

# Schottky Diode

$$V_{RRM} = 45 \text{ V}$$

$$I_{FAV} = 2 \times 120 \text{ A}$$

$$V_F = 0.59 \text{ V}$$

High Performance Schottky Diode  
 Low Loss and Soft Recovery  
 Parallel legs

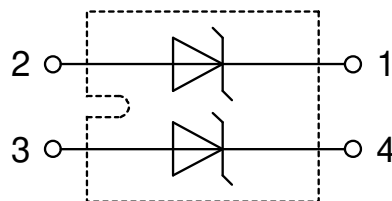
Part number

**DSS2x121-0045B**



Backside: isolated

 E72873



## Features / Advantages:

- Very low  $V_f$
- Extremely low switching losses
- Low  $I_{rm}$  values
- Improved thermal behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching

## Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

## 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).



Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
$V_{RSM}$	max. non-repetitive reverse blocking voltage					45	V
$V_{RRM}$	max. repetitive reverse blocking voltage					45	V
$I_R$	reverse current, drain current	$V_R = 45\text{ V}$		$T_{VJ} = 25^\circ\text{C}$		120	mA
		$V_R = 45\text{ V}$		$T_{VJ} = 100^\circ\text{C}$		500	mA
$V_F$	forward voltage drop	$I_F = 120\text{ A}$		$T_{VJ} = 25^\circ\text{C}$		0.62	V
		$I_F = 240\text{ A}$				0.89	V
		$I_F = 120\text{ A}$		$T_{VJ} = 125^\circ\text{C}$		0.59	V
		$I_F = 240\text{ A}$				0.90	V
$I_{FAV}$	average forward current	$T_C = 100^\circ\text{C}$	rectangular	$T_{VJ} = 150^\circ\text{C}$		120	A
			d = 0.5				
$V_{F0}$	threshold voltage	} for power loss calculation only		$T_{VJ} = 150^\circ\text{C}$		0.27	V
$r_F$	slope resistance					2.6	mΩ
$R_{thJC}$	thermal resistance junction to case					0.4	K/W
$R_{thCH}$	thermal resistance case to heatsink				0.1		K/W
$P_{tot}$	total power dissipation			$T_C = 25^\circ\text{C}$		310	W
$I_{FSM}$	max. forward surge current	t = 10 ms; (50 Hz), sine; $V_R = 0\text{ V}$		$T_{VJ} = 45^\circ\text{C}$		1.60	kA
$C_J$	junction capacitance	$V_R = 5\text{ V}$	f = 1 MHz	$T_{VJ} = 25^\circ\text{C}$		5.86	nF



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	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	2500		V	

**Product Marking**



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSS2x121-0045B	DSS2x121-0045B	Tube	10	478334

**Equivalent Circuits for Simulation**

\* on die level

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



Schottky

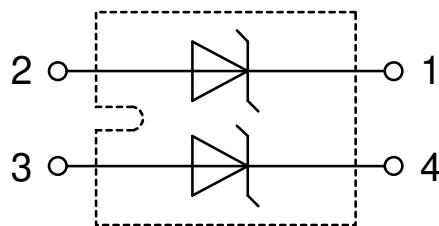
$V_{0\ max}$	threshold voltage	0.27	V
$R_{0\ max}$	slope resistance *	0.8	mΩ



