



**SUPER FAST GLASS PASSIVATED RECTIFIERS**

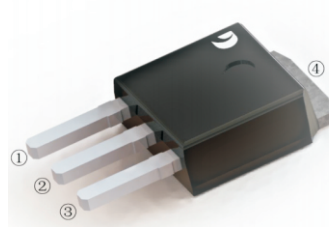
Reverse Voltage – 100 to 600 V

Forward Current – 5.0 A

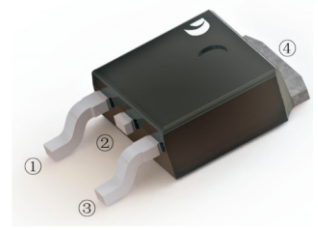
**FEATURES**

- High current capability
- Low forward voltage drop
- Low power loss, high efficiency
- High surge capability
- High temperature soldering guaranteed
- Mounting position: any

**TO-251(I-PAK)**



**TO-252(D-PAK)**



**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25°C ambient temperature unless otherwise specified

| CHARACTERISTICS   | TO-251          | SF501VY    | SF502VY | SF503VY | SF504VY | SF505VY | SF506VY | Units              |
|---|-----------------|------------|---------|---------|---------|---------|---------|--------------------|
|   | TO-252          | SF501DY    | SF502DY | SF503DY | SF504DY | SF505DY | SF506DY |                    |
| Maximum Recurrent Peak Reverse Voltage  | $V_{RRM}$       | 100        | 200     | 300     | 400     | 500     | 600     | V                  |
| Maximum RMS voltage   | $V_{RMS}$       | 70         | 140     | 210     | 280     | 350     | 420     | V                  |
| Maximum DC Blocking Voltage   | $V_{DC}$        | 100        | 200     | 300     | 400     | 500     | 600     | V                  |
| Maximum Average Forward Rectified Current   | $I_{F(AV)}$     | 5.0        |         |         |         |         |         | A                  |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)         | $I_{FSM}$       | 150        |         |         |         |         |         | A                  |
| Max Instantaneous Forward Voltage at 5 A DC   | $V_F$           | 1.0        |         | 1.30    |         | 1.70    |         | V                  |
| Maximum DC Reverse Current $T_a = 25^\circ\text{C}$ at Rated DC Reverse Voltage $T_a = 125^\circ\text{C}$ | $I_R$           | 1<br>300   |         |         |         |         |         | $\mu\text{A}$      |
| Typical Junction Capacitance $f = 1\text{MHz}, 4\text{V DC}$  | $C_j$           | 65         |         |         |         |         |         | pF                 |
| Typical Thermal Resistance <sup>(1)</sup>   | $R_{\theta JA}$ | 50         |         |         |         |         |         | $^\circ\text{C/W}$ |
| Maximum Reverse Recovery Time <sup>(2)</sup>  | $t_{rr}$        | 35         |         |         |         |         |         | ns                 |
| Operating Junction Temperature Range  | $T_j$           | -55 ~ +150 |         |         |         |         |         | $^\circ\text{C}$   |
| Storage Temperature Range   | $T_{stg}$       | -55 ~ +150 |         |         |         |         |         | $^\circ\text{C}$   |

(1) P.C.B. mounted with 10cm x 10cm x 1mm copper pad areas.

(2) Measured with  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $I_{rr} = 0.25\text{ A}$ .



