

## DO-41 Plastic-Encapsulate Diodes

### FR101 THRU FR107 Fast Recovery Rectifier Diodes

#### Features

- $I_{F(AV)}$  1A
- $V_{RRM}$  50V-1000V
- High surge current capability
- Polarity: Color band denotes cathode

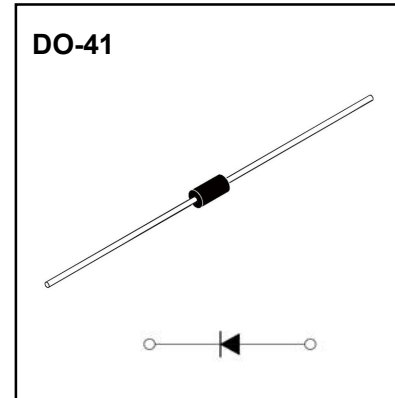
#### Applications

- Rectifier

#### Marking

- FR10X

X : From 1 To 7



#### Limiting Values(Absolute Maximum Rating)

| Item                                             | Symbol         | Unit               | Test Conditions                                                   | FR         |     |     |     |     |     |      |
|--------------------------------------------------|----------------|--------------------|-------------------------------------------------------------------|------------|-----|-----|-----|-----|-----|------|
|                                                  |                |                    |                                                                   | 101        | 102 | 103 | 104 | 105 | 106 | 107  |
| Repetitive Peak Reverse Voltage                  | $V_{RRM}$      | V                  |                                                                   | 50         | 100 | 200 | 400 | 600 | 800 | 1000 |
| Maximum RMS Voltage                              | $V_{RMS}$      | V                  |                                                                   | 35         | 70  | 140 | 280 | 420 | 560 | 700  |
| Maximum DC Blocking Voltage                      | $V_{DC}$       | V                  |                                                                   | 50         | 100 | 200 | 400 | 600 | 800 | 1000 |
| Average Forward Current                          | $I_{F(AV)}$    | A                  | 60Hz Half-sine wave,<br>Resistance load, $T_a=75^{\circ}\text{C}$ | 1.0        |     |     |     |     |     |      |
| Surge(Non-repetitive)Forward Current             | $I_{FSM}$      | A                  | 60Hz Half-sine wave,<br>1 cycle, $T_a=25^{\circ}\text{C}$         | 30         |     |     |     |     |     |      |
| Operation Junction and Storage Temperature Range | $T_J, T_{STG}$ | $^{\circ}\text{C}$ |                                                                   | -55 ~ +150 |     |     |     |     |     |      |

#### Electrical Characteristics (T=25°C Unless otherwise specified)

| Item                         | Symbol               | Unit | Test Condition                                                     |                     | FR  |     |     |     |     |     |     |
|------------------------------|----------------------|------|--------------------------------------------------------------------|---------------------|-----|-----|-----|-----|-----|-----|-----|
|                              |                      |      |                                                                    |                     | 101 | 102 | 103 | 104 | 105 | 106 | 107 |
| Peak Forward Voltage         | V <sub>FM</sub>      | V    | I <sub>FM</sub> =1.0A                                              |                     | 1.3 |     |     |     |     |     |     |
| Peak Reverse Current         | I <sub>RRM2</sub>    | μA   | V <sub>RM</sub> =V <sub>RRM</sub>                                  | T <sub>a</sub> =25℃ | 5   |     |     |     |     |     |     |
|                              | T <sub>a</sub> =100℃ |      |                                                                    | 50                  |     |     |     |     |     |     |     |
| Reverse Recovery time        | t <sub>rr</sub>      | ns   | I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>rr</sub> =0.25A |                     | 150 |     |     | 250 | 500 |     |     |
| Typical junction capacitance | C <sub>J</sub>       | pF   | Measured at 1MHz and applied reverse voltage of 4.0V D.C.          |                     | 15  |     |     |     |     |     |     |
| Typical Thermal Resistance   | R <sub>θJ-A</sub>    | ℃/W  | Between junction and ambient                                       |                     | 50  |     |     |     |     |     |     |
|                              | R <sub>θJ-L</sub>    |      | Between junction and lead                                          |                     | 8   |     |     |     |     |     |     |

#### Notes:

Thermal resistance from junction to ambient at 0.375"(9.5mm)lead length,P.C.B. mounted

# Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

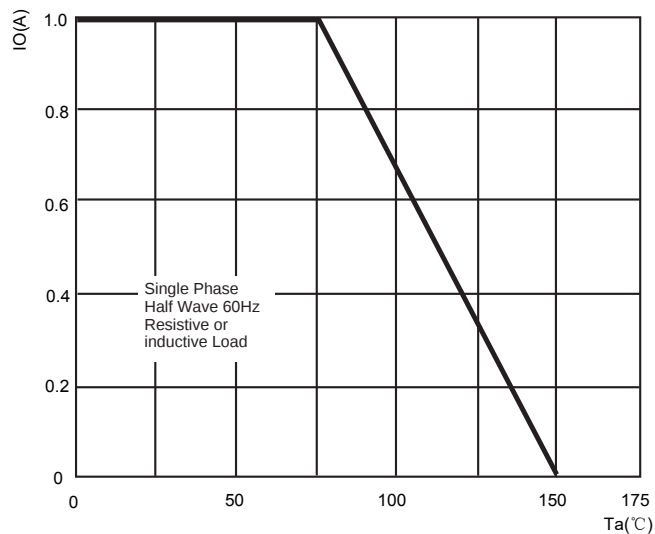


FIG.2: MAXIMUM NON-REPETITIVE FORWARD URGE CURRENT

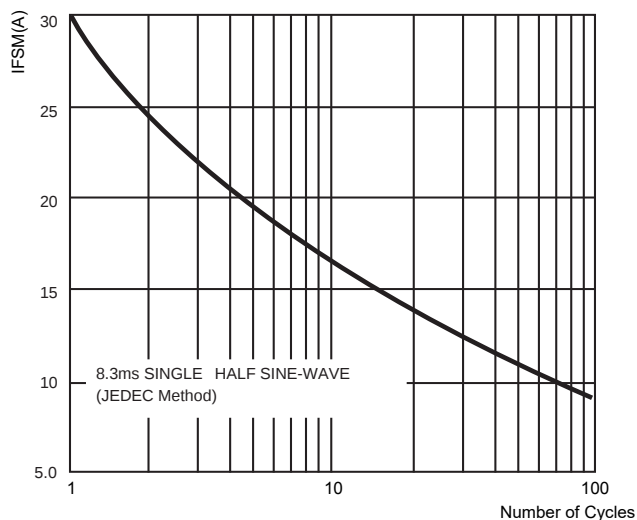


FIG.3: TYPICAL FORWARD CHARACTERISTICS

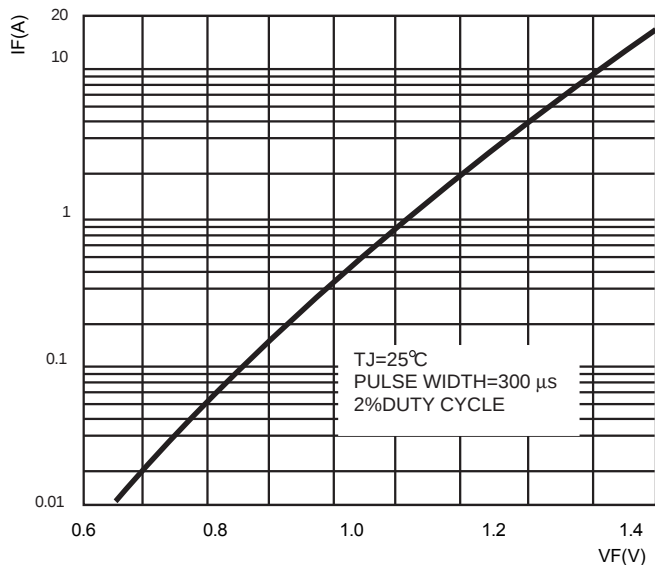


