

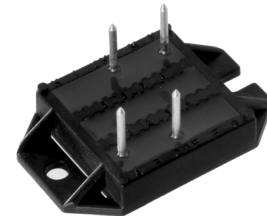
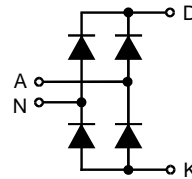
ECO-PAC™

Single Phase Rectifier Bridge

with Fast Recovery Epitaxial Diodes (FRED)

$I_{dAV} = 19 \text{ A}$
 $V_{RRM} = 1200 \text{ V}$
 $t_{rr} = 40 \text{ ns}$

| V_{RSM} | V_{RRM} | Typ |
|-----------|-----------|--------------|
| V | V | |
| 1200 | 1200 | VBE 17-12NO7 |



| Symbol | Conditions | Maximum Ratings | |
|-------------|------------------------------------------------|------------------------------------|------------------|
| I_{dAV} ① | $T_c = 85^\circ\text{C}$, module | 19 | A |
| I_{dAVM} | | 90 | A |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}$ | $t = 10 \text{ ms}$ (50 Hz), sine | 40 |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60 Hz), sine | 45 |
| | $T_{VJ} = T_{VJM}$ | $t = 10 \text{ ms}$ (50 Hz), sine | 35 |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60 Hz), sine | 40 |
| I^2t | $T_{VJ} = 45^\circ\text{C}$ | $t = 10 \text{ ms}$ (50 Hz), sine | 10 |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60 Hz), sine | 10 |
| | $T_{VJ} = T_{VJM}$ | $t = 10 \text{ ms}$ (50 Hz), sine | 5 |
| | $V_R = 0$ | $t = 8.3 \text{ ms}$ (60 Hz), sine | 5 |
| T_{VJ} | | -40...+150 | $^\circ\text{C}$ |
| T_{VJM} | | 150 | $^\circ\text{C}$ |
| T_{stg} | | -40...+125 | $^\circ\text{C}$ |
| V_{ISOL} | 50/60 Hz, RMS $t = 1 \text{ min}$ | 3000 | V~ |
| | $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$ | 3600 | V~ |
| M_d | Mounting torque (M4) | 1.5-2/14-18 | Nm/lb.in. |
| Weight | typ. | 19 | 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

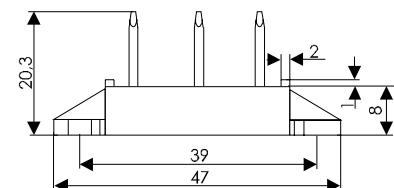
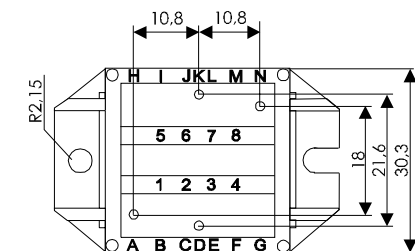
- Space and weight savings
- Improved temperature and power cycling capability
- Small and light weight
- Low noise switching

| Symbol | Conditions | Characteristic Values | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|
| | | typ. | max. |
| I_R | $V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$ | | 0.06 |
| | | $T_{VJ} = T_{VJM}$ | 0.25 |
| V_F | $I_F = 10 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$ | | 2.92 |
| V_{T0} | for power-loss calculations only | | 1.32 |
| r_T | | | 30 |
| R_{thJC} | per diode; DC current | | 2.5 |
| R_{thCH} | per diode, DC current, typ. | | 0.3 |
| I_{RM} | $I_F = 12 \text{ A}$, $-diF/dt = 100 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}$, $L = 0.05 \text{ mH}$, $T_{VJ} = 100^\circ\text{C}$ | 4 | 8.5 |
| | | | A |
| t_{rr} | $I_F = 1 \text{ A}$; $-di/dt = 50 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$, $T_{VJ} = 25^\circ\text{C}$ | 40 | tbd |
| a | Max. allowable acceleration | 50 | m/s^2 |
| d_s | creeping distance on surface | 11.2 | mm |
| d_A | creepage distance in air | 9.7 | mm |

Data according to IEC 60747 refer to a single diode unless otherwise stated
 ① for resistive load at bridge output.

