

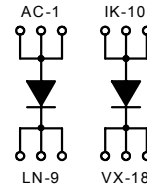
Fast Recovery Epitaxial Diode (FRED)

ECO-PAC 2

Preliminary Data Sheet

 $I_{FAVM} = 2 \times 128 \text{ A}$
 $V_{RRM} = 1200 \text{ V}$
 $t_{rr} = 40 \text{ ns}$

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 ² s
		7100	A ² s
T_{VJ}		-40 ... +150	°C
		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

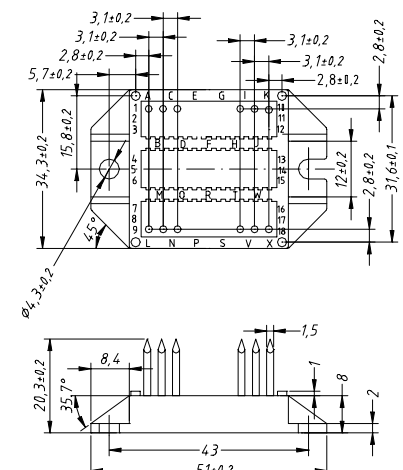
- 2 independent FRED in 1 package
- Isolation voltage 3600 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- Very short recovery time
- Soft recovery behaviour

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 ²

* 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.

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