

Single Phase Rectifier Bridge

with Fast Recovery Epitaxial Diodes (FRED)

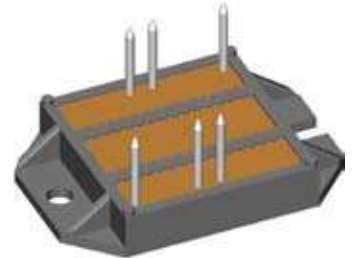
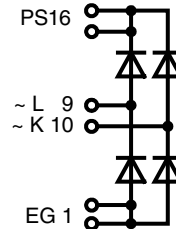
in ECO-PAC 2

$$I_{dAV} = 100 \text{ A}$$

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

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

V_{RSM} V	V_{RRM} V	Type
1200	1200	VBE 100-12NO7



Symbol	Conditions	Maximum Ratings	
I_{dAV} ①	$T_C = 70^\circ\text{C}$, module	100	A
I_{dAVM}		100	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz)	500	A
	$V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz)	525	A
	$T_{VJ} = T_{VJM}$; $t = 10 \text{ ms}$ (50 Hz)	415	A
	$V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz)	440	A
I^2t	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz)	1250	A ² s
	$V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz)	1160	A ² s
	$T_{VJ} = T_{VJM}$; $t = 10 \text{ ms}$ (50 Hz)	860	A ² s
	$V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz)	820	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	Mounting torque (M4)	1.5-2	Nm
Weight	Typ.	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

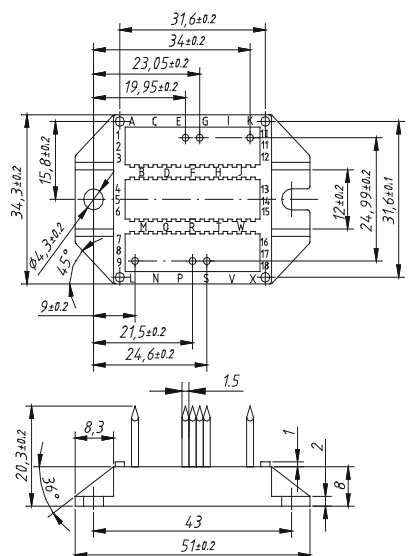
- Space and weight savings
- Improved temperature and power cycling capability
- Small and light weight
- Low noise switching

Symbol	Conditions	Characteristic Values	
I_R	$V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$	1	mA
	$T_{VJ} = T_{VJM}$	2.5	mA
V_F	$I_F = 60 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$	2.7	V
V_{T0}	For power-loss calculations only	1.07	V
r_t		8.2	mΩ
R_{thJC}	per diode; DC current	0.8	K/W
R_{thCH}	per diode; DC current	0.2	K/W
I_{RM}	$I_F = 130 \text{ A}$; $-di_F/dt - 100 \text{ A}/\mu\text{s}$	typ. 7	A
	$V_R = 100 \text{ V}$; $T_{VJ} = 100^\circ\text{C}$	max. 1.5	A
t_{rr}	$I_F = 1 \text{ A}$; $-di_F/dt - 300 \text{ A}/\mu\text{s}$	typ. 40	ns
	$V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$		
d_s	Creeping distance on surface	11.2	mm
d_A	Creepage distance in air	9.7	mm
a	Max. allowable acceleration	50	m/s ²

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

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

Dimensions in mm (1 mm = 0.0394")



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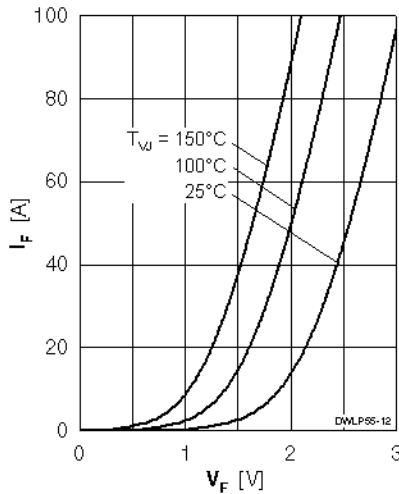


