



TECHNICAL SPECIFICATION

## SILICON RECTIFIER

VOLTAGE RANGE 1000 Volts CURRENT 1.0 Ampere

1N4001  
THRU  
1N4007

### FEATURES

- \* Low cost
- \* Low leakage
- \* Low forward voltage drop
- \* High current capability

### MECHANICAL DATA

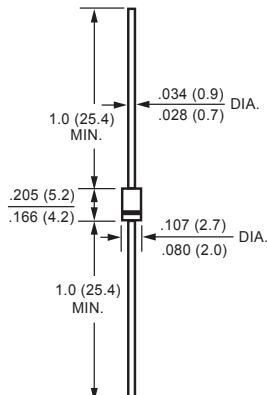
- \* Case: Molded plastic
- \* Epoxy: Device has UL flammability classification 94V-O
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 0.33 gram

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.  
Single phase, half wave, 60 Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.



DO-41



Dimensions in inches and (millimeters)

### MAXIMUM RATINGS (At TA = 25°C unless otherwise noted)

| RATINGS   | SYMBOL                            | 1N4001 | 1N4002 | 1N4003 | 1N4004       | 1N4005 | 1N4006 | 1N4007 | UNITS            |
|---|-----------------------------------|--------|--------|--------|--------------|--------|--------|--------|------------------|
| Maximum Recurrent Peak Reverse Voltage  | V <sub>RRM</sub>                  |        |        |        | 1000         |        |        |        | Volts            |
| Maximum RMS Voltage   | V <sub>RMS</sub>                  |        |        |        | 700          |        |        |        | Volts            |
| Maximum DC Blocking Voltage   | V <sub>Dc</sub>                   |        |        |        | 1000         |        |        |        | Volts            |
| Maximum Average Forward Rectified Current at TA = 75°C  | I <sub>O</sub>                    |        |        |        | 1.0          |        |        |        | Amps             |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | I <sub>FSM</sub>                  |        |        |        | 30           |        |        |        | Amps             |
| Typical Current Squared Time  | I <sup>2</sup> T                  |        |        |        | 3.74         |        |        |        | A <sup>2</sup> S |
| Typical Junction Capacitance (Note)   | C <sub>J</sub>                    |        |        |        | 15           |        |        |        | pF               |
| Typical Thermal Resistance  | R <sub>θJA</sub>                  |        |        |        | 50           |        |        |        | °C/W             |
| Operating and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub> |        |        |        | -55 to + 150 |        |        |        | °C               |

### ELECTRICAL CHARACTERISTICS (At TA = 25°C unless otherwise noted)

| CHARACTERISTICS  | SYMBOL         | 1N4001 | 1N4002 | 1N4003 | 1N4004 | 1N4005 | 1N4006 | 1N4007 | UNITS |
|--|----------------|--------|--------|--------|--------|--------|--------|--------|-------|
| Maximum Instantaneous Forward Voltage at 1.0A DC   | V <sub>F</sub> |        |        |        | 1.0    |        |        |        | Volts |
| Maximum DC Reverse Current @TA = 25°C  | I <sub>R</sub> |        |        |        | 0.2    |        |        |        | uAmps |
| at Rated DC Blocking Voltage @TA = 150°C   |                |        |        |        | 200    |        |        |        | uAmps |
| Maximum Full Load Reverse Current Average, Full Cycle .375" (9.5mm) lead length at TL = 75°C |                |        |        |        | 20     |        |        |        | uAmps |

NOTES : 1.Measured at 1 MHz and applied reverse voltage of 4.0 volts

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## RATING AND CHARACTERISTIC CURVES ( 1N4001 THRU 1N4007 )

