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## NTE5892 thru NTE5899 NTE5900 thru NTE5911 Silicon Power Rectifier Diode, 16 Amp, DO4

### **Description and Features:**

The NTE5892 through NTE5911 are low power general purpose rectifier diodes in a DO4 type package designed for battery chargers, converters, power supplies, and machine tool controls.

### **Features:**

- High Surge Current Capability
- High Voltage Available
- Designed for a Wide Range of Applications
- Available in Anode-to-Case or Cathode-to-Case Style

### **Ratings and Characteristics:**

Average Forward Current ( $T_C = +140^\circ\text{C}$  Max),  $I_{F(AV)}$  ..... 16A

Maximum Forward Surge Current,  $I_{FSM}$

50Hz ..... 295A

60Hz ..... 310A

Fusing Current,  $I^2t$

50Hz ..... 435A<sup>2</sup>s

60Hz ..... 395A<sup>2</sup>s

Fusing Current,  $I^2\sqrt{t}$  ..... 6150A<sup>2</sup> $\sqrt{s}$

Maximum Reverse Recovery Voltage Range,  $V_{RRM}$  ..... 50 to 1000V

### **Voltage Ratings: ( $T_J = +175^\circ\text{C}$ )**

| NTE Type Number    |                  | $V_{RRM}$ -Max<br>Repetitive Peak<br>Reverse Volt.<br>(V) | $V_{RSM}$ -Max<br>Non-Repetitive Peak<br>Reverse Voltage<br>(V) | $V_R$ -Max.<br>Direct Reverse<br>Voltage<br>(V) | $V_{R(SR)}$<br>Minimum Avalanche<br>Voltage<br>(V) | $I_{RM}$ -Max<br>Reverse Current<br>Rated $V_{RRM}$<br>(mA) |
|--------------------|------------------|-----------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------|
| Cathode<br>to Case | Anode<br>to Case |                                                           |                                                                 |                                                 |                                                    |                                                             |
| 5892               | 5893             | 50                                                        | 75                                                              | 50                                              | —                                                  | 12                                                          |
| 5894               | 5895             | 100                                                       | 150                                                             | 100                                             | —                                                  | 12                                                          |
| 5896               | 5897             | 200                                                       | 275                                                             | 200                                             | —                                                  | 12                                                          |
| 5898               | 5899             | 300                                                       | 385                                                             | 300                                             | —                                                  | 12                                                          |
| 5900               | 5901             | 400                                                       | 500                                                             | 400                                             | 500                                                | 12                                                          |
| 5902               | 5903             | 500                                                       | 613                                                             | 50                                              | 626                                                | 12                                                          |
| 5904               | 5905             | 600                                                       | 725                                                             | 600                                             | 750                                                | 12                                                          |
| 5908               | 5909             | 800                                                       | 950                                                             | 800                                             | 950                                                | 12                                                          |
| 5910               | 5911             | 1000                                                      | 1200                                                            | 1000                                            | 1150                                               | 12                                                          |

## Electrical Specifications:

| Parameter                                              | Symbol        | Test Conditions                                             |                                                                       | Rating | Unit                 |
|--------------------------------------------------------|---------------|-------------------------------------------------------------|-----------------------------------------------------------------------|--------|----------------------|
| Maximum Average Forward Current                        | $I_F (AV)$    | 180° sinusoidal condition, $T_C = +140^{\circ}\text{C}$ Max |                                                                       | 16     | A                    |
| Maximum RMS Forward Current                            | $I_{F(RMS)}$  |                                                             |                                                                       | 25     | A                    |
| Maximum Peak One–Cycle<br>Non–Repetitive Surge Current | $I_{FSM}$     | t = 10ms                                                    | Sinusoidal Half Wave,<br>No voltage reapplied                         | 295    | A                    |
|                                                        |               | t = 8.3ms                                                   |                                                                       | 310    | A                    |
|                                                        |               | t = 10ms                                                    | 100% rated voltage reapplied,<br>$T_J = +175^{\circ}\text{C}$         | 350    | A                    |
|                                                        |               | t = 8.3ms                                                   |                                                                       | 370    | A                    |
| Maximum $I^2t$ for Individual Device<br>Fusing         | $I^2t$        | t = 10ms                                                    | 100% rated voltage reapplied,<br>Initial $T_J = +175^{\circ}\text{C}$ | 612    | $\text{A}^2\text{s}$ |
|                                                        |               | t = 8.3ms                                                   |                                                                       | 560    | $\text{A}^2\text{s}$ |
| Maximum $I^2\sqrt{t}$                                  | $I^2\sqrt{t}$ | t = 0.1 to 10ms, No voltage reapplied, Note 1               |                                                                       | 6125   | $\text{A}^2\sqrt{t}$ |
| Maximum Peak Forward Voltage                           | $V_{FM}$      | $I_{FM} = 50\text{A}$ , $T_J = +25^{\circ}\text{C}$         |                                                                       | 1.23   | V                    |
| Maximum Value of Threshold<br>Voltage                  | $V_{M(TO)}$   | $T_J = +175^{\circ}\text{C}$                                |                                                                       | 0.78   | V                    |
| Maximum Value of Forward Slope<br>Resistance           | $r_t$         | $T_J = +175^{\circ}\text{C}$                                |                                                                       | 7.55   | $\text{m}\Omega$     |

Note 1.  $I^2t$  for time  $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$

## Thermal-Mechanical Specifications:

| Parameter                                               | Symbol     | Test Conditions                              | Rating                     | Unit                                                         |
|---------------------------------------------------------|------------|----------------------------------------------|----------------------------|--------------------------------------------------------------|
| Maximum Operation Junction Temperature                  | $T_J$      |                                              | -65 to + 175               | $^\circ\text{C}$                                             |
| Maximum Storage Temperature                             | $T_{stg}$  |                                              | -65 to + 200               | $^\circ\text{C}$                                             |
| Maximum Internal Thermal Resistance<br>Junction-to-Case | $R_{thJC}$ | DC operation                                 | 1.6                        | K/W                                                          |
| Thermal Resistance, Case-to-Sink                        | $R_{thCS}$ | Mounting surface flat, smooth and<br>greased | 0.5                        | K/W                                                          |
| Mounting Torque                                         | T          | Non-lubricated threads                       | 1.2 – 1.5<br>(10.5 – 13.5) | $\text{m}\bullet\text{N}$<br>( $\text{in}\bullet\text{lb}$ ) |
| Approximate Weight                                      | wt         |                                              | 11 (0.25)                  | g (oz)                                                       |