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

Dimensions in mm (1 mm = 0.0394")



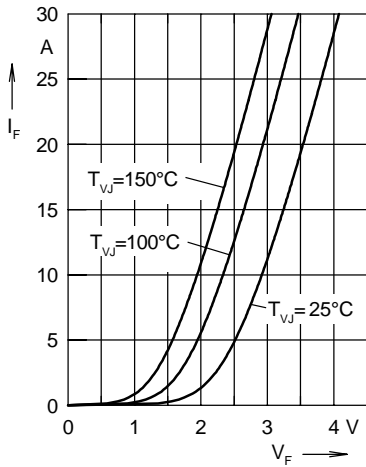


Fig. 1 Forward current I_F versus V_F

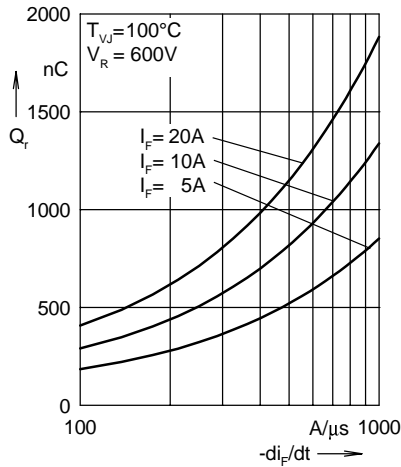


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

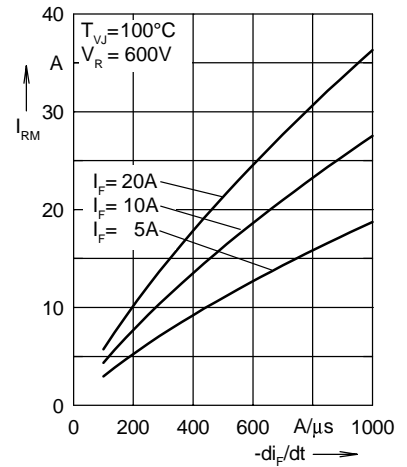


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

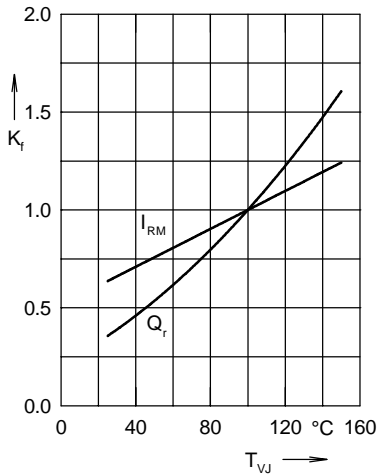


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

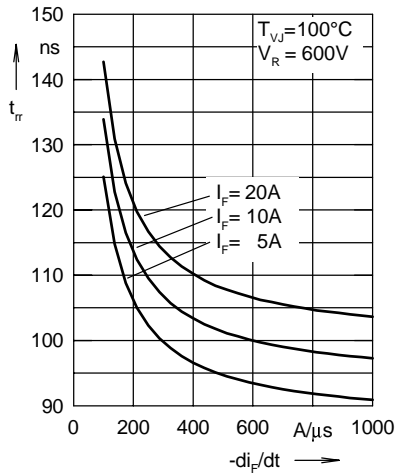


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

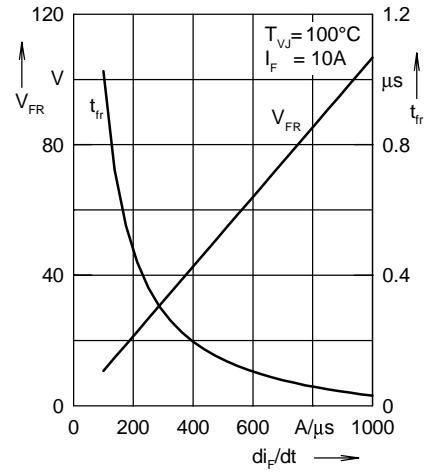


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

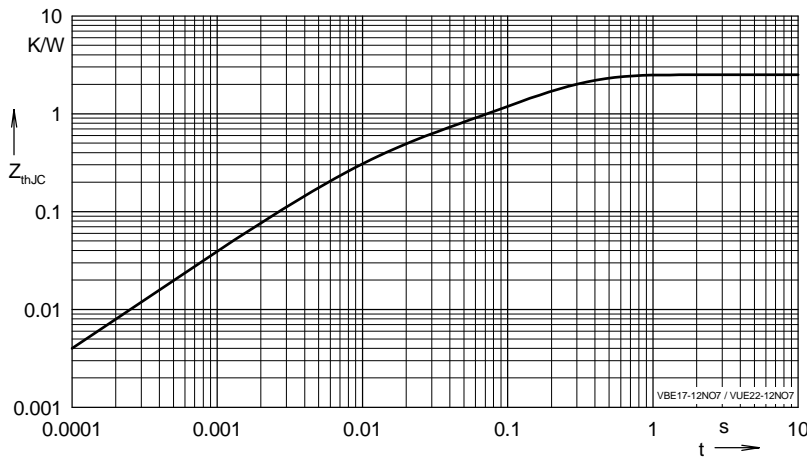


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 0.8776 | 0.0052 |
| 2 | 0.3378 | 0.0003 |
| 3 | 0.0678 | 0.0004 |
| 4 | 1.2168 | 0.0092 |

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

© 2000 IXYS All rights reserved