



# Fast Recovery Epitaxial Diode (FRED)

preliminary data

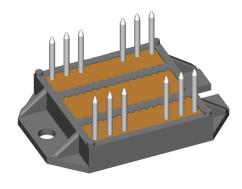
 $I_{FAVM} = 2x 128 A$ 

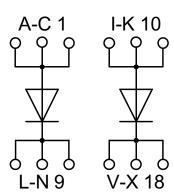
 $V_{RRM} = 1200 V$ 

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

#### Part number

DSEI2x161-12P





#### Features / Advantages:

- 2 independent FRED in 1 package
- · Planar passivated chips
- · Very short recovery time
- · Leads suitable for PC board soldering
- Very short recovery time
- · Soft recovery behaviour
- · Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- · Low noise switching
- · Small and light weight

#### **Applications:**

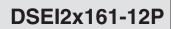
- Antiparallel diode for high frequency switching devices
- · Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- · Inductive heating and melting
- Uninterruptible power supplies (UPS)
- · Ultrasonic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

Package: ECO-PAC2

- Isolation voltage: 3000 V~
- · Industry standard outline
- · RoHS compliant
- Soldering pins for PCB mounting
- Height: 9 mm
- Base plate: DCB ceramic
- · Reduced weight
- Advanced power cycling

#### **Disclaimer Notice**

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## preliminary data

Diode	Diode					Ratings			
Symbol	Definitions	Conditions		min.	typ.	max.			
I <sub>FRMS</sub>	RMS forward current		$T_{VJ} = T_{VJM}$			270	Α		
I <sub>FAVM</sub> ①	max. average forward current	rectangular, d = 0.5	$T_{c} = 70^{\circ}C$			128	A		
FSM	max. surge forward current	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	$T_{VJ} = 45^{\circ}C$			1200 1300	A A		
		t = 10  ms (50 Hz), sine $t = 8.3  ms$ (60 Hz), sine	$T_{VJ} = 150^{\circ}C$			1080 1170	A A		
l²t	Pt value for fusing	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	$T_{VJ} = 45^{\circ}C$			7200 7100	A <sup>2</sup> s A <sup>2</sup> s		
		t = 10  ms (50 Hz), sine $t = 8.3  ms$ (60 Hz), sine	$T_{VJ} = 150^{\circ}C$			5800 5700	A <sup>2</sup> s A <sup>2</sup> s		
I <sub>R</sub>	reverse current	$egin{align*} V_{R} &= V_{RRM} \ V_{R} &= 0.8 \cdot V_{RRM} \ V_{R} &= 0.8 \cdot V_{RRM} \ \end{array}$	$T_{VJ} = 25^{\circ}C$ $T_{VJ} = 25^{\circ}C$ $T_{VJ} = 125^{\circ}C$			12 3 60	mA mA mA		
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 200 A	$T_{VJ} = 25^{\circ}C$			1.9	V		
ν <sub>το</sub>	threshold voltage slope resistance	for power-loss calculations only $T_{VJ} = T_{VJM}$				1.16 3	V mΩ		
R <sub>thJC</sub>	thermal resistance junction to case thermal resistance junction to heatsink				0.20	0.29	K/W K/W		
I <sub>RM</sub>	max. reverse recovery current	$I_F = 100 \text{ A}; -di_F/dt = 200 \text{ A/}\mu\text{s}$ $T_{VJ} = 100^{\circ}\text{C}$ $V_R = 100 \text{ V}; L \le 0.05 \mu\text{H}$			48		A		
t <sub>rr</sub>	reverse recovery time	$I_F = 1 \text{ A}; -di/dt = 400 \text{ A}/\mu\text{s}; V_R = 30 \text{ V}$	T <sub>vJ</sub> = 25°C		40		ns		

①  $I_{\text{FAVM}}$  rating includes reverse blocking losses at  $T_{\text{VJM}}$ ,  $V_{\text{R}}$  = 0.8  $V_{\text{RRM}}$ , duty cycle d = 0.5





### preliminary data

Package	ECO-PAC2			Ratings			
Symbol	Definitions	Conditions		min.	typ.	max.	
I <sub>RMS</sub>	RMS current	ent per terminal				100	Α
T <sub>VJ</sub> T <sub>op</sub> T <sub>stg</sub>	virtual junction temperature operation temperature storage temperature		-40 -40 -40		150 125 125	°°° °°° °°°° °°°°°	
Weight	t				24		g
M <sub>D</sub>	mounting torque			1.4		2.0	Nm
d <sub>Spp/App</sub> d <sub>Spb/Apb</sub>	creepage distance on surface   striking distance through air terminal to terminal terminal to backside		6.0 10.0			mm mm	
V <sub>ISOL</sub>	isolation voltage	t = 1 second t = 1 minute 50/60 Hz, RM	S; I <sub>ISOL</sub> ≤ 1 mA	3000 2500			V

