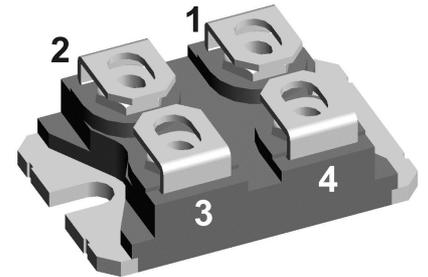


preliminary

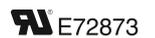
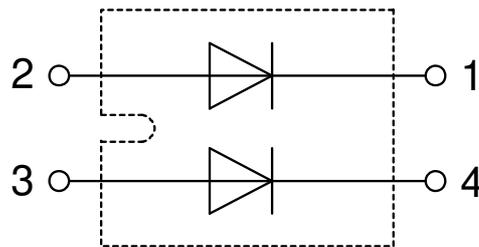
# HiPerFRED

 $V_{RRM} = 200\text{ V}$   
 $I_{FAV} = 2 \times 120\text{ A}$   
 $t_{rr} = 55\text{ ns}$ 

High Performance Fast Recovery Diode  
 Low Loss and Soft Recovery  
 Parallel legs

**Part number**
**DPF240X200NA**


Backside: isolated



**Features / Advantages:**

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low  $I_{rm}$ -values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low  $I_{rm}$  reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

**Applications:**

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

**Package: SOT-227B (minibloc)**

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Base plate: Copper internally DCB isolated
- 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).

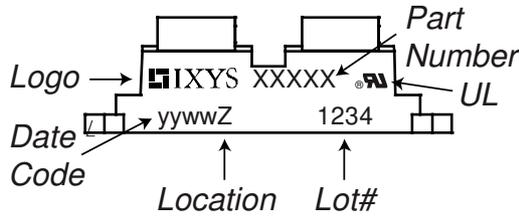


Fast Diode				Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit	
$V_{RSM}$	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}C$			200	V	
$V_{RRM}$	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}C$			200	V	
$I_R$	reverse current, drain current	$V_R = 200 V$	$T_{VJ} = 25^{\circ}C$		10	$\mu A$	
		$V_R = 200 V$	$T_{VJ} = 150^{\circ}C$		0.5	mA	
$V_F$	forward voltage drop	$I_F = 120 A$	$T_{VJ} = 25^{\circ}C$		1.19	V	
		$I_F = 240 A$			1.51	V	
		$I_F = 120 A$	$T_{VJ} = 150^{\circ}C$		1.06	V	
		$I_F = 240 A$			1.48	V	
$I_{FAV}$	average forward current	$T_C = 80^{\circ}C$ rectangular $d = 0.5$	$T_{VJ} = 150^{\circ}C$		120	A	
$V_{FO}$	threshold voltage	} for power loss calculation only	$T_{VJ} = 150^{\circ}C$		0.65	V	
$r_F$	slope resistance				3.4	m $\Omega$	
$R_{thJC}$	thermal resistance junction to case				0.4	K/W	
$R_{thCH}$	thermal resistance case to heatsink			0.10		K/W	
$P_{tot}$	total power dissipation		$T_C = 25^{\circ}C$		310	W	
$I_{FSM}$	max. forward surge current	$t = 10 ms; (50 Hz), sine; V_R = 0 V$	$T_{VJ} = 45^{\circ}C$		1.20	kA	
$C_J$	junction capacitance	$V_R = 100 V$ $f = 1 MHz$	$T_{VJ} = 25^{\circ}C$		328	pF	
$I_{RM}$	max. reverse recovery current	} $I_F = 120 A; V_R = 100 V$ $-di_F / dt = 200 A/\mu s$	$T_{VJ} = 25^{\circ}C$		6	A	
			$T_{VJ} = 125^{\circ}C$		16	A	
$t_{rr}$	reverse recovery time		$T_{VJ} = 25^{\circ}C$		55	ns	
			$T_{VJ} = 125^{\circ}C$		85	ns	



Package SOT-227B (minibloc)		Ratings				
Symbol	Definition	Conditions	min.	typ.	max.	Unit
$I_{RMS}$	RMS current	per terminal			150	A
$T_{VJ}$	virtual junction temperature		-40		150	°C
$T_{op}$	operation temperature		-40		125	°C
$T_{stg}$	storage temperature		-40		150	°C
<b>Weight</b>				30		g
$M_D$	mounting torque		1.1		1.5	Nm
$M_T$	terminal torque		1.1		1.5	Nm
$d_{Spp/App}$	creepage distance on surface   striking distance through air	terminal to terminal	10.5	3.2		mm
$d_{Spb/Apb}$		terminal to backside	8.6	6.8		mm
$V_{ISOL}$	isolation voltage	t = 1 second	3000			V
		t = 1 minute	2500			V

**Product Marking**



**Part description**

- D = Diode
- P = HiPerFRED
- F = ultra fast
- 240 = Current Rating [A]
- X = Parallel legs
- 200 = Reverse Voltage [V]
- NA = SOT-227B (minibloc)

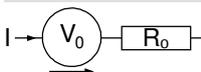
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DPF240X200NA	DPF240X200NA	Tube	10	512342

Similar Part	Package	Voltage class
DSEI2x121-02A	SOT-227B (minibloc)	200

**Equivalent Circuits for Simulation**

\* on die level

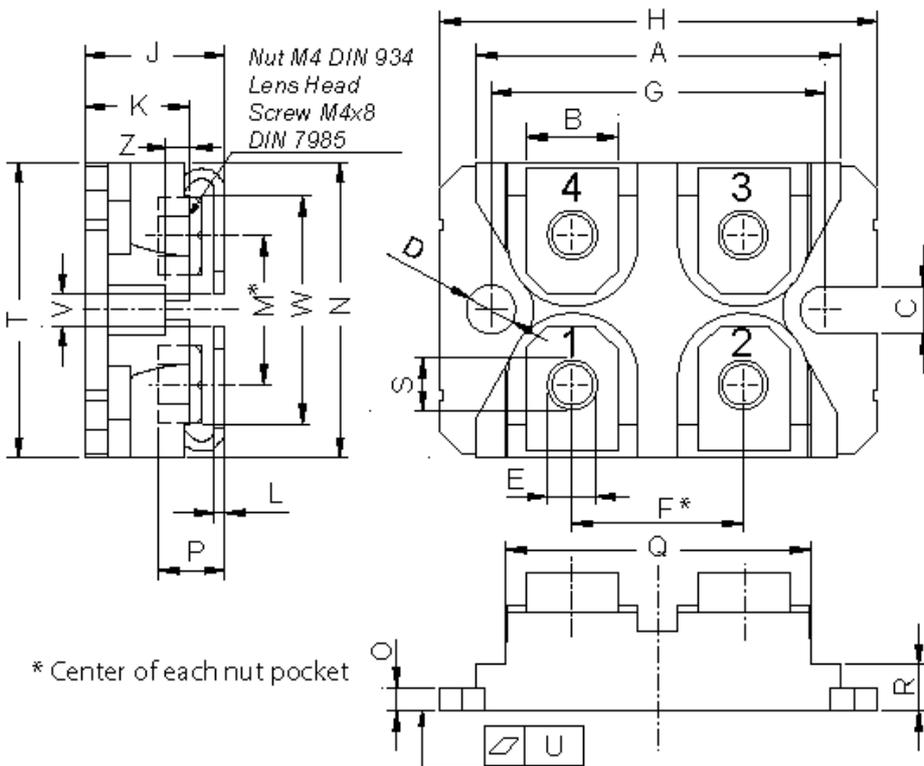
$T_{VJ} = 150^{\circ}C$



Symbol	Definition	Value	Unit
$V_{0\ max}$	threshold voltage	0.65	V
$R_{0\ max}$	slope resistance *	1.5	mΩ



**Outlines SOT-227B (minibloc)**



Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.167
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106