FIG. 1 - TYPICAL FORWARD CURRENT DERATING CURVE

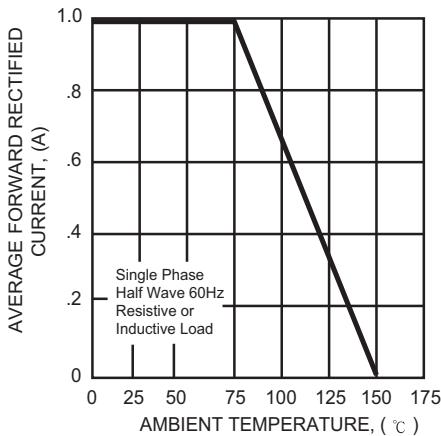


FIG. 2 - MAXIMUM INSTANTANEOUS FORWARD CHARACTERISTICS

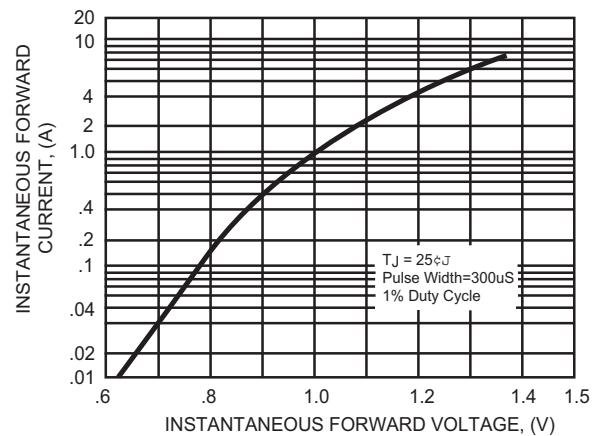


FIG. 3 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

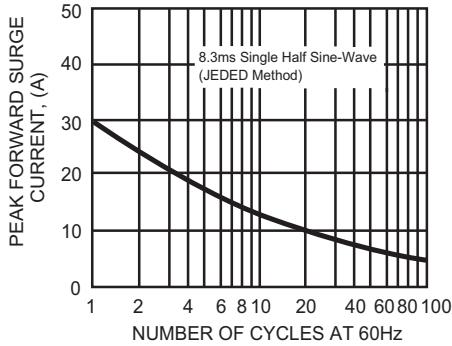


FIG. 4 - MAXIMUM REVERSE CHARACTERISTICS

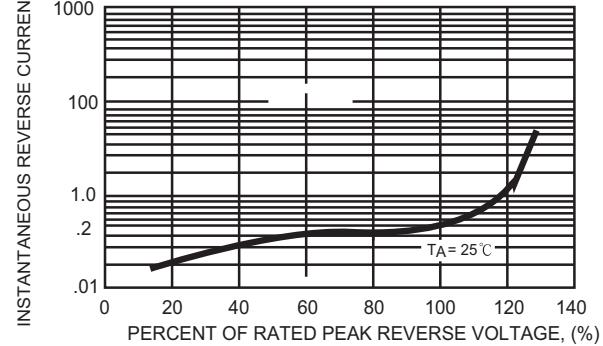
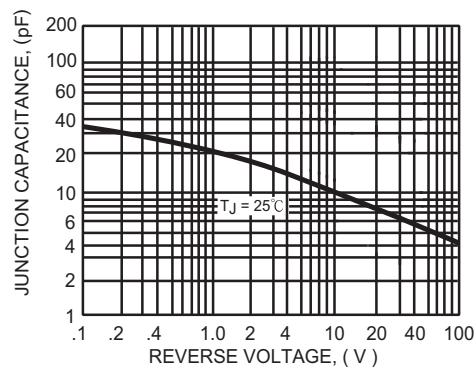


FIG. 5 - TYPICAL JUNCTION CAPACITANCE



# AXIAL LEAD TAPING SPECIFICATIONS FOR RECTIFIERS

Axial lead devices are packed in accordance with EIA standard RS-296-D and specifications given below.

