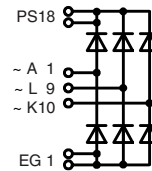


# Three Phase Rectifier Bridge with Fast Recovery Epitaxial Diodes (FRED) in ECO-PAC 2

$I_{dAV} = 130 \text{ A}$   
 $V_{RRM} = 600 \text{ V}$   
 $t_{rr} = 35 \text{ ns}$

Preliminary data sheet

| $V_{RSM}$<br>V | $V_{RRM}$<br>V | Typ           |
|----------------|----------------|---------------|
| 700            | 600            | VUE 130-06NO7 |



Pin arrangement see outlines

| Symbol          | Conditions                                    | Maximum Ratings                    |                       |
|-----------------|---|------------------------------------|-----------------------|
| $I_{dAV}^*$     | $T_C = 85^\circ\text{C}$ , module             | 130                                | A                     |
|                 |   | 130                                | A                     |
| $I_{FSM}$       | $T_{VJ} = 45^\circ\text{C}$<br>$V_R = 0$      | $t = 10 \text{ ms}$ (50 Hz), sine  | 600 A                 |
|                 |   | $t = 8.3 \text{ ms}$ (60 Hz), sine | 640 A                 |
|                 | $T_{VJ} = T_{VJM}$<br>$V_R = 0$               | $t = 10 \text{ ms}$ (50 Hz), sine  | 520 A                 |
|                 |   | $t = 8.3 \text{ ms}$ (60 Hz), sine | 555 A                 |
| $I^2t$          | $T_{VJ} = 45^\circ\text{C}$<br>$V_R = 0$      | $t = 10 \text{ ms}$ (50 Hz), sine  | 1800 A <sup>2</sup> s |
|                 |   | $t = 8.3 \text{ ms}$ (60 Hz), sine | 1720 A <sup>2</sup> s |
|                 | $T_{VJ} = T_{VJM}$<br>$V_R = 0$               | $t = 10 \text{ ms}$ (50 Hz), sine  | 1350 A <sup>2</sup> s |
|                 |   | $t = 8.3 \text{ ms}$ (60 Hz), sine | 1295 A <sup>2</sup> s |
| $T_{VJ}$        |   | -40...+150                         | °C                    |
| $T_{VJM}$       |   | 150                                | °C                    |
| $T_{stg}$       |   | -40...+125                         | °C                    |
| $V_{ISOL}$      | 50/60 Hz, RMS<br>$I_{ISOL} \leq 1 \text{ mA}$ | $t = 1 \text{ min}$                | 3000 V~               |
|                 |   | $t = 1 \text{ s}$                  | 3600 V~               |
| $M_d$<br>Weight | Mounting torque (M4)<br>typ.                  | 1.5-2/14-18                        | Nm/lb.in.             |
|                 |   | 24                                 | g                     |

**Features**

- Package with DCB ceramic base plate in low profile
- Isolation voltage 3000 V~
- Planar passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering

**Applications**

- Supplies for DC power equipment
- Input and output rectifiers for high frequency
- Battery DC power supplies
- Field supply for DC motors

**Advantages**

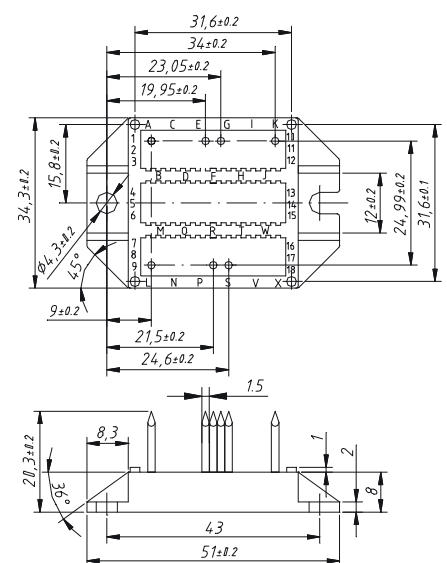
- Space and weight savings
- Improved temperature and power cycling capability
- Small and light weight
- Low noise switching

