

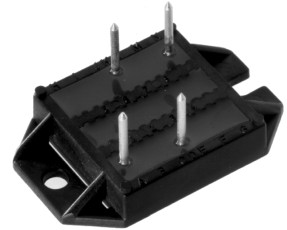
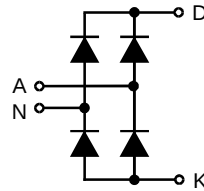
ECO-PAC™

Single Phase Rectifier Bridge

with Fast Recovery Epitaxial Diodes (FRED)

I_{dAV} = 59 A
 V_{RRM} = 1200 V
 t_{rr} = 40 ns

V_{RSM} V	V_{RRM} V	Typ
1200	1200	VBE 55-12NO7



Symbol	Conditions	Maximum Ratings	
I_{dAV} ①	$T_C = 85^\circ\text{C}$, module	59	A
I_{dAVM}		90	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	$t = 10\text{ ms}$ (50 Hz), sine	200 A
		$t = 8.3\text{ ms}$ (60 Hz), sine	220 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10\text{ ms}$ (50 Hz), sine	170 A
		$t = 8.3\text{ ms}$ (60 Hz), sine	190 A
I^2t	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	$t = 10\text{ ms}$ (50 Hz), sine	200 A ² s
		$t = 8.3\text{ ms}$ (60 Hz), sine	205 A ² s
	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10\text{ ms}$ (50 Hz), sine	145 A ² s
		$t = 8.3\text{ ms}$ (60 Hz), sine	150 A ² s
T_{VJ}		-40...+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 Weight	Mounting torque (M4) typ.	1.5-2/14-18 19	Nm/lb.in. 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

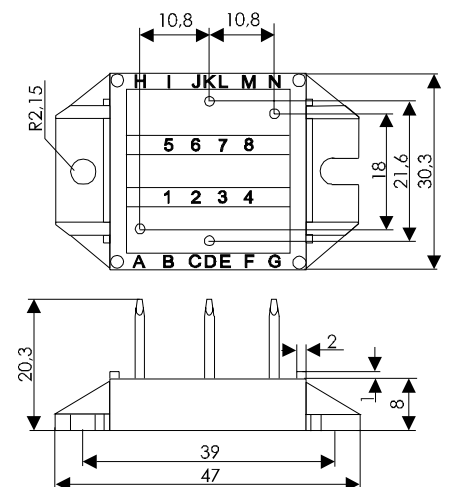
Symbol	Conditions	Characteristic Values	
		typ.	max.
I_R	$V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$		0.25 mA
	$V_R = V_{RRM}$ $T_{VJ} = T_{VJM}$		1.0 mA
V_F	$I_F = 30\text{ A}$ $T_{VJ} = 25^\circ\text{C}$		2.71 V
V_{T0}	for power-loss calculations only		1.31 V
r_T			15 mΩ
R_{thJC}	per diode; DC current		0.9 K/W
R_{thCH}	per diode; DC current, typ.		0.3 K/W
I_{RM}	$I_F = 50\text{ A}$, $-diF/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}$, $L = 0.05\text{ mH}$, $T_{VJ} = 100^\circ\text{C}$	6	11.4 A
t_{rr}	$I_F = 1\text{ A}$; $-di/dt = 200\text{ A}/\mu\text{s}$; $V_R = 30\text{ V}$, $T_{VJ} = 25^\circ\text{C}$	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")



