

preliminary data

# Fast Recovery Epitaxial Diode (FRED)

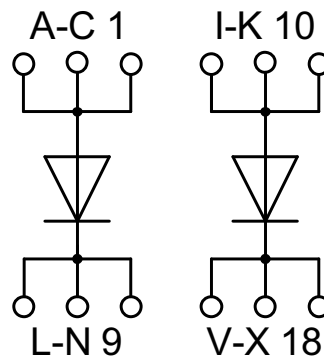
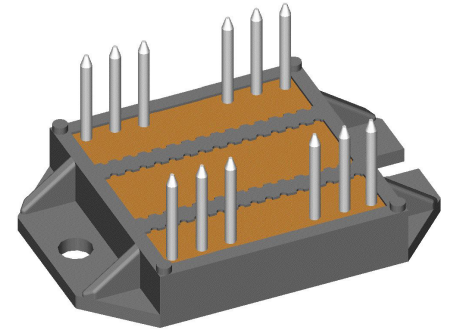
$$I_{FAVM} = 2 \times 128 \text{ A}$$

$$V_{RRM} = 1200 \text{ V}$$

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

## 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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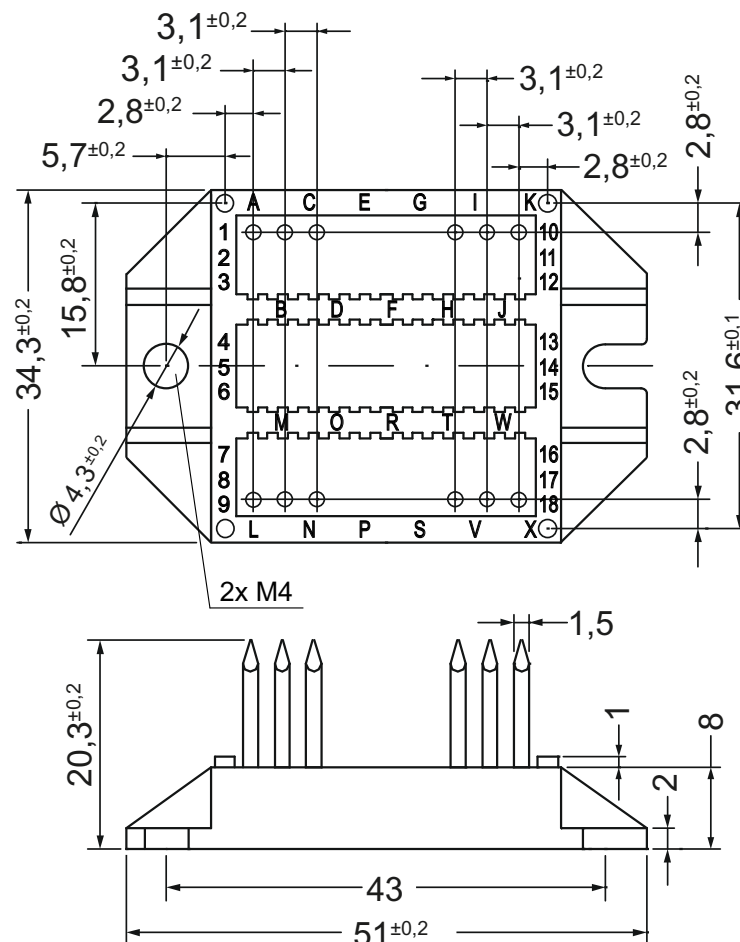
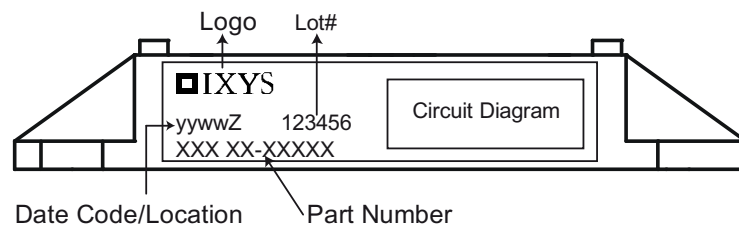
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Diode				Ratings			
Symbol	Definitions	Conditions		min.	typ.	max.	
$I_{FRMS}$	RMS forward current		$T_{VJ} = T_{VJM}$			270	A
$I_{FAVM}$ ①	max. average forward current	rectangular, d = 0.5	$T_C = 70^\circ\text{C}$			128	A
$I_{FSM}$	max. surge forward 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	$V_R = V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$			12	mA
		$V_R = 0.8 \cdot V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$			3	mA
		$V_R = 0.8 \cdot V_{RRM}$	$T_{VJ} = 125^\circ\text{C}$			60	mA
$V_F$	forward voltage	$I_F = 200 \text{ A}$	$T_{VJ} = 25^\circ\text{C}$			1.9	V
$V_{T0}$	threshold voltage	for power-loss calculations only	$T_{VJ} = T_{VJM}$			1.16	V
$r_T$	slope resistance					3	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	$I_F = 100 \text{ A}$ ; $-di_F/dt = 200 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}$ ; $L \leq 0.05 \mu\text{H}$	$T_{VJ} = 100^\circ\text{C}$		48		A
$t_{rr}$	reverse recovery time	$I_F = 1 \text{ A}$ ; $-di/dt = 400 \text{ A}/\mu\text{s}$ ; $V_R = 30 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$		40		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.	
$I_{RMS}$	<i>RMS current</i>	per terminal				100	A
$T_{VJ}$	<i>virtual junction temperature</i>			-40		150	°C
$T_{op}$	<i>operation temperature</i>			-40		125	°C
$T_{stg}$	<i>storage temperature</i>			-40		125	°C
Weight					24		g
$M_D$	<i>mounting torque</i>			1.4		2.0	Nm
$d_{Spp/App}$	<i>creepage distance on surface</i>	terminal to terminal		6.0			mm
$d_{Spb/Appb}$	<i>striking distance through air</i>	terminal to backside		10.0			mm
$V_{ISOL}$	<i>isolation voltage</i>	t = 1 second t = 1 minute	50/60 Hz, RMS; $I_{ISOL} \leq 1\text{ mA}$	3000 2500			V V



IXYS reserves the right to change limits, conditions and dimensions.

Data according to IEC 60747 and per semiconductor unless otherwise specified.

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