| Symbol     | Conditions  | Characteristic Values       |                  |
|------------|---|-----------------------------|------------------|
|            |   | typ.                        | max.             |
| $I_R$      | $V_R = V_{RRM}$<br>$V_R = V_{RRM}$  | $T_{VJ} = 25^\circ\text{C}$ | 0.1 mA           |
|            |   | $T_{VJ} = T_{VJM}$          | 2.5 mA           |
| $V_F$      | $I_F = 60 \text{ A}$  | $T_{VJ} = 25^\circ\text{C}$ | 2.04 V           |
| $V_{T0}$   | for power-loss calculations only  |                             | 1.09 V           |
| $r_T$      |   |                             | 4.3 mΩ           |
| $R_{thJC}$ | per diode; DC current   |                             | 0.8 K/W          |
| $R_{thCH}$ | per diode; DC current, typ.   |                             | 0.2 K/W          |
| $I_{RM}$   | $I_F = 130 \text{ A}$ , $-diF/dt = 100 \text{ A}/\mu\text{s}$<br>$V_R = 100 \text{ V}$ , $T_{VJ} = 100^\circ\text{C}$ |                             | 6.8 A            |
| $t_{rr}$   | $I_F = 1 \text{ A}$ ; $-di/dt = 300 \text{ A}/\mu\text{s}$ ; $V_R = 30 \text{ V}$ , $T_{VJ} = 25^\circ\text{C}$       | 35                          | ns               |
| $a$        | Max. allowable acceleration   | 50                          | m/s <sup>2</sup> |
| $d_s$      | creeping distance on surface (pin to heatsink)  | 11.2                        | mm               |
| $d_A$      | strike distance in air (pin to heatsink)  | 9.7                         | mm               |

Data according to IEC 60747 refer to a single diode unless otherwise stated

\* for resistive load at bridge output.

IXYS reserves the right to change limits, test conditions and dimensions.

**Dimensions in mm (1 mm = 0.0394")**


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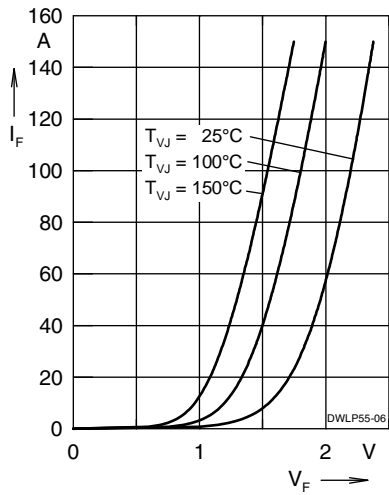