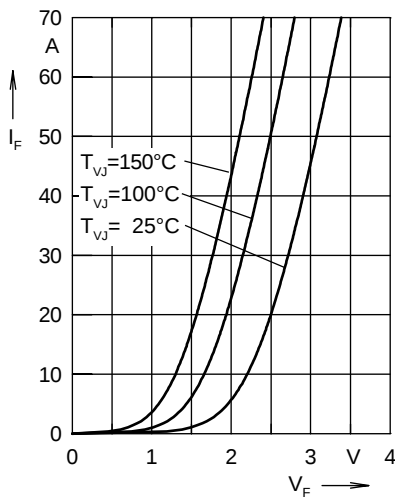


Fig. 1 Forward current I_F versus V_F

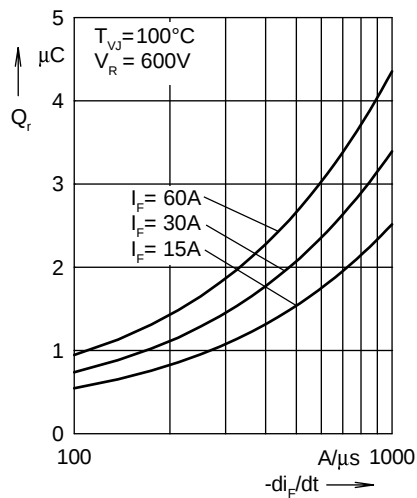


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

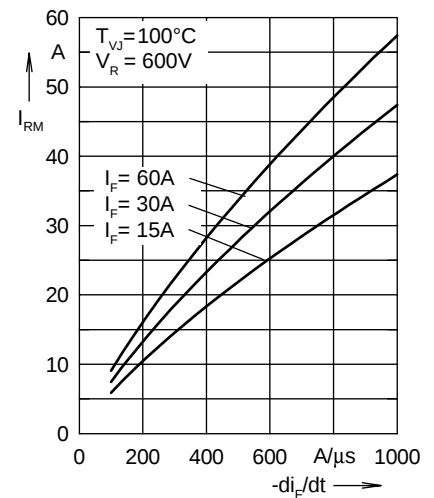


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

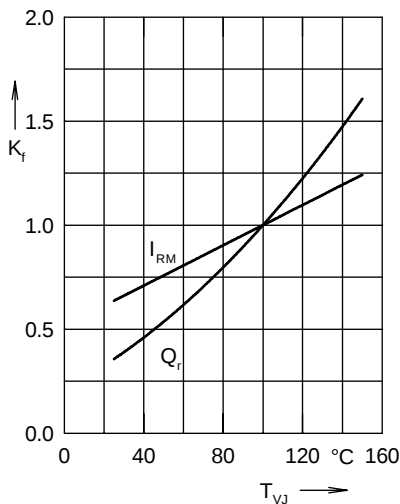


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

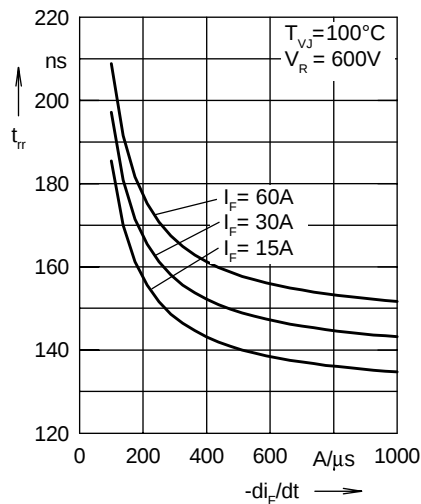


Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

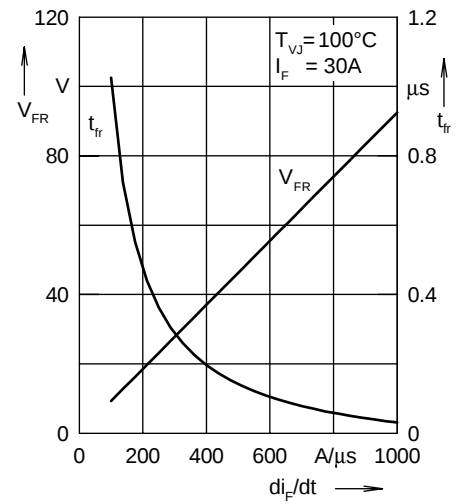


Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

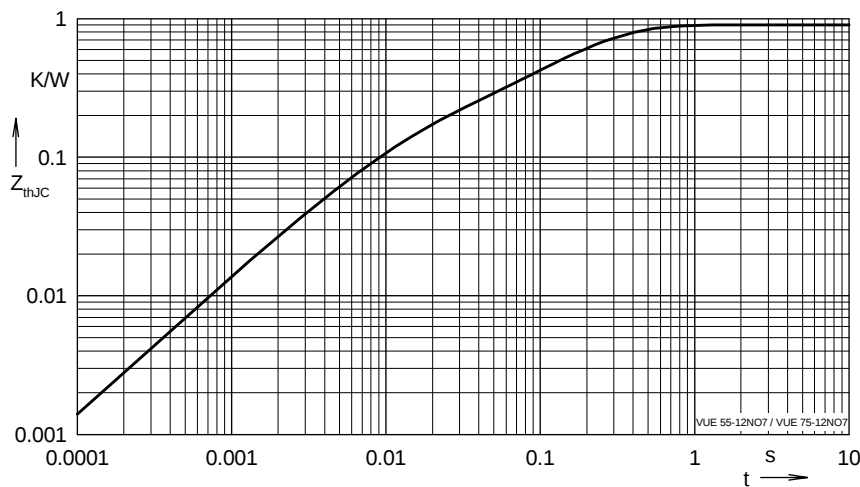


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.3012	0.0052
2	0.116	0.0003
3	0.0241	0.0004
4	0.4586	0.0092

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