**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



**Schottky**

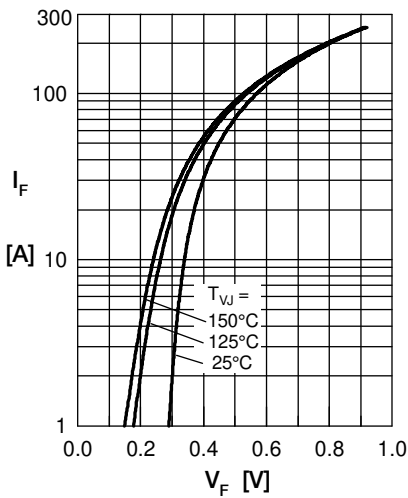


Fig. 1 Max. forward voltage drop characteristics

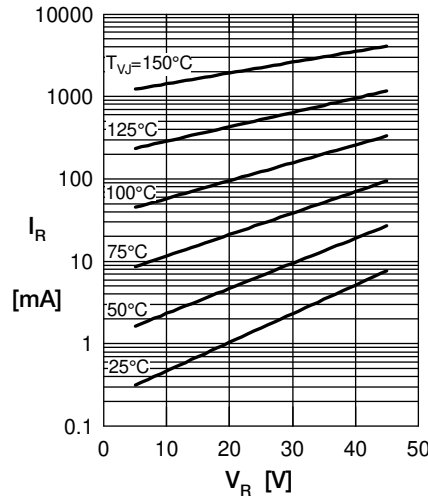


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

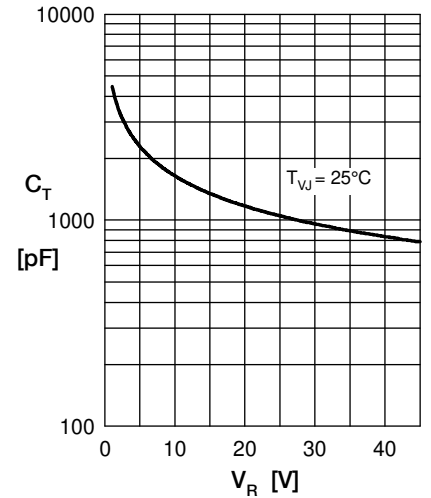


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

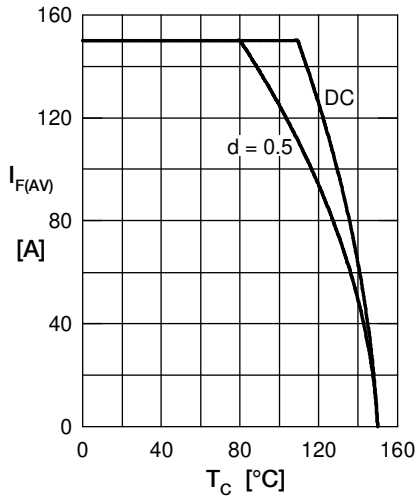


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temp.  $T_C$

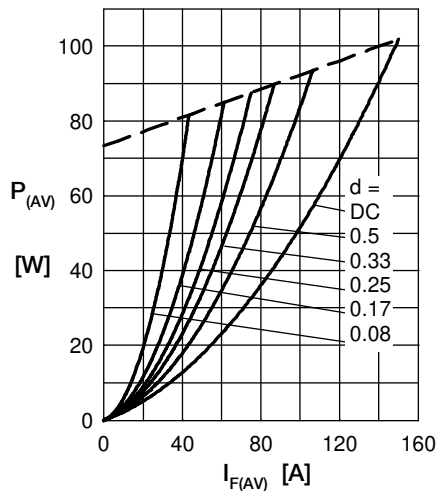


Fig. 5 Forward power loss characteristics

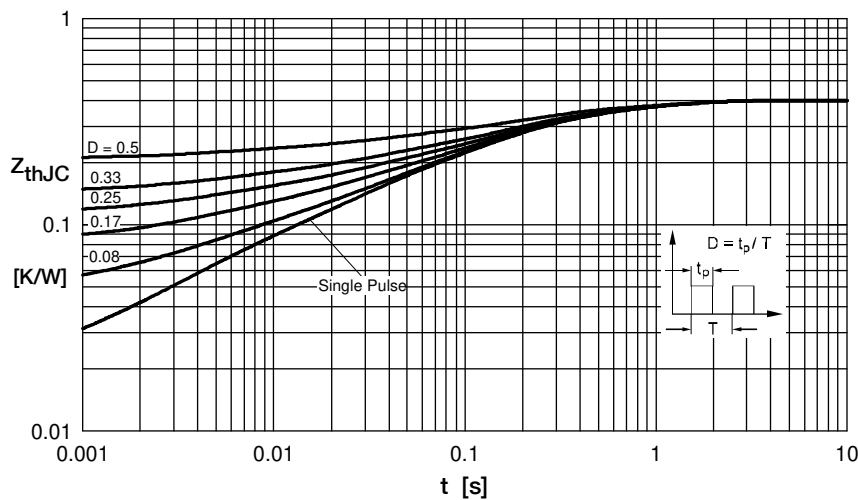


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode