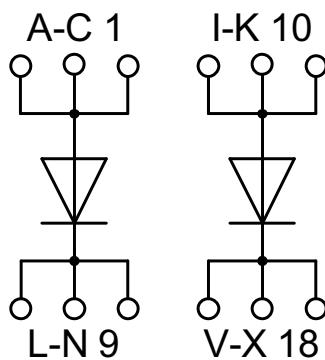
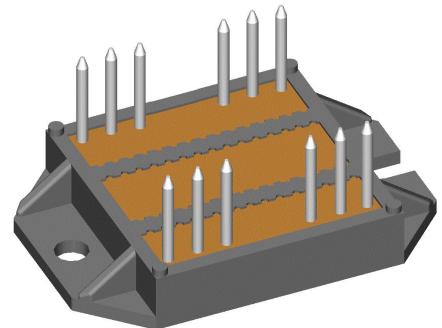


# Fast Recovery Epitaxial Diode (FRED)

$I_{FAVM} = 2 \times 96 \text{ A}$   
 $V_{RRM} = 600 \text{ V}$   
 $t_{rr} = 35 \text{ ns}$

## Part number

DSEI 2x 101-06P



## 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

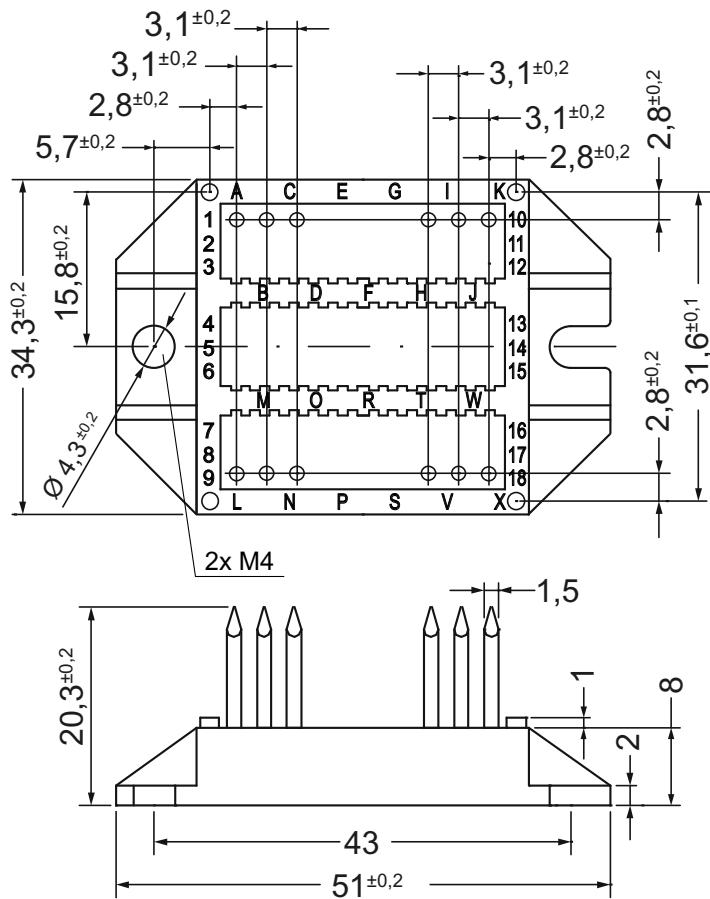
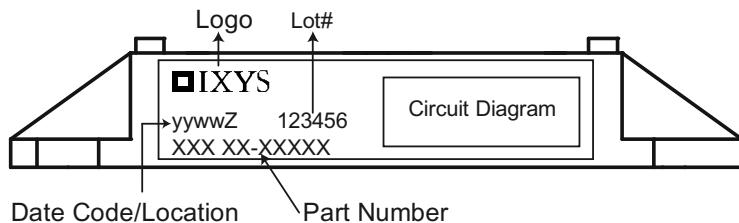
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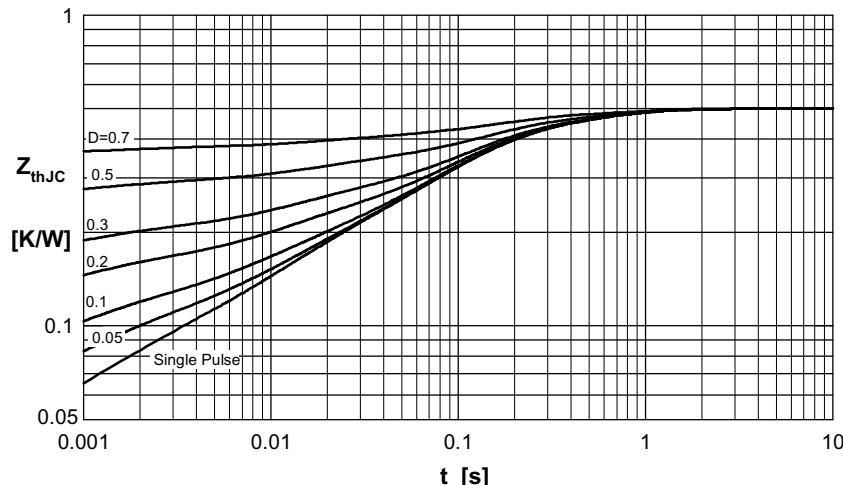
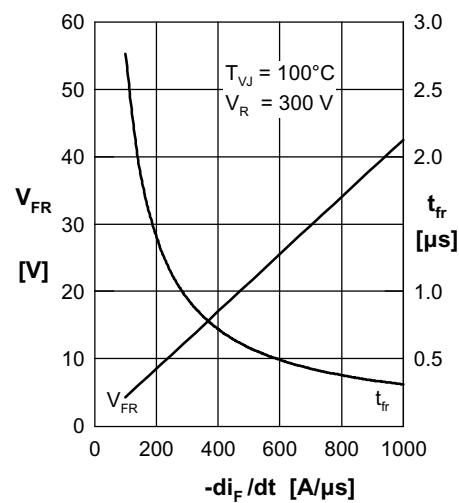
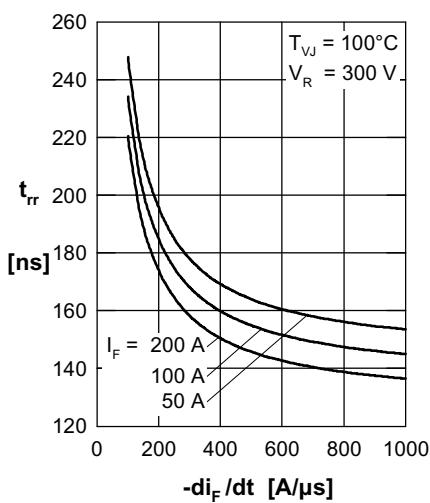
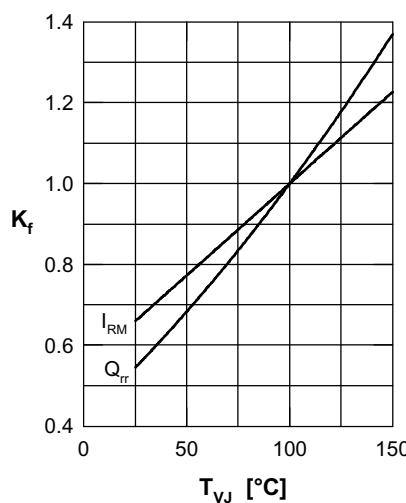
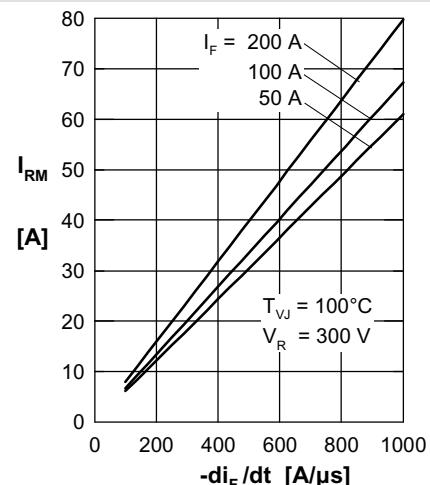
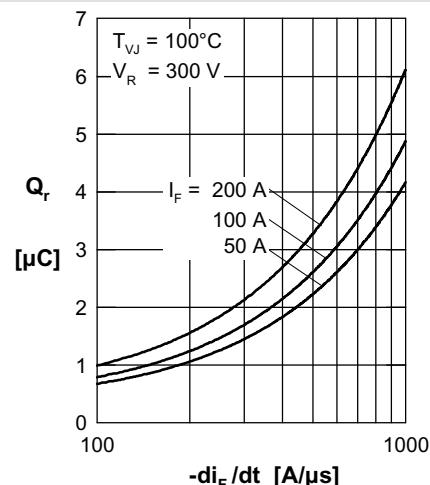
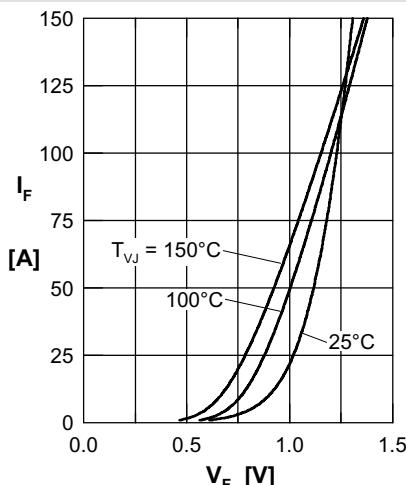
**Diode**

Symbol	Definitions	Conditions	Ratings		
			min.	typ.	max.
$I_{FRMS}$	RMS forward current	$T_{VJ} = T_{VJM}$			150 A
$I_{FAVM}$ ①	max. average forward current	rectangular, $d = 0.5$ $T_c = 70^\circ\text{C}$			96 A
$I_{FRM}$	max. repetitive forward current	$t_p < 10 \mu\text{s}$ rep. rating, pulse width limited by $T_{VJM}$			tbd A
$I_{FSM}$	max. surge forward current	$t = 10 \text{ ms}$ (50 Hz), sine $T_{VJ} = 45^\circ\text{C}$			1200 A
$P_{tot}$	total power dissipation	$T_{VJ} = 25^\circ\text{C}$			250 W
$I_R$	reverse current	$V_R = V_{RRM}$ $V_R = 0.8 \cdot V_{RRM}$ $V_R = 0.8 \cdot V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	3 mA 1 mA 20 mA	mA
$V_F$	forward voltage	$I_F = 100 \text{ A}$	$T_{VJ} = 150^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$	1.17 V 1.25 V	V
$V_{TO}$ $r_T$	threshold voltage slope resistance	for power-loss calculations only	$T_{VJ} = T_{VJM}$	0.7 V 4.7 mΩ	V mΩ
$R_{thJC}$ $R_{thCH}$	thermal resistance junction to case thermal resistance junction to heatsink			0.05 K/W K/W	
$t_{rr}$	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 60 ns	
$I_{RM}$	max. reverse recovery current	$I_F = 80 \text{ A}; -di_F/dt = 200 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}; L \leq 0.05 \mu\text{H}$	$T_{VJ} = 100^\circ\text{C}$	19 A 24 A	A

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

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
$d_{Spp/App}$	creepage distance on surface   striking distance through air	terminal to terminal	6.0		mm
$d_{Spb/App}$		terminal to backside	10.0		mm
$V_{ISOL}$	isolation voltage	$t = 1$ second $t = 1$ minute	3000		V
		50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	2500		V



**Curves**

 Constants for  $Z_{thJC}$  calculation:

i	$R_{thi}$ [K/W]	$t_i$ [s]
1	0.020	0.00002
2	0.050	0.00081
3	0.076	0.01000
4	0.240	0.09400
5	0.114	0.45000