

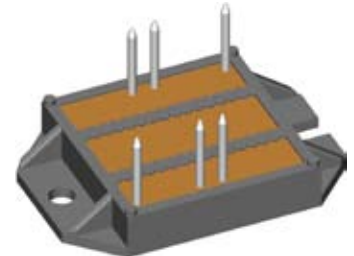
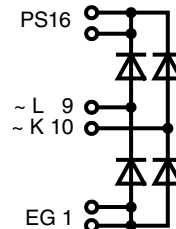
# Single Phase Rectifier Bridge

## 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
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$ ; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz)	500 A
		$t = 8.3 \text{ ms}$ (60 Hz)	525 A
	$T_{VJ} = T_{VJM}$ ; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz)	415 A
		$t = 8.3 \text{ ms}$ (60 Hz)	440 A
$I^2t$	$T_{VJ} = 45^\circ\text{C}$ ; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz)	1250 A <sup>2</sup> s
		$t = 8.3 \text{ ms}$ (60 Hz)	1160 A <sup>2</sup> s
	$T_{VJ} = T_{VJM}$ ; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz)	860 A <sup>2</sup> s
		$t = 8.3 \text{ ms}$ (60 Hz)	820 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 $t = 1 \text{ min}$ $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	3000	V~
		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

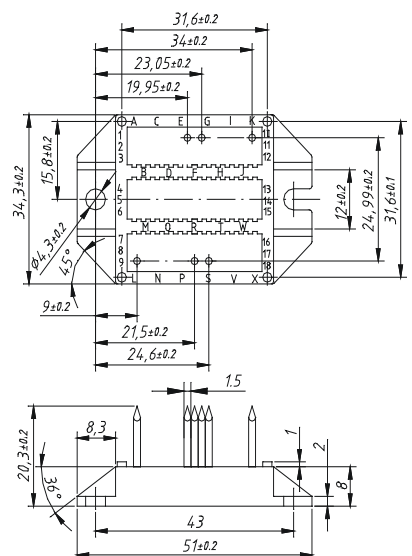
- Space and weight savings
- Improved temperature and power cycling capability
- Small and light weight
- Low noise switching

Symbol	Conditions	Characteristic Values	
$I_R$	$V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$	1	mA
		2.5	mA
$V_F$	$I_F = 60 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$	2.7	V
$V_{TO}$	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
$I_{RM}$	$I_F = 130 \text{ A}$ ; $-di_F/dt - 100 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}$ ; $T_{VJ} = 100^\circ\text{C}$	typ. 7	A
		max. 1.5	A
$t_{rr}$	$I_F = 1 \text{ A}$ ; $-di_F/dt - 300 \text{ A}/\mu\text{s}$ $V_R = 30 \text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$	typ. 40	ns
$d_s$	Creeping distance on surface	11.2	mm
$d_A$	Creepage distance in air	9.7	mm
$a$	Max. allowable acceleration	50	m/s <sup>2</sup>

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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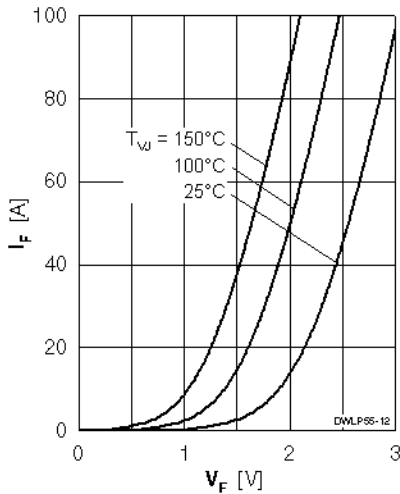


