

HIGH VOLTAGE SCHOTTKY RECTIFIER

Features

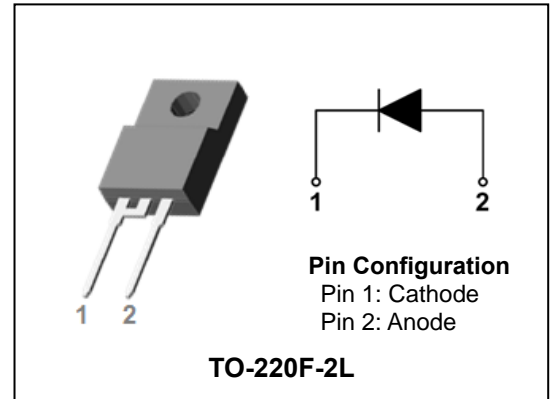
- Low forward voltage drop
- Low power loss and High efficiency
- Low leakage current
- High surge capability
- Full lead(Pb)-free and RoHS compliant device

Applications

- High efficiency SMPS
- Output rectification
- High frequency switching
- Freewheeling
- DC-DC converter systems

Description

The SDB5150PH is ideally suited for a full wave output rectifier in low switching power supplies, inverters and as free wheeling diodes.



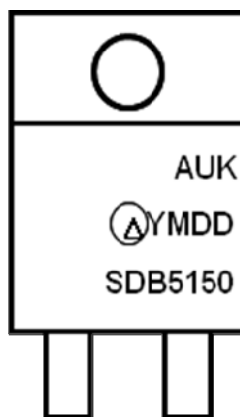
Product Characteristics

$I_{F(AV)}$	5A
V_{RRM}	150V
V_{FM} at 125°C	0.75V
I_{FSM}	120A

Ordering Information

Device	Marking Code	Package	Packaging
SDB5150PH	SDB5150	TO-220F-2L	Tube

Marking Information



AUK = Manufacture Logo

Δ = Control Code of Manufacture

YMDD = Date Code Marking

- Y = Year Code

- M = Monthly Code

- D = Daily Code

SDB5150 = Specific Device Code

Absolute Maximum Ratings (Limiting Values)

Characteristic	Symbol	Value	Unit
Maximum repetitive reverse voltage Maximum working peak reverse voltage Maximum DC blocking voltage	V_{RRM} V_{RWM} V_R	150	V
Maximum average forward rectified current	$I_{F(AV)}$	5	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode	I_{FSM}	120	A
Storage temperature range	T_{stg}	-45°C to +150°C	°C
Maximum operating junction temperature	T_J	150	°C

Thermal Characteristics

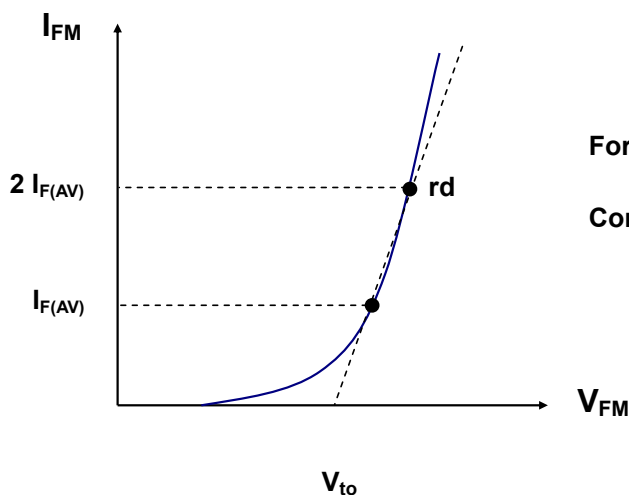
Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to case	$R_{th(j-c)}$	4.0	°C/W

