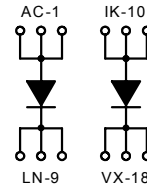


# Fast Recovery Epitaxial Diode (FRED)

**ECO-PAC 2**

Preliminary Data Sheet

$V_{RSM}$	$V_{RRM}$	Typ
V	V	
1200	1200	DSEI 2x161-12P



Symbol	Conditions	Maximum Ratings	
$I_{FRMS}$	$T_{VJ} = T_{VJM}$	270	A
$I_{FAVM}^*$	$T_C = 70^\circ\text{C}$ ; rectangular; $d = 0.5$	128	A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$ ; $V_R = 0\text{ V}$ ; $t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	1200	A
		1320	A
$I^2dt$	$T_{VJ} = 45^\circ\text{C}$ ; $V_R = 0\text{ V}$ ; $t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	7200	A <sup>2</sup> s
		7100	A <sup>2</sup> s
$T_{VJ}$	$T_{VJ} = 125^\circ\text{C}$ ; $V_R = 0\text{ V}$ ; $t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	1080	A
		1170	A
$T_{VJ}$		-40 ... +150	°C
$T_{VJM}$		150	°C
$T_{stg}$		-40 ... +125	°C
$V_{ISOL}$	50/60 Hz, RMS $I_{ISOL} \leq 1\text{ mA}$	$t = 1\text{ min}$	2500 V ~
		$t = 1\text{ s}$	3600 V ~
$M_d$	Mounting torque (M4)	1.5-2.0	Nm
		14-18	lb.in.
Weight	typ.	20	g

**Features**

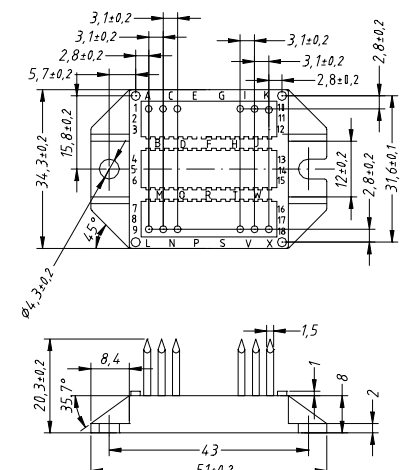
- 2 independent FRED in 1 package
- Isolation voltage 3600 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- Very short recovery time
- Soft recovery behaviour

**Applications**

- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

**Advantages**

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling
- Low noise switching
- Small and light weight

**Dimensions in mm (1 mm = 0,0394")**


Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$I_R$	$T_{VJ} = 25^\circ\text{C}$ ; $V_R = V_{RRM}$			12 mA
	$T_{VJ} = 25^\circ\text{C}$ ; $V_R = 0.8 \cdot V_{RRM}$			3 mA
	$T_{VJ} = 125^\circ\text{C}$ ; $V_R = 0.8 \cdot V_{RRM}$			60 mA
$V_F$	$I_T = 200\text{ A}$ ; $T_{VJ} = 25^\circ\text{C}$			1.9 V
$V_{TO}$	For power-loss calculations only			1.16 V
$r_T$				3 mΩ
$R_{thJC}$	per Diode			0.29 K/W
$R_{thCH}$	per Diode		0.2	K/W
$I_{RM}$	$I_F = 100\text{ A}$ ; $-di_F/d_t = 200\text{ A}/\mu\text{s}$ ; $V_R = 100\text{ V}$ $L \leq 0.05\text{ mH}$ ; $T_{VJ} = 100^\circ\text{C}$		48	A
$t_{rr}$	$I_F = 1\text{ A}$ ; $-di_F/d_t = 400\text{ A}/\mu\text{s}$ ; $V_R = 30\text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$		40	ns
$d_s$	Creeping distance on surface	11.2		mm
$d_A$	Creeping distance in air	11.2		mm
$a$	Max. allowable acceleration			50 m/s <sup>2</sup>

\*  $I_{FAVM}$  rating includes reverse blocking losses at  $T_{VJM}$ ;  $V_R = 0.8 V_{RRM}$ ;  $d = 0.5$

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