| COMPONENT<br>OUTLINE | COMPONENT<br>PITCH A | INNER TAPE<br>PITCH B      |                            | CUMULATIVE PITCH<br>TOLERANCE |
|----------------------|----------------------|----------------------------|----------------------------|-------------------------------|
|                      |                      | $\pm 0.5\text{mm (.020")}$ | $\pm 0.5\text{mm (.020")}$ |                               |
| T-1                  | 5.0mm                | 26.0mm                     |                            | 2.0mm/20pitch                 |
| R-1                  | 5.0mm                | 26.0mm                     |                            | 2.0mm/20pitch                 |
| A-405                | 5.0mm                | 26.0mm                     |                            | 2.0mm/20pitch                 |
| A-405                | 5.0mm                |                            | 52.4mm                     | 2.0mm/20pitch                 |
| DO-41                | 5.0mm                | 26.0mm                     |                            | 2.0mm/20pitch                 |
| DO-41                | 5.0mm                |                            | 52.4mm                     | 2.0mm/10pitch                 |
| DO-15                | 5.0mm                |                            | 52.4mm                     | 2.0mm/10pitch                 |
| R-3                  | 5.0mm                |                            | 52.4mm                     | 2.0mm/10pitch                 |
| DO-201AD             | 10.0mm               |                            | 52.4mm                     | 2.0mm/10pitch                 |
| R-6                  | 10.0mm               |                            | 52.4mm                     | 2.0mm/10pitch                 |