Fig.1 Maximum Average Forward Current Rating

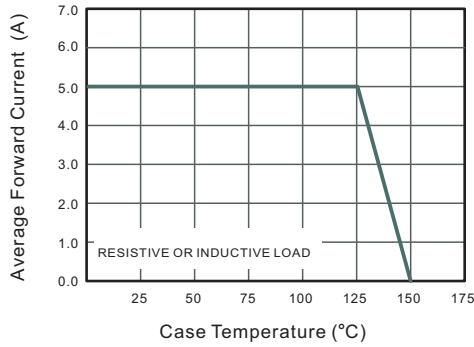


Fig.2 Typical Reverse Characteristics

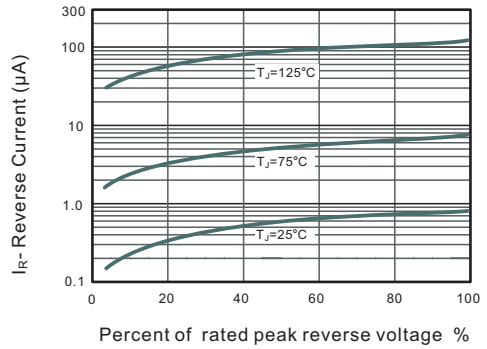


Fig.4 Typical Forward Characteristics

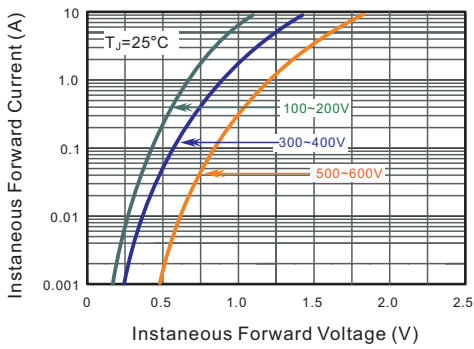


Fig.4 Typical Junction Capacitance

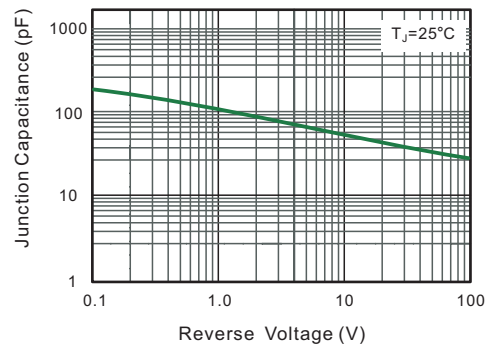


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current

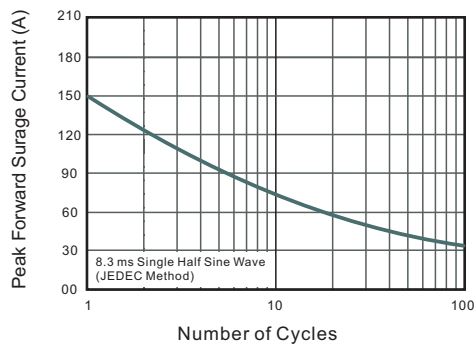
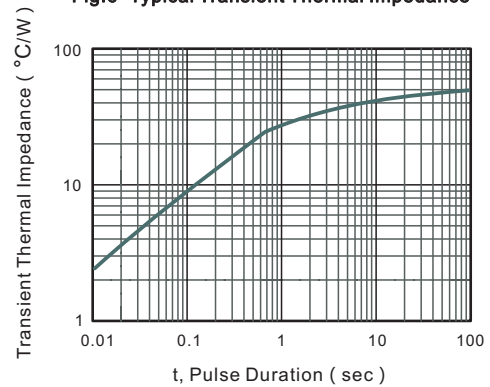
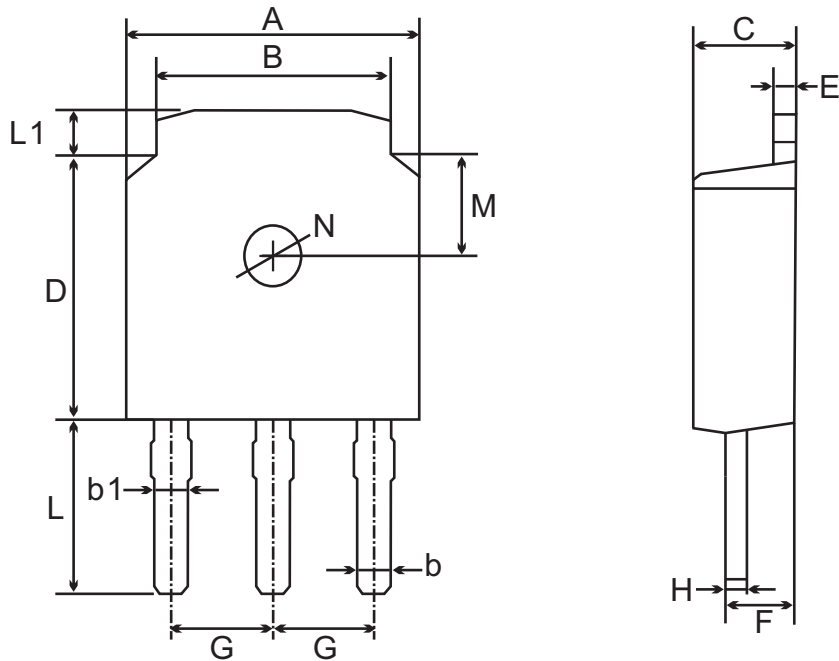


Fig.6- Typical Transient Thermal Impedance





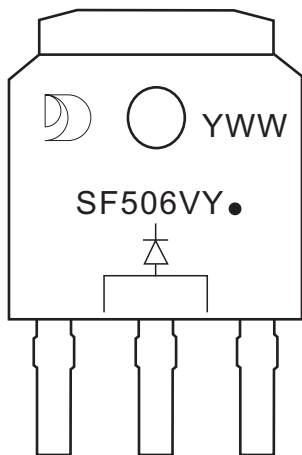
TO-251(I-PAK) Package Outline Dimensions



TO-251(I-PAK) mechanical data

| UNIT |     | A   | B   | b   | b1   | C   | D   | E   | F   | G               | H    | L   | L1  | M              | N              |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----------------|------|-----|-----|----------------|----------------|
| mm   | max | 6.7 | 5.5 | 0.8 | 0.9  | 2.5 | 6.3 | 0.6 | 1.8 | 2.29<br>TYPICAL | 0.55 | 4.3 | 1.2 | 1.8<br>TYPICAL | 1.3<br>TYPICAL |
|      | min | 6.3 | 5.1 | 0.3 | 0.76 | 2.1 | 5.9 | 0.4 | 1.3 |                 | 0.45 | 3.9 | 0.8 |                |                |
| mil  | max | 264 | 217 | 31  | 35   | 98  | 248 | 24  | 71  | 90<br>TYPICAL   | 22   | 169 | 47  | 71<br>TYPICAL  | 51<br>TYPICAL  |
|      | min | 248 | 201 | 12  | 30   | 83  | 232 | 16  | 51  |                 | 18   | 154 | 31  |                |                |