Electrical Characteristics

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Peak forward voltage drop	$V_{FM}^{(1)}$	$I_{FM} = 5A$	$T_j = 25^\circ C$	-	-	0.88	V
			$T_j = 125^\circ C$	-	-	0.75	V
Reverse leakage current	$I_{RM}^{(1)}$	$V_R = V_{RRM}$	$T_j = 25^\circ C$	-	-	10	uA
			$T_j = 125^\circ C$	-	-	10	mA
Junction capacitance	C_j	$V_R = 4V_{DC}, f=1MHz$	-	80	-	pF	

Note : (1) Pulse test : $t_p \leq 380 \mu s$, Duty cycle $\leq 2\%$

To evaluate the conduction losses use the following equation (Fig 4.) : $P_F = 0.72 \times I_{F(AV)} + 0.021 I_{F(RMS)}^2$



Forward Voltage : $V_{FM} = V_{to} + rd I_{FM}$

Conduction Loss : $P_F = V_{to} I_{F(AV)} + rd I_{F(RMS)}^2$

Rating and Characteristic Curves

Fig. 1) Typical Forward Characteristics

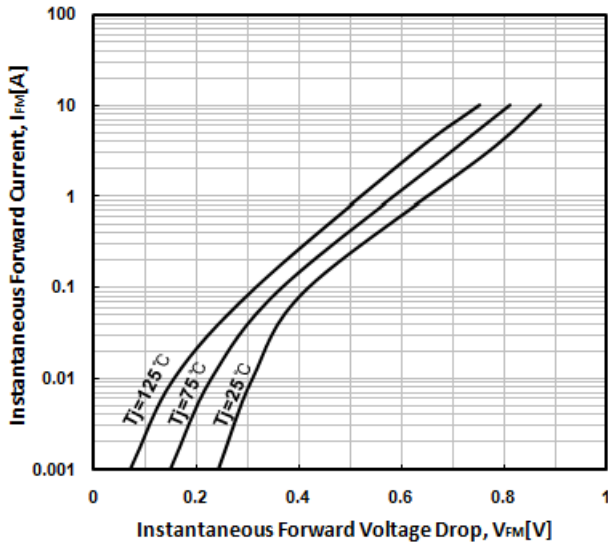


Fig. 2) Typical Reverse Characteristics

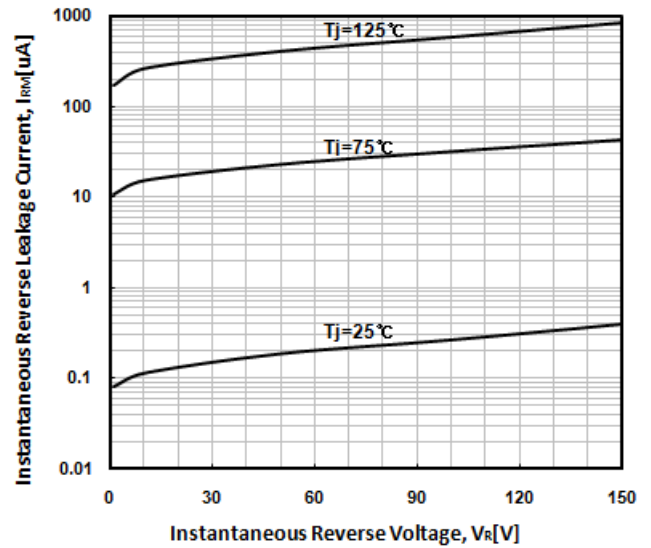


Fig. 3) Maximum Forward Derivative Curve

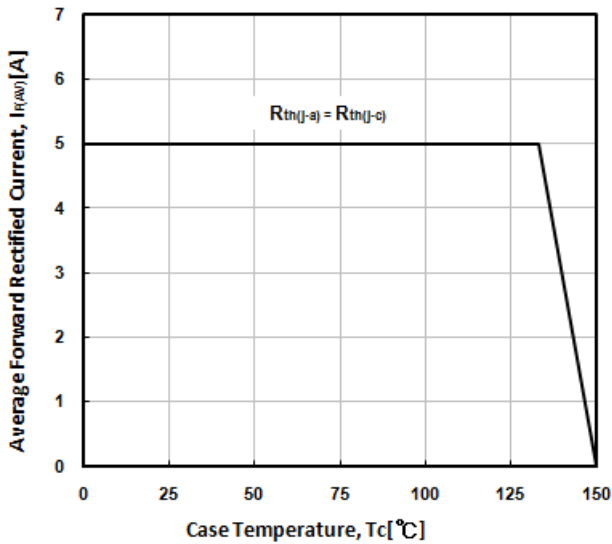


Fig. 4) Forward Power Dissipation

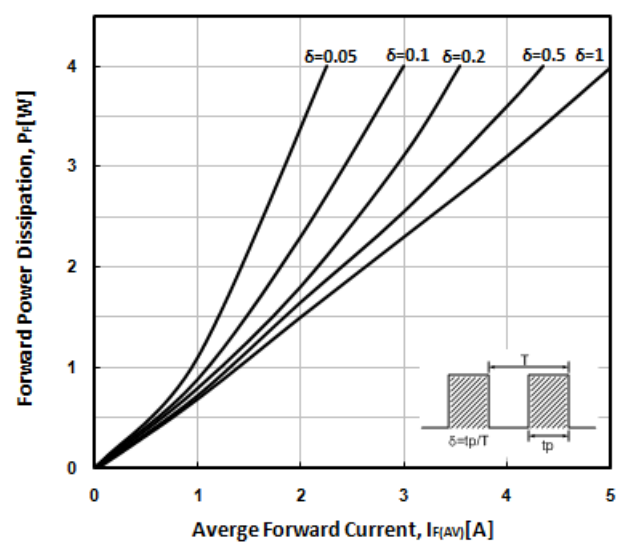


Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current

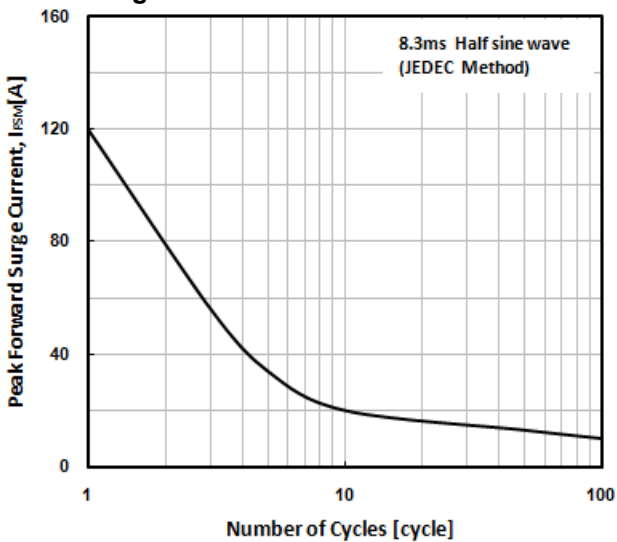
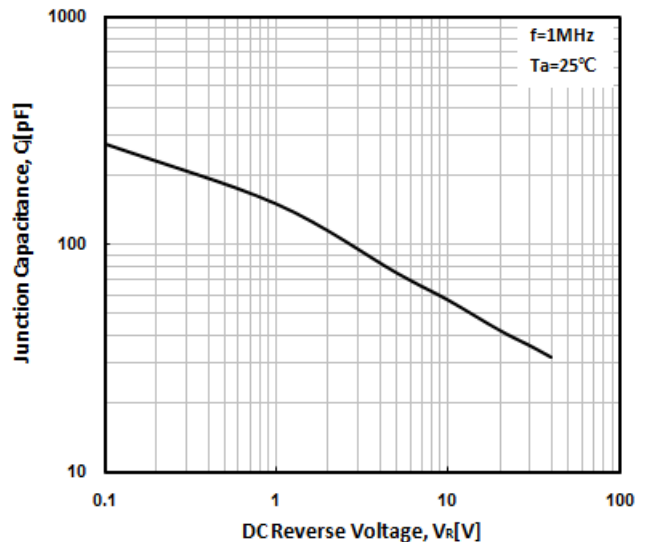
