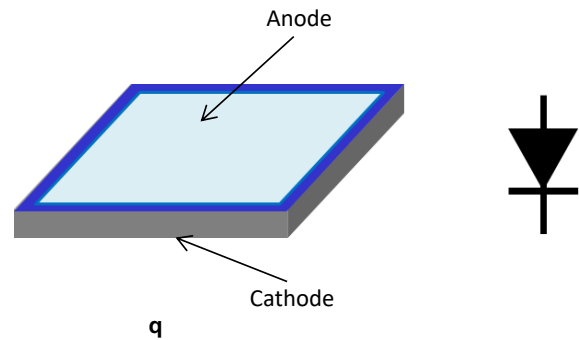


# YJ Planar Fast Recovery Diode Die Specification

650V 50A, Fast recovery diode die based on silicon planar process  
Part No.: FRD50A650AS-290A

## Main Products Characteristics

- Average forward current:  $I_F(A) = 50A$
- Maximum operating junction temperature:  $T_j = 150\text{ }^\circ\text{C}$
- Planar Construction
- Top metal: Al



## Maximum Ratings

| Parameter  | Symbol      | Rating                       |
|--|-------------|------------------------------|
| Repetitive peak reverse voltage  | $V_{RRM}$   | 650V                         |
| Average forward current  | $I_{F(AV)}$ | 50A                          |
| Non-repetitive peak surge current<br>( $t_p = 10\text{ ms}$ , halfwave, 1 cycle) | $I_{FSM}$   | 300A                         |
| Storage temperature range  | $T_{stg}$   | -40 to +150 $^\circ\text{C}$ |
| Maximum operating junction temperature   | $T_j$       | 150 $^\circ\text{C}$         |

## Static Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

| Parameter   | Symbol   | Value           |                    |
|---|----------|-----------------|--------------------|
|   |          | Spec            | Typical            |
| Reverse breakdown voltage<br>$I_R = 50\mu\text{A}$  | $V_{BR}$ | 650V            | 715V               |
| Maximum forward voltage drop<br>$I_F = 20\text{A}$ , Pulse Test: $t_p = 380\text{ }\mu\text{s}$ , $\delta \leq 2\%$ | $V_F$    | 1.45V           | 1.25V              |
| Reverse Recovery Time<br>$I_F=0.5\text{A}$ , $I_R=1\text{A}$ , $I_{rr}=0.25\text{A}$                                | $T_{rr}$ | 75ns            | 50ns               |
| Maximum reverse current $V_R = V_{RRM}$<br>Pulse Test: $t_p = 10\text{ ms}$ , $\delta \leq 2\%$                     | $I_R$    | 2 $\mu\text{A}$ | 0.05 $\mu\text{A}$ |

## Device Schematics and Outline Drawing

|               |  |
|---------------|--|
| Die Thickness | 290 $\mu\text{m}$                      |
| Die Size *    | 5000 $\mu\text{m}$ X5000 $\mu\text{m}$ |
| Top Metal Pad | 4272 $\mu\text{m}$ X4272 $\mu\text{m}$ |
| Active Area   | 4202 $\mu\text{m}$ X4202 $\mu\text{m}$ |
| Top Metal     | Al                                     |
| Back Metal    | Ag                                     |

Note: 1 \*: Cutting street width is around 40 $\mu\text{m}$

## Important Notice

|   |  |
|---|--|
| <p>Specification apply to die only. Actual performance may degrade when assembled.</p> <p><b>Yangjie Electronics</b> does not guarantee device performance after assembly. All operating parameters must be validated for each customer application by customer's technical experts.</p> <p>Data sheet information is subjected to change without notice.</p> | <p>Recommended Storage Environment:</p> <p>Store in original container, in dessicated nitrogen, with no contamination.</p> <p>Shelf life for parts stored in above condition is 2 years.</p> <p>If the storage is done in normal atmosphere shelf life is reduced to 6 months.</p> |
|---|--|