FIG.4: TYPICAL REVERSE CHARACTERISTICS

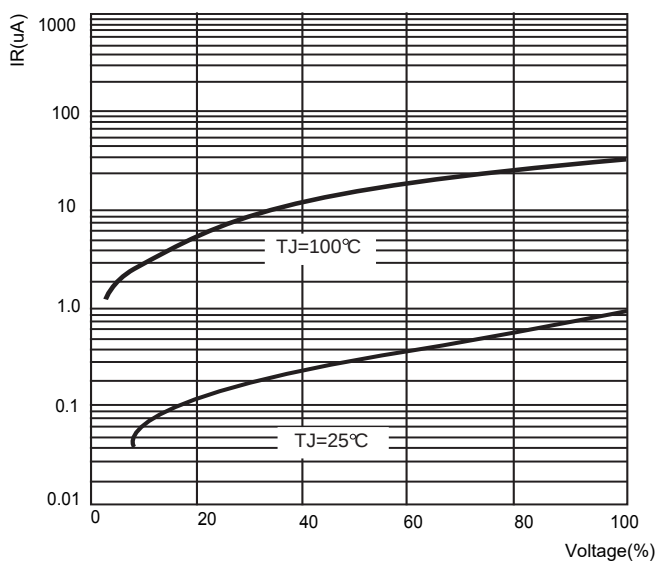
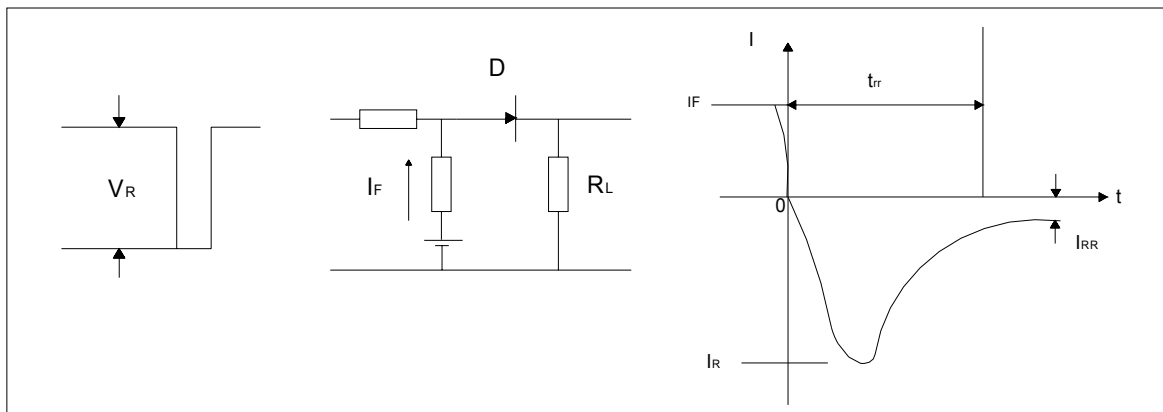
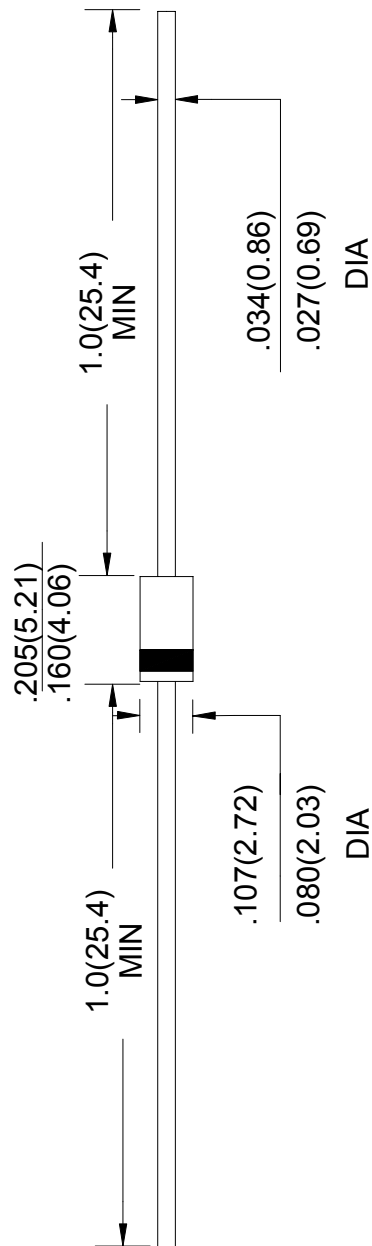


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



## DO- 41 Package Outline Dimensions



Unit: in inches (millimeters)

