

Fast Recovery Epitaxial Diode (FRED)

preliminary data

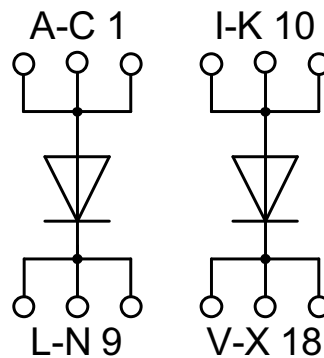
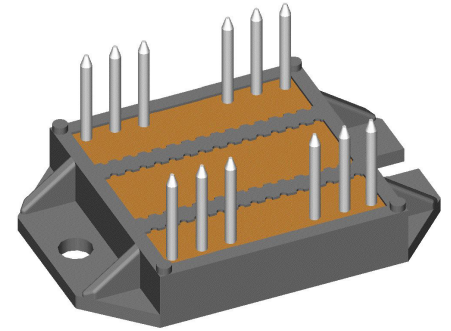
$$I_{FAVM} = 2 \times 165 \text{ A}$$

$$V_{RRM} = 200 \text{ V}$$

$$t_{rr} = 35 \text{ ns}$$

Part number

DSEI2x161-02P



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

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Diode				Ratings			
Symbol	Definitions	Conditions		min.	typ.	max.	
I_{FRMS}	RMS forward current		$T_{VJ} = T_{VJM}$			270	A
I_{FAVM} ①	max. average forward current	rectangular, d = 0.5	$T_C = 70^\circ\text{C}$			165	A
I_{FSM}	max. surge forward current	t = 10 ms (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			1200	A
		t = 8.3 ms (60 Hz), sine				1300	A
		t = 10 ms (50 Hz), sine	$T_{VJ} = 150^\circ\text{C}$			1080	A
		t = 8.3 ms (60 Hz), sine				1170	A
I^2t	I^2t value for fusing	t = 10 ms (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			7200	A ² s
		t = 8.3 ms (60 Hz), sine				7100	A ² s
		t = 10 ms (50 Hz), sine	$T_{VJ} = 150^\circ\text{C}$			5800	A ² s
		t = 8.3 ms (60 Hz), sine				5700	A ² s
I_R	reverse current	$V_R = V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$			3	mA
		$V_R = 0.8 \cdot V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$			2	mA
		$V_R = 0.8 \cdot V_{RRM}$	$T_{VJ} = 125^\circ\text{C}$			80	mA
V_F	forward voltage	$I_F = 200 \text{ A}$	$T_{VJ} = 25^\circ\text{C}$			1.2	V
V_{T0}	threshold voltage	for power-loss calculations only	$T_{VJ} = T_{VJM}$			0.53	V
r_T	slope resistance					2.6	mΩ
R_{thJC}	thermal resistance junction to case				0.20	0.29	K/W
R_{thCH}	thermal resistance junction to heatsink						K/W
I_{RM}	max. reverse recovery current	$I_F = 100 \text{ A}$; $-di_F/dt = 200 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}$; $L \leq 0.05 \mu\text{H}$	$T_{VJ} = 100^\circ\text{C}$		20		A
t_{rr}	reverse recovery time	$I_F = 1 \text{ A}$; $-di/dt = 400 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$		35		ns

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

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Package ECO-PAC2			Ratings			
Symbol	Definitions	Conditions	min.	typ.	max.	
I_{RMS}	RMS current	per terminal			100	A
T_{VJ}	virtual junction temperature		-40		150	°C
T_{op}	operation temperature		-40		125	°C
T_{stg}	storage temperature		-40		125	°C
Weight				24		g
M_D	mounting torque		1.4		2.0	Nm
$d_{Spp/App}$ $d_{Spb/Apb}$	creepage distance on surface striking distance through air	terminal to terminal terminal to backside	6.0 10.0			mm mm
V_{ISOL}	isolation voltage	t = 1 second t = 1 minute 50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	3000 2500			V V

