

# Fast Recovery Epitaxial Diode (FRED)

preliminary data

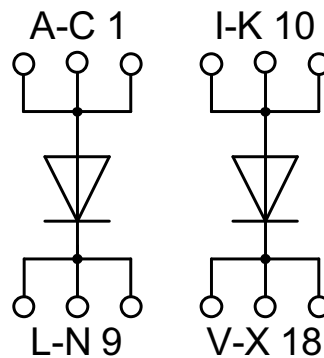
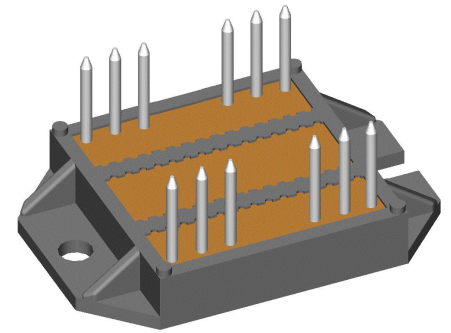
$$I_{FAVM} = 2 \times 165 \text{ A}$$

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

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

## 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

### Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/disclaimer-electronics](http://www.littelfuse.com/disclaimer-electronics).



preliminary data

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 <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine				7100	A <sup>2</sup> s
		t = 10 ms (50 Hz), sine	$T_{VJ} = 150^\circ\text{C}$			5800	A <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine				5700	A <sup>2</sup> 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
$V_{TO}$	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

preliminary data

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
<b>Weight</b>				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

