

1N3085, 1N3111, 1N5162 SERIES

150 Amp Avg Silicon Rectifier Diodes

Major Ratings and Characteristics

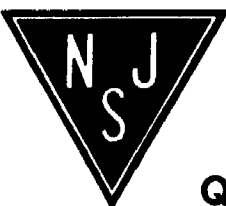
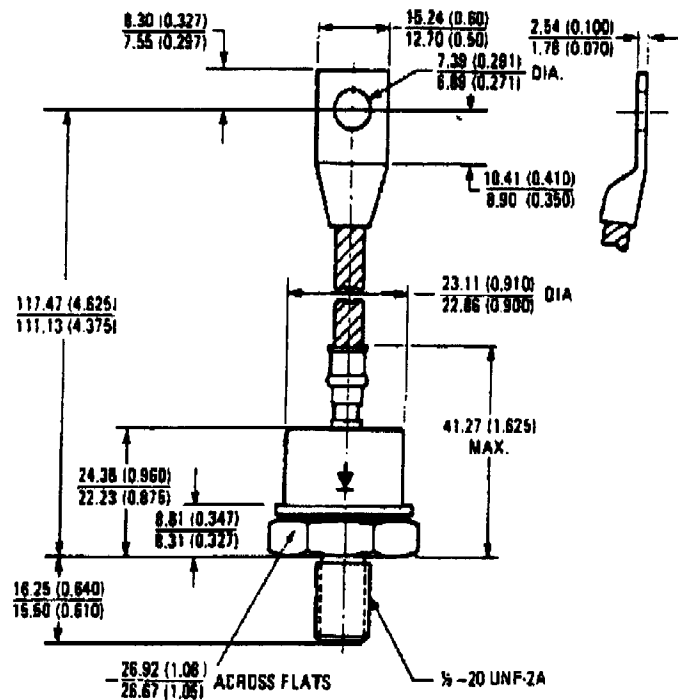
| | 1N3111 | 1N3085 | 1N5162 | Units |
|-----------------|--------|------------|--------|---------------------------|
| $I_{F(AV)}$ | | 150* | | A |
| @ Max. T_C | | 150° | | °C |
| I_{FSM} | | 2,850 | | A |
| @ 50 Hz | | | | |
| @ 60 Hz | | 3,000* | | |
| I^2t | | 41,000 | | A ² s |
| @ 50 Hz | | | | |
| @ 60 Hz | | 37,500 | | |
| $I^2\sqrt{t}$ | | 580,000 | | A ² \sqrt{s} |
| V_{RRM} Range | 50 | 100 - 1000 | 1200 | V |

* JEDEC registered value

Description and Features

- Alloy junction for soft recovery characteristics
- Rugged device for duty cycle applications
- Reverse voltage ratings up to 1200 volts
- Applications include power rectification in extreme environmental conditions

CASE STYLE AND DIMENSIONS:



VOLTAGE RATINGS

| Part Number ① | V_{RRM} Max. Repetitive Peak Reverse Voltage (V) | V_R Max. Direct Reverse Voltage (V) | $I_{R(AV)}$ Max. Average Reverse Current at Max. Rated $I_{F(AV)}$ and V_{RRM} . $T_C = 150^\circ\text{C}$ 1 Phase Operation (mA) |
|---------------|--|---|---|
| | $T_C = -65^\circ\text{C}$ to 200°C | | |
| 1N3111 | 50* | 40* | 25* |
| 1N3085 | 100* | 80* | 25* |
| 1N3086 | 200* | 160* | 17* |
| 1N3087 | 300* | 240* | 17* |
| 1N3088 | 400* | 320* | 17* |
| 1N3089 | 500* | 400* | 17* |
| 1N3090 | 600* | 480* | 17* |
| 1N3091 | 800* | 640* | 16* |
| 1N3092 | 1000* | 800* | 12* |
| 1N5162 | 1200* | 960* | 10* |

ELECTRICAL SPECIFICATIONS

| | | 1N3111, 1N3085, 1N5162 Series | Units | Conditions |
|---------------|---|-------------------------------|---------------------------|--|
| $I_{F(AV)}$ | Max. average forward current | 150* | A | 180° sinusoidal conduction Max. $T_C = 150^\circ\text{C}$ |
| I_{FSM} | Max. peak one-cycle non-repetitive surge current | 2,850 | A | Half cycle 50 Hz sine wave or 5 ms rectangular pulse Following any rated load condition and with rated V_{RRM} applied |
| | | 3,000* | | Half cycle 60 Hz sine wave or 5 ms rectangular pulse |
| | | 3,400 | | Half cycle 50 Hz sine wave or 5 ms rectangular pulse Following any rated load condition and with V_{RRM} applied following surge = 0 |
| | | 3,650 | | Half cycle 60 Hz sine wave or 5 ms rectangular pulse |
| I^2t | Max. I^2t for fusing | 41,000 | A ² s | $t = 10$ ms With rated V_{RRM} applied following surge, initial $T = 200^\circ\text{C}$. |
| | | 37,600 | | $t = 8.3$ ms |
| | Max. I^2t for individual device fusing | 58,000 | | $t = 10$ ms With $V_{RRM} = 0$ following surge, initial $T = 200^\circ\text{C}$ |
| | | 53,000 | | $t = 8.3$ ms |
| $I^2\sqrt{t}$ | Max. $I^2\sqrt{t}$ for individual device fusing ② | 580,000 | A ² \sqrt{s} | $t = 0.1$ to 10 ms, $V_{RRM} = 0$ following surge. |
| V_{FM} | Max. peak forward voltage | 1.2* | V | $I_{F(AV)} = 150$ A (471 A peak), $T_C = 150^\circ\text{C}$ |

THERMAL-MECHANICAL SPECIFICATIONS

| | | | | |
|------------|--|------------------|------------|--|
| T_C | Max. operating case temperature range | -65° to 200° | °C | |
| T_{stg} | Max. storage temperature range | -65° to 200° | °C | |
| R_{thJC} | Max. internal thermal resistance, junction-to-case | 0.25* | deg C/W | DC operation |
| R_{thCS} | Thermal resistance, case-to-sink | 0.10 | deg C/W | Mounting surface flat, smooth, and greased |
| T | Mounting torque | Min. | 14.1 (125) | N·m (lbf-in) |
| | | Max. | 17.0 (150) | |
| wt | Approximate weight | 91 (3.2) | g (oz) | |
| | Case style | DO-206AC (DO-30) | | JEDEC |

① Basic part number indicates cathode-to-case. For anode-to-case, add "R" to part number, e.g. 1N3086R.

*JEDEC registered values.

② I^2t for time $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$