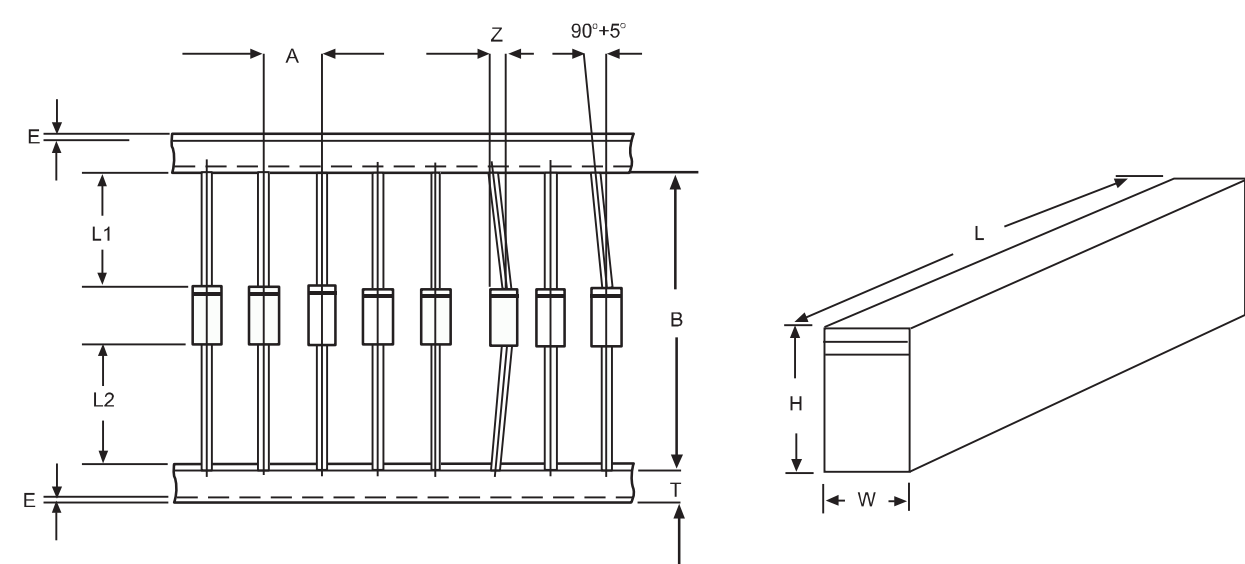
### NOTICE

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# Ammo Box Packaging Specifications For Axial Lead Rectifiers

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

| COMPONENT<br>OUTLINE | COMPONENT PITCH A | INNER TAPE PITCH B | CUMULATIVE PITCH<br>TOLERANCE |
|----------------------|-------------------|--------------------|-------------------------------|
|                      | ±0.5mm(.020``)    | +0.5mm(.020``)     |                               |
| R-1                  | 5.0mm             | 26.0mm             | 2.0mm/20pitch                 |
| R-1                  | 5.0mm             | 52.4mm             | 2.0mm/10pitch                 |
| A-405                | 5.0mm             | 26.0mm             | 2.0mm/20pitch                 |
| A-405                | 5.0mm             | 52.4mm             | 2.0mm/10pitch                 |
| DO-34/DO-35          | 5.0mm             | 26.0mm             | 2.0mm/20pitch                 |
| DO-34/DO-35          | 5.0mm             | 52.4mm             | 2.0mm/10pitch                 |
| 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                 |
| DO-27                | 10.0mm            | 52.4mm             | 2.0mm/10pitch                 |
| R-6                  | 10.0mm            | 52.4mm             | 2.0mm/10pitch                 |



| ITEM                | SYMBOL  | SPECIFICATIONS(mm) | SPECIFICATIONS(inch) |
|---------------------|---------|--------------------|----------------------|
| Component alignment | Z       | 1.2max             | 0.048max             |
| Tape width          | T       | 6.0±0.4            | 0.236±0.016          |
| Exposed adhesive    | E       | 0.8max             | 0.032max             |
| Body eccentricity   | IL1-L2I | 1.0max             | 0.040max             |
| Box length          | L       | 255.0±5.0          | 10.04±0.197          |
| Box width           | W       | 78.0±5.0           | 3.07±0.197           |
| Box height          | H       | 150.0±5.0          | 5.91±0.197           |

NOTE:Each component lead shall be sandwiched between tapes for A minimum of 3.2mm(0.126``)