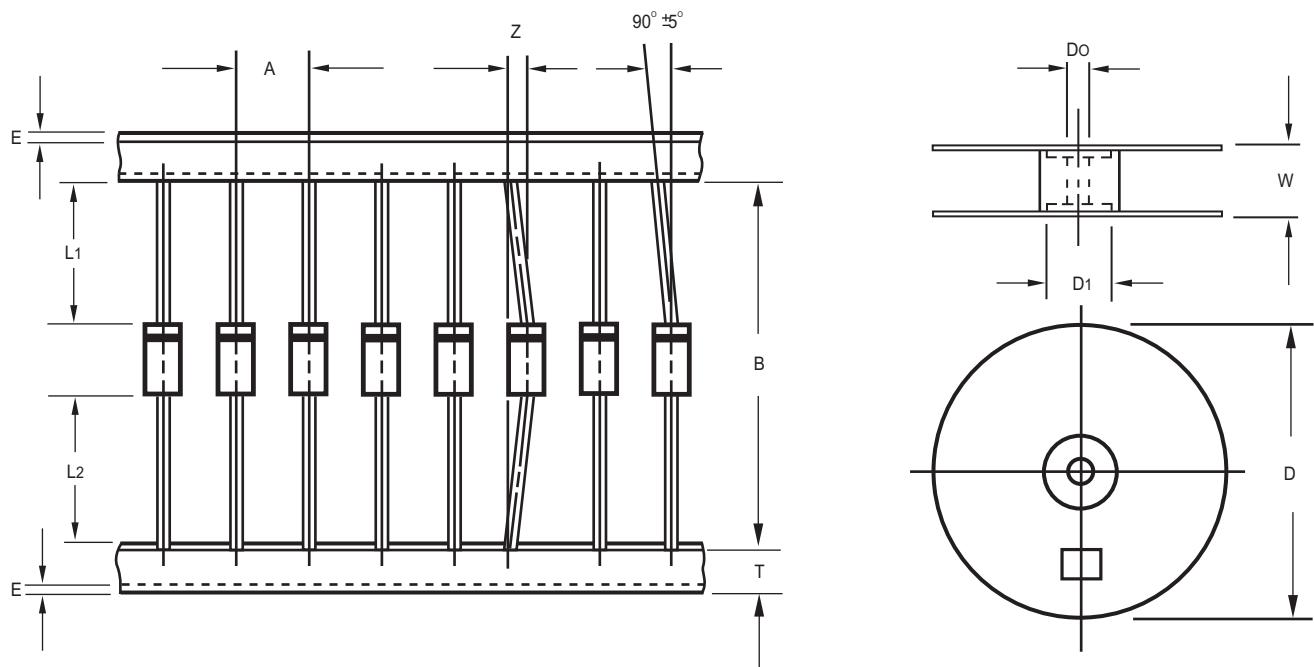


Fig.: Configuration of AXIAL LEAD TAPING

| ITEM                  | SYMBOL        | SPECIFICATIONS (mm) | SPECIFICATIONS (inch) |
|-----------------------|---------------|---------------------|-----------------------|
| Component alignment   | Z             | 1.2 Max.            | 0.047 Max.            |
| Tape width            | T             | $6.0 \pm 0.4$       | $0.236 \pm 0.016$     |
| Exposed adhesive      | E             | 0.8 Max.            | 0.032 Max.            |
| Body eccentricity     | $ L_1 - L_2 $ | 1.0 Max.            | 0.039 Max.            |
| Reel outside diameter | D             | 330.0               | 13.0                  |
| Reel inner diameter   | D1            | $85.7 \pm 0.3$      | $3.374 \pm 0.012$     |
| Feed hole diameter    | Do            | $30.5 \pm 0.4$      | $1.201 \pm 0.016$     |
| Reel width            | W             | $79.0 \pm 1.0$      | $3.110 \pm 0.039$     |

Notes : 1. Each component lead shall be sandwiched between tapes for a minimum of 3.2mm (0.126").  
 2. The reel width "W" for 26mm taping is  $50.0 \pm 1.0\text{mm (1.97" \pm 0.040")}$ .

## PACKAGING OF DIODE AND BRIDGE RECTIFIERS

### BULK PACK

| PACKAGE | PACKING CODE | EA PER BOX | INNER BOX SIZE (mm) | CARTON SIZE (mm) | EA PER CARTON | GROSS WEIGHT(Kg) |
|---------|--------------|------------|---------------------|------------------|---------------|------------------|
| DO-41   | -B           | 1,000      | 194*75*21           | 415*220*255      | 50,000        | 16.2             |

### REEL PACK

| PACKAGE | PACKING CODE | EA PER REEL | EA PER INNER BOX | COMPONENT SPACE (mm) | TAPE SPACE (mm) | REEL DIA (mm) | CARTON SIZE (mm) | EA PER CARTON | GROSS WEIGHT(Kg) |
|---------|--------------|-------------|------------------|----------------------|-----------------|---------------|------------------|---------------|------------------|
| DO-41   | -T           | 5,000       | 5,000            | 5.0                  | 52              | 330           | 355*350*335      | 20,000        | 10.49            |

### AMMO PACK

| PACKAGE | PACKING CODE | REEL ( EA ) | COMPONENT SPACE(mm) | TAPE SPACE (mm) | BOX SIZE (mm) | CARTON SIZE(mm) | CARTON ( EA ) | GROSS WEIGHT (Kg) |
|---------|--------------|-------------|---------------------|-----------------|---------------|-----------------|---------------|-------------------|
| DO-41   | -F           | 3,000       | 5.0                 | 52              | 255*73*100    | 400*268*225     | 30,000        | 13.0              |
| DO-41   | -E           | 3,000       | 5.0                 | 26              | 256*48*94     | 365*270*217     | 42,000        | 12.41             |