Fig. 1 Forward current I_F versus V_F

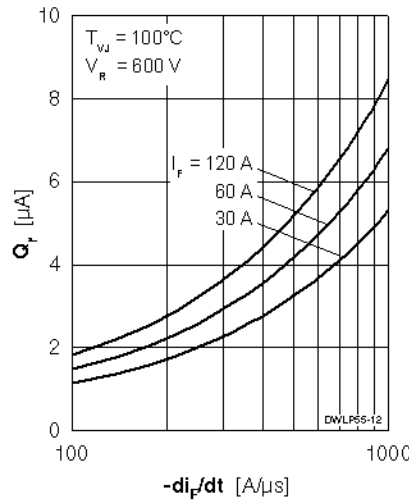


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

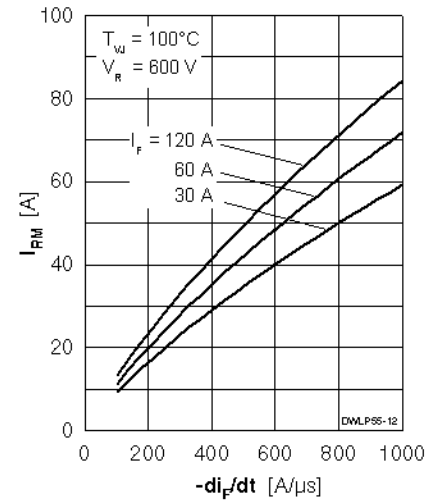


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

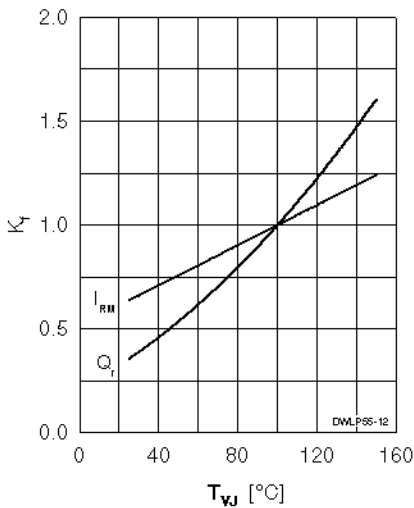


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{WJ}

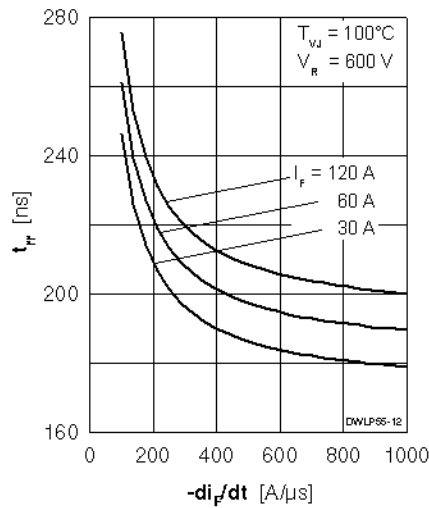


Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

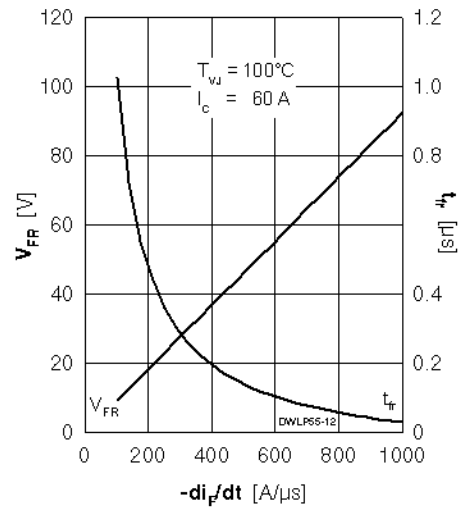


Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

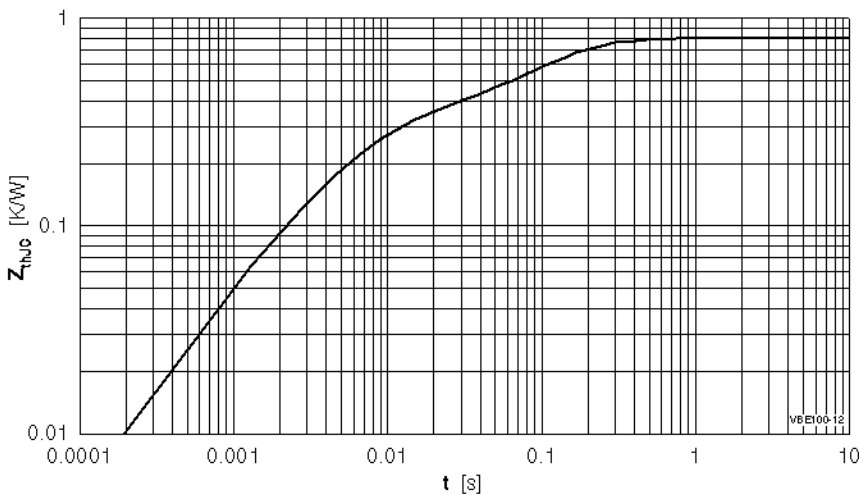


Fig. 7 Typical transient thermal resistance junction to case