Fig. 1 Forward current  $I_F$  versus  $V_F$

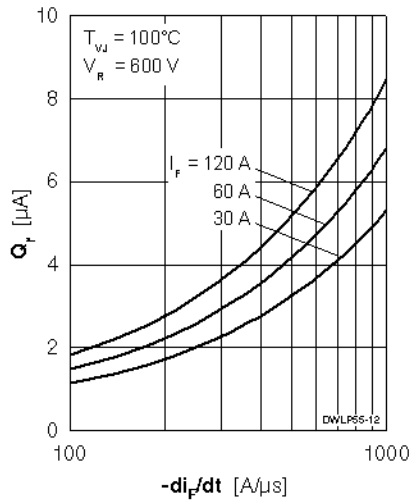


Fig. 2 Reverse recovery charge  $Q_r$  versus  $-di_F/dt$

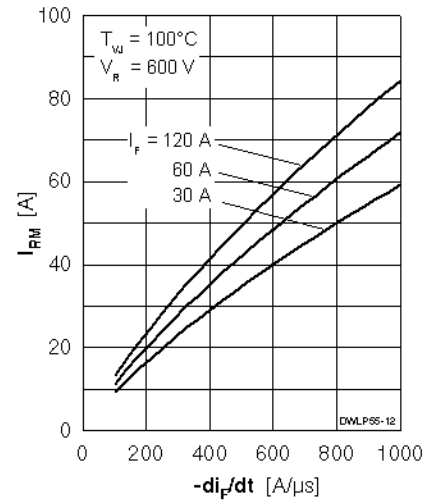


Fig. 3 Peak reverse current  $I_{RM}$  versus  $-di_F/dt$

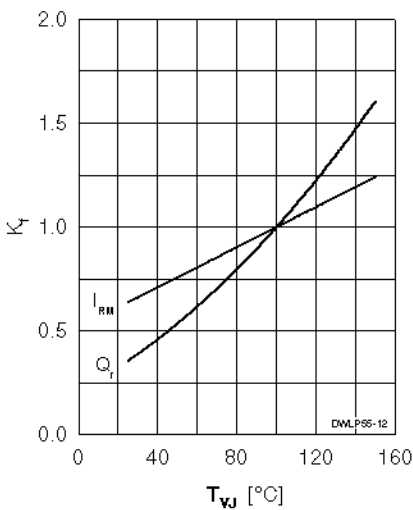


Fig. 4 Dynamic parameters  $Q_r$ ,  $I_{RM}$  versus  $T_{WJ}$

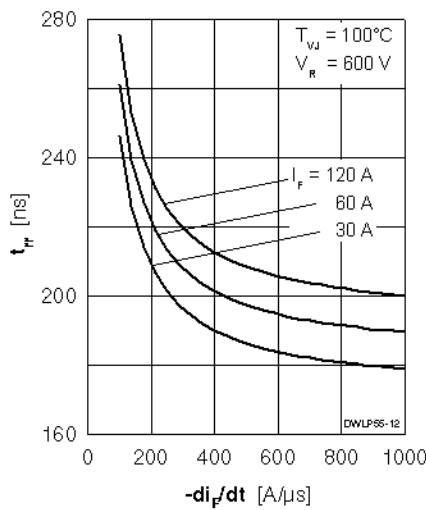


Fig. 5 Recovery time  $t_{tr}$  versus  $-di_F/dt$

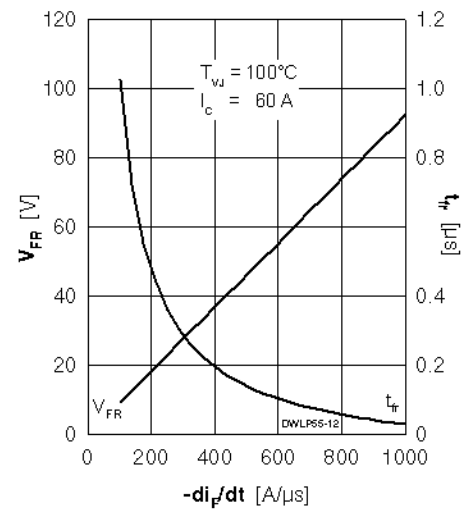


Fig. 6 Peak forward voltage  $V_{FR}$  and  $t_{fr}$  versus  $di_F/dt$

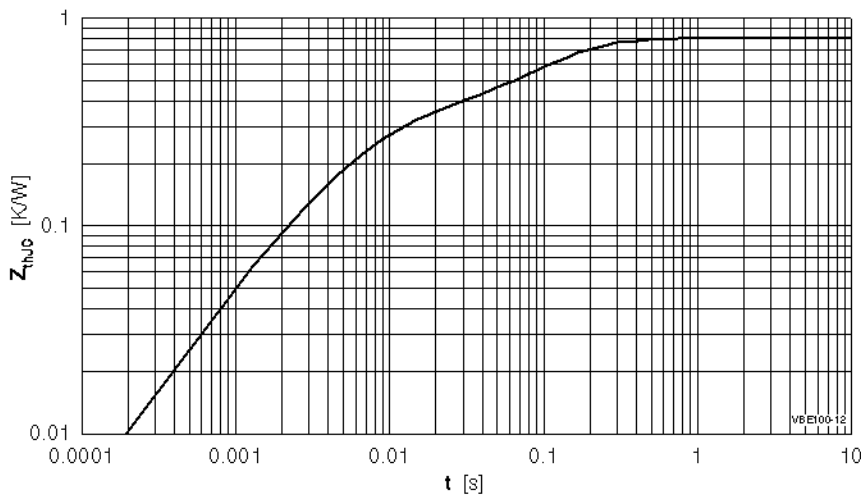


Fig. 7 Typical transient thermal resistance junction to case

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