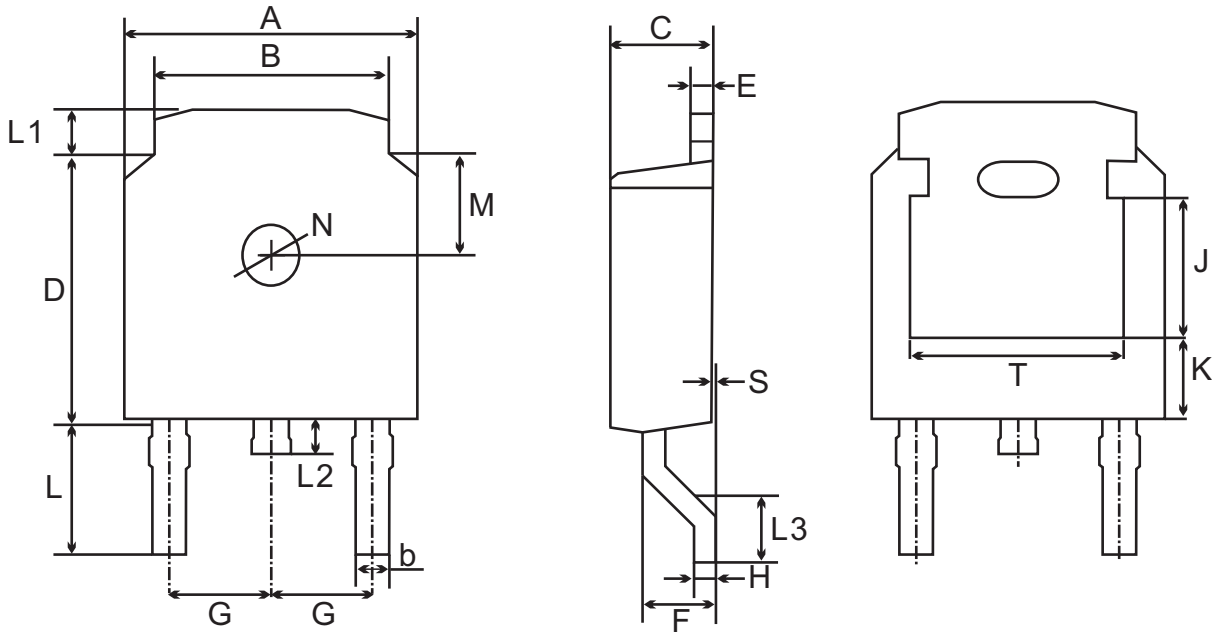
**MARKING DIAGRAM**



YWW: Date Code  
Y: Years(0~9)  
WW: Week  
SF506VY: Product name  
(NOTE: The weekly code is based on the actual number of weeks in the calendar year.)



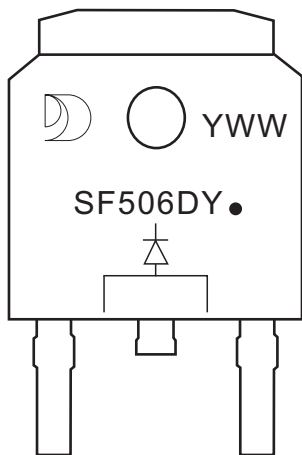
TO-252(D-PAK) Package Outline Dimensions



TO-252(D-PAK) mechanical data

| UNIT | A   | B   | b   | C   | D   | E   | F   | G   | H               | L    | L1  | L2  | L3  | S    | M   | N              | J    | K    | T    |      |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|------|-----|-----|-----|------|-----|----------------|------|------|------|------|
| mm   | max | 6.7 | 5.5 | 0.8 | 2.5 | 6.3 | 0.6 | 1.8 | 2.29<br>TYPICAL | 0.55 | 3.1 | 1.2 | 1.0 | 1.75 | 0.1 | 1.8<br>TYPICAL | 1.3  | 3.16 | 1.80 | 4.83 |
|      | min | 6.3 | 5.1 | 0.3 | 2.1 | 5.9 | 0.4 | 1.3 |                 | 0.45 | 2.7 | 0.8 | 0.6 | 1.40 | 0.0 |                | ref. | ref. | ref. |      |
| mil  | max | 264 | 217 | 31  | 98  | 248 | 24  | 71  | 90<br>TYPICAL   | 22   | 122 | 47  | 39  | 69   | 4   | 71<br>TYPICAL  | 51   | 124  | 71   | 190  |
|      | min | 248 | 201 | 12  | 83  | 232 | 16  | 51  |                 | 18   | 106 | 31  | 24  | 55   | 0   |                | ref. | ref. | ref. |      |

**MARKING DIAGRAM**



YWW: Date Code  
Y:Years(0~9)  
WW:Week  
SF506DY: Product name  
(NOTE: The weekly code is based on the actual number of weeks in the calendar year.)



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