

ECO-PAC™

Three Phase Rectifier Bridge

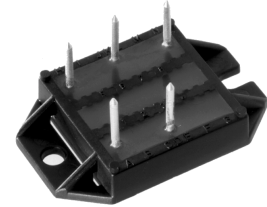
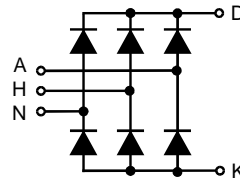
with Fast Recovery Epitaxial Diodes (FRED)

$$I_{dAV} = 24 \text{ A}$$

$$V_{RRM} = 1200 \text{ V}$$

$$t_{rr} = 40 \text{ ns}$$

V_{RSM}	V_{RRM}	Typ
V	V	
1200	1200	VUE 22-12NO7



Symbol	Conditions	Maximum Ratings	
I_{dAV} ①	$T_c = 85^\circ\text{C}$, module	24	A
I_{dAVM}		90	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	40 A
		$t = 8.3 \text{ ms}$ (60 Hz), sine	45 A
I^2t	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	35 A
		$t = 8.3 \text{ ms}$ (60 Hz), sine	40 A
I^2t	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	10 A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine	10 A ² s
T_{VJ}			-40...+150 °C
			150 °C
T_{VJM}			150 °C
T_{stg}			-40...+125 °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

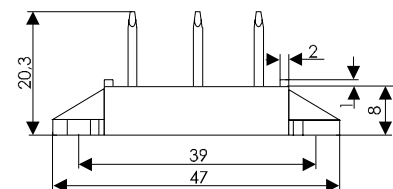
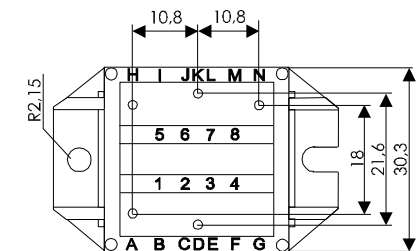
- Space and weight savings
- Improved temperature and power cycling capability
- Small and light weight
- Low noise switching

Symbol	Conditions	Characteristic Values	
		typ.	max.
I_R	$V_R = V_{RRM}$ $V_R = V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$	0.06 mA
		$T_{VJ} = T_{VJM}$	0.25 mA
V_F	$I_F = 10 \text{ A}$	$T_{VJ} = 25^\circ\text{C}$	2.92 V
V_{T0}	for power-loss calculations only		1.39 V
r_T			55 mΩ
R_{thJC}	per diode; DC current		2.5 K/W
		per diode, DC current, typ.	0.3 K/W
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
		$I_F = 1 \text{ A}$; $-di/dt = 50 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$, $T_{VJ} = 25^\circ\text{C}$	8.5
t_{rr}			40 tbd ns
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")