Fig. 1 Forward current  $I_F$  versus  $V_F$

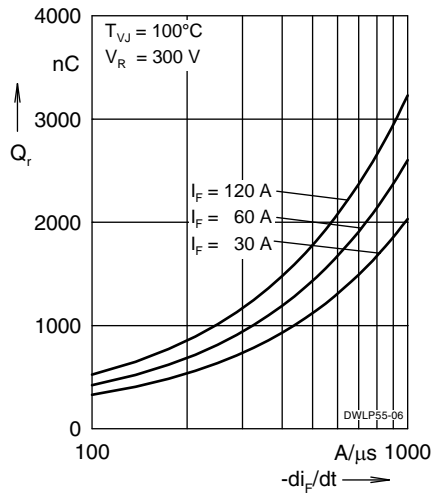


Fig. 2 Reverse recovery charge  $Q_r$  versus  $-di_F/dt$

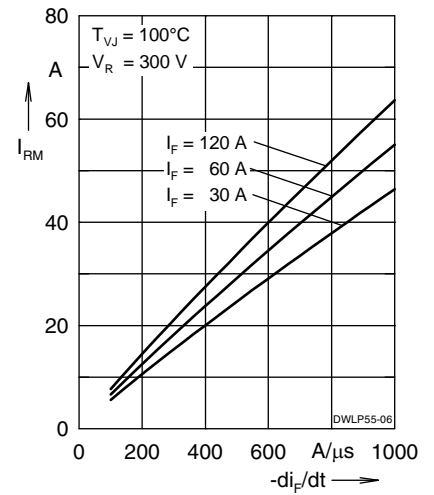


Fig. 3 Peak reverse current  $I_{RM}$  versus  $-di_F/dt$

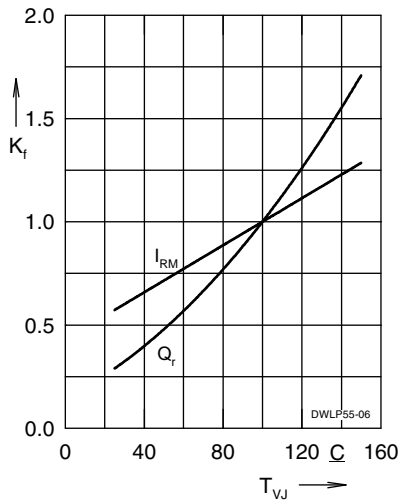


Fig. 4 Dynamic parameters  $Q_r$ ,  $I_{RM}$  versus  $T_{VJ}$

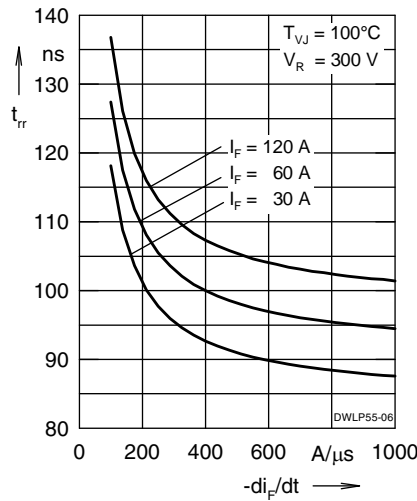


Fig. 5 Recovery time  $t_{rr}$  versus  $-di_F/dt$

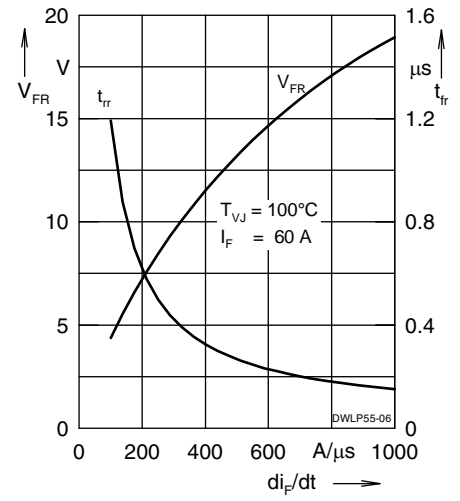


Fig. 6 Peak forward voltage  $V_{FR}$  and  $t_{tr}$  versus  $di_F/dt$

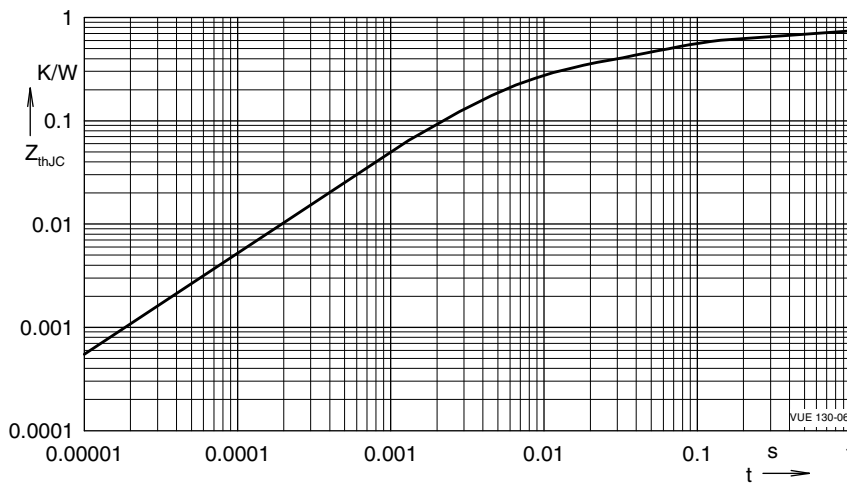


Fig. 7 Typical transient thermal resistance junction to case

NOTE: Fig. 2 to Fig. 6 shows typical values

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