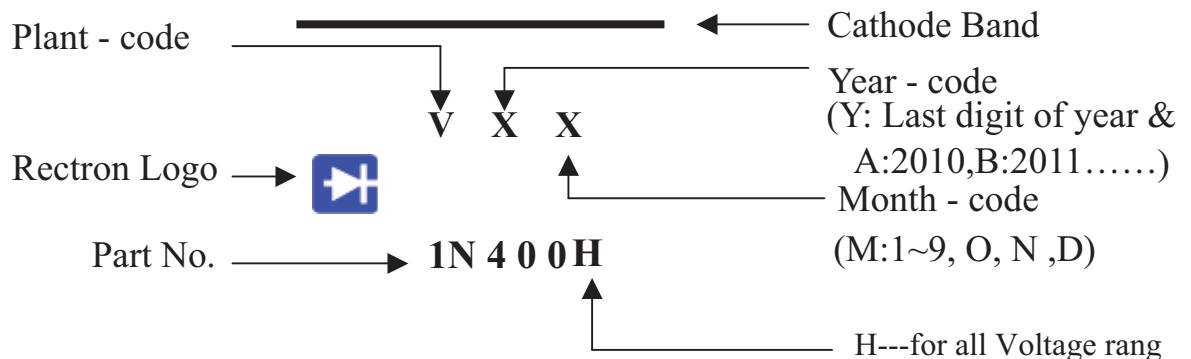


## Attachment information about 1N400X

### 1. Internal Circuit



### 2. Marking on the body



3. The net weight    330mg / pcs

### 4. Taping packaging specification

- 4.1 All polarized components must be oriented in one direction.
- 4.2 For diode, at least one side of the cathode lead tape should be red, and anode lead tape should be white.
- 4.3 A minimum 300 mm (12") leader shall be provided at each end of the reel.
- 4.4 Staples shall not be used for splicing. Splice length shall be 4.0 inches minimum and shall not be misaligned more than 0.8mm.



## Attachment information about 1N400X

### 5. Items marked on the reel box and carton

#### 5.1 On the reel (for -T)

CUSTOMER

TYPE

QUANTITY

LOT NO.

Q.A.

REMARK

#### 5.2 On the box (for -E & -F)

TYPE

QUANTITY

LOT NO.

Q.A.

#### 5.3 On the carton

CUSTOMER

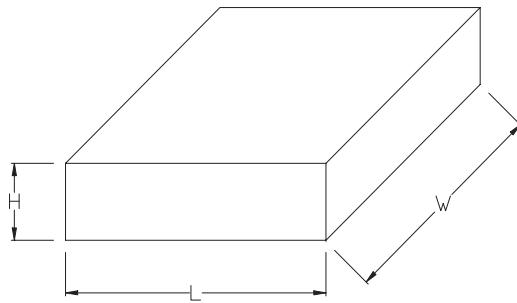
TYPE

QUANTITY

LOT NO.

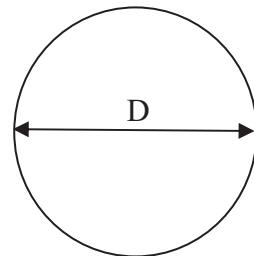
REMARK

### 1. BOX



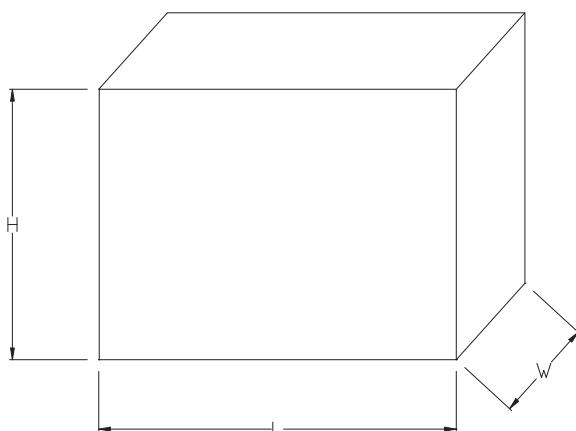
| Packing Code | L (mm) | W (mm) | H (mm) |
|--------------|--------|--------|--------|
| -F           | 255    | 100    | 73     |
| -E           | 256    | 94     | 46     |

### 2. REEL



| Packing Code | D (mm) |
|--------------|--------|
| -T           | 178    |
| -W           | 330    |

### 3. CARTON



| Packing Code | L (mm) | W (mm) | H (mm) |
|--------------|--------|--------|--------|
| -T           | 355    | 350    | 335    |
| -F           | 402    | 270    | 225    |
| -E           | 347    | 320    | 220    |

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