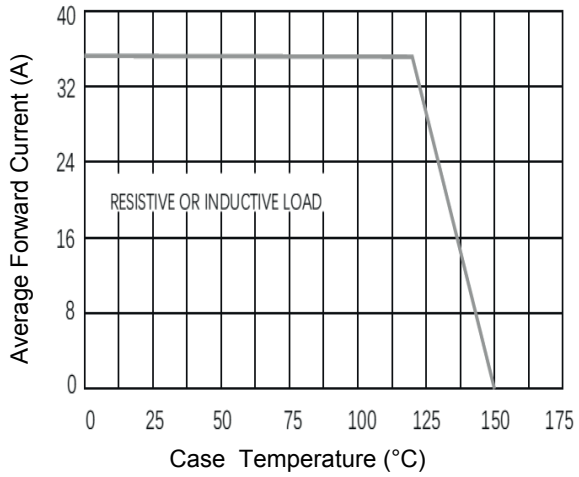



**Figure 3. Forward Current Derating Curve**

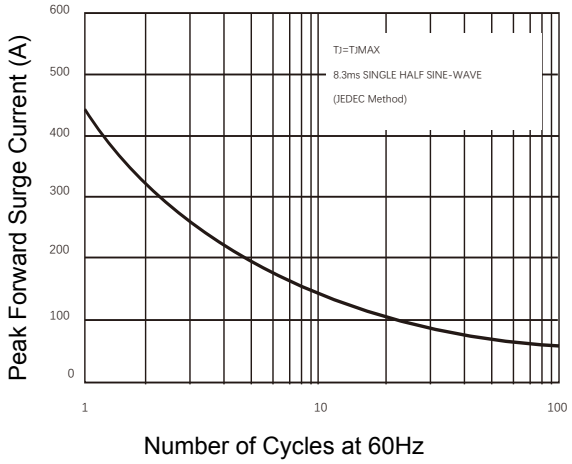



**Figure 4. Maximum Non-Repetitive Peak Forward Surge Current**

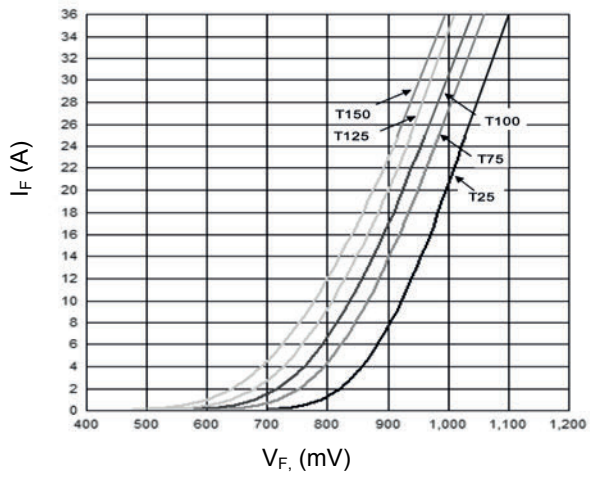



**Figure 5. Typical Instantaneous Forward Characteristics**

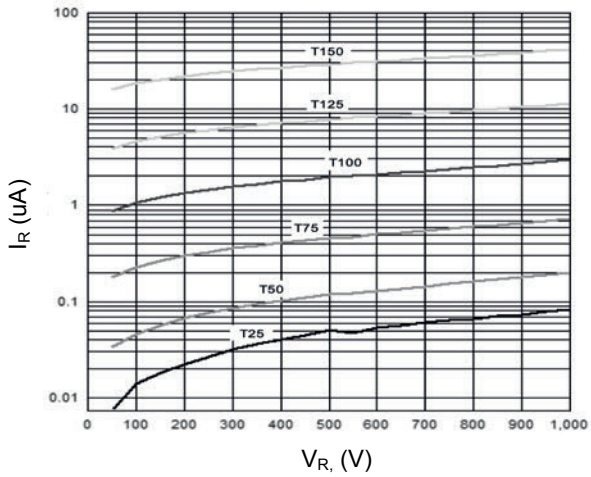



**Figure 6. Typical Reverse Characteristics**

## Ratings and Characteristics Curves ($T_A$=25°C unless otherwise noted)

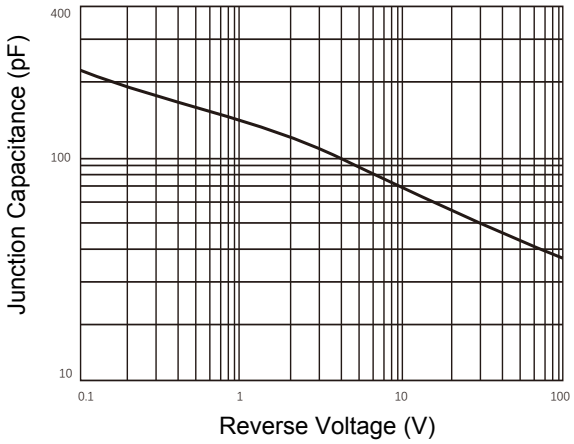
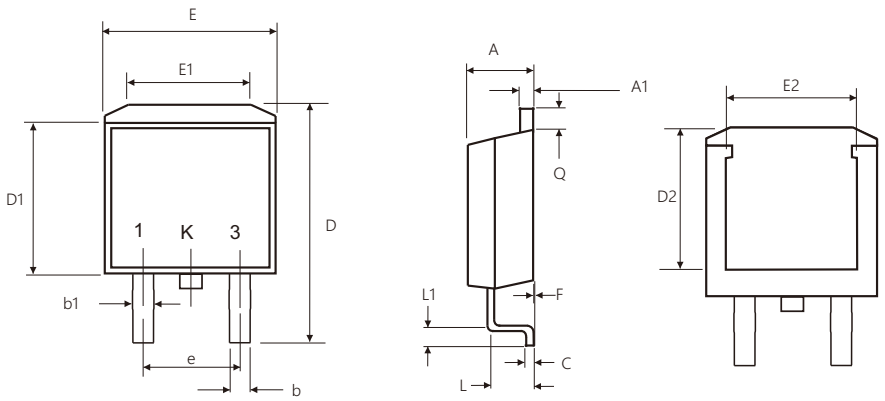


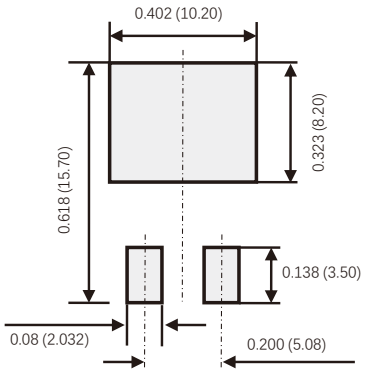

**Figure 7. Typical Junction Capacitance**

## Package Outline Dimensions (TO-263)




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 4.06 | 4.83 | 0.160 | 0.190 |
| A1 | 1.14 | 1.40 | 0.045 | 0.055 |
| e | 4.98 | 5.18 | 0.196 | 0.204 |
| b | 0.69 | 0.94 | 0.027 | 0.037 |
| b1 | 1.20 | 1.34 | 0.047 | 0.053 |
| C | 0.35 | 0.46 | 0.014 | 0.018 |
| D | 14.22 | 16.22 | 0.560 | 0.639 |
| D1 | 8.13 | 9.14 | 0.320 | 0.360 |
| E | 9.65 | 10.67 | 0.380 | 0.420 |
| E1 | 6.22 | - | 0.245 | - |
| L | 2.67 | 3.40 | 0.105 | 0.134 |
| L1 | 2.29 | 3.32 | 0.090 | 0.131 |
| Q | 0.92 | 1.68 | 0.036 | 0.066 |
| F | 0.02 | 0.30 | 0.001 | 0.012 |
| D2 | 7.20 | 7.80 | 0.283 | 0.307 |
| E2 | 7.60 | 8.20 | 0.299 | 0.323 |

## Recommended Pad Layout




Note:
1. Pad dimensions for reference
2. Unit in inches (millimeters)