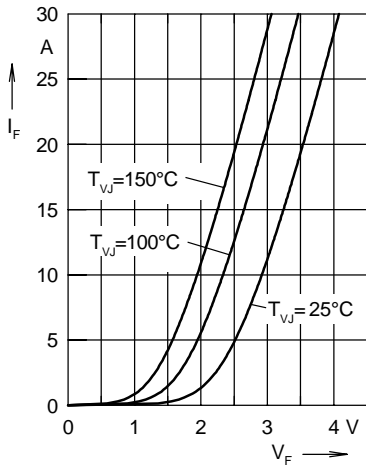


Fig. 1 Forward current I_F versus V_F

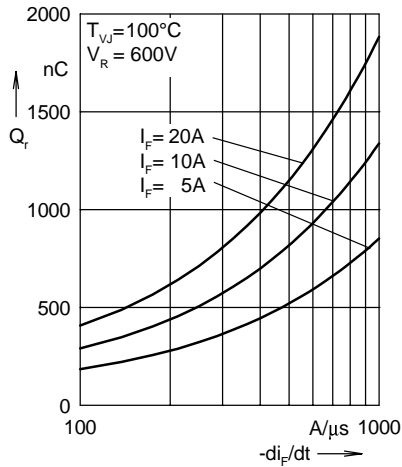


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

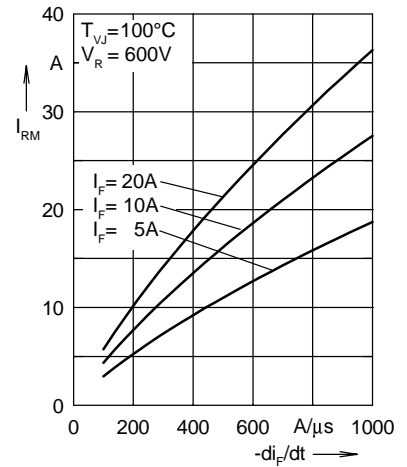


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

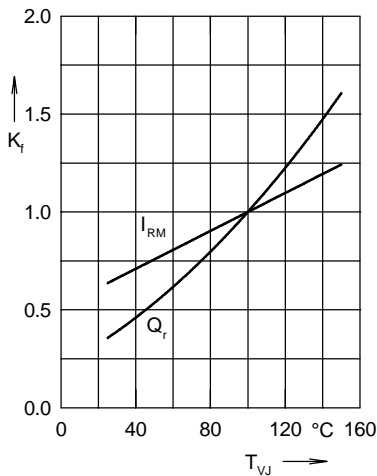


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

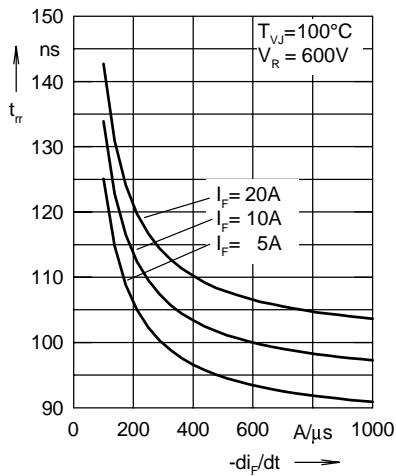


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

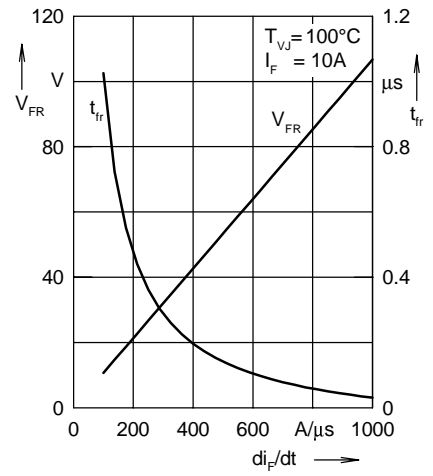


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

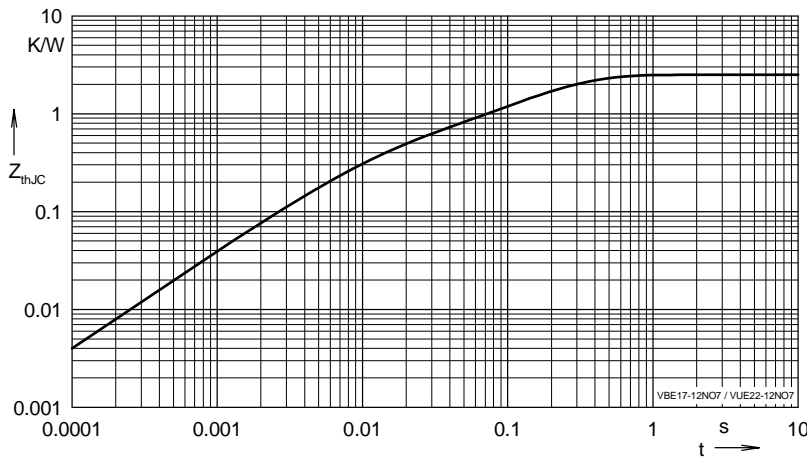


Fig. 7 Transient thermal resistance junction to case

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

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