

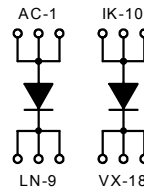
# Fast Recovery Epitaxial Diode (FRED)

$I_{FAVM} = 2x147 \text{ A}$   
 $V_{RRM} = 600 \text{ V}$   
 $t_{rr} = 35 \text{ ns}$

ECO-PAC 2

Preliminary Data Sheet

$V_{RSM}$	$V_{RRM}$	Typ
V	V	
600	600	DSEI 2x161-06P



Symbol	Conditions	Maximum Ratings	
$I_{FRMS}$	$T_{VJ} = T_{VJM}$	270	A
$I_{FAVM}^*$	$T_C = 70^\circ\text{C}$ ; rectangular; $d = 0.5$	147	A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$ ; $V_R = 0 \text{ V}$ ; $t = 10 \text{ ms}$ (50 Hz), sine	1200	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	1300	A
$I^2dt$	$T_{VJ} = 45^\circ\text{C}$ ; $V_R = 0 \text{ V}$ ; $t = 10 \text{ ms}$ (50 Hz), sine	7200	$A^2s$
	$t = 8.3 \text{ ms}$ (60 Hz), sine	7100	$A^2s$
$I^2dt$	$T_{VJ} = 125^\circ\text{C}$ ; $V_R = 0 \text{ V}$ ; $t = 10 \text{ ms}$ (50 Hz), sine	1080	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	1170	A
$T_{VJ}$		-40 ... +150	$^\circ\text{C}$
$T_{VJM}$		150	$^\circ\text{C}$
$T_{stg}$		-40 ... +125	$^\circ\text{C}$
$V_{ISOL}$	50/60 Hz, RMS	$t = 1 \text{ min}$	2500 V ~
	$I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ s}$	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

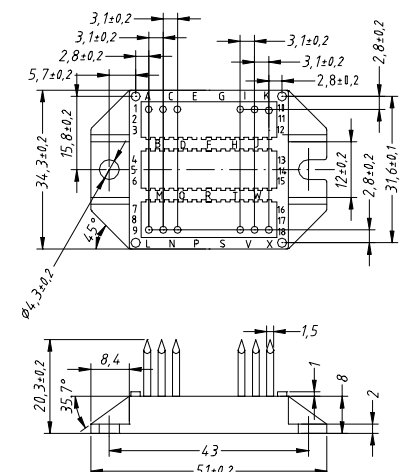
### Applications

- 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
	$T_{VJ} = 125^\circ\text{C}$ ; $V_R = 0.8 \cdot V_{RRM}$			80 mA
$V_F$	$I_T = 200 \text{ A}$ ; $T_{VJ} = 25^\circ\text{C}$			1.45 V
$V_{TO}$	For power-loss calculations only			0.85 V
$r_T$				2.7 m $\Omega$
$R_{thJC}$	per Diode			0.29 K/W
$R_{thCH}$	per Diode	0.2		K/W
$I_{RM}$	$I_F = 100 \text{ A}$ ; $-di_F/d_t = 200 \text{ A}/\mu\text{s}$ ; $V_R = 100 \text{ V}$ $L \leq 0.05 \text{ mH}$ ; $T_{VJ} = 100^\circ\text{C}$		45	A
$t_{rr}$	$I_F = 1 \text{ A}$ ; $-di_F/d_t = 400 \text{ A}/\mu\text{s}$ ; $V_R = 30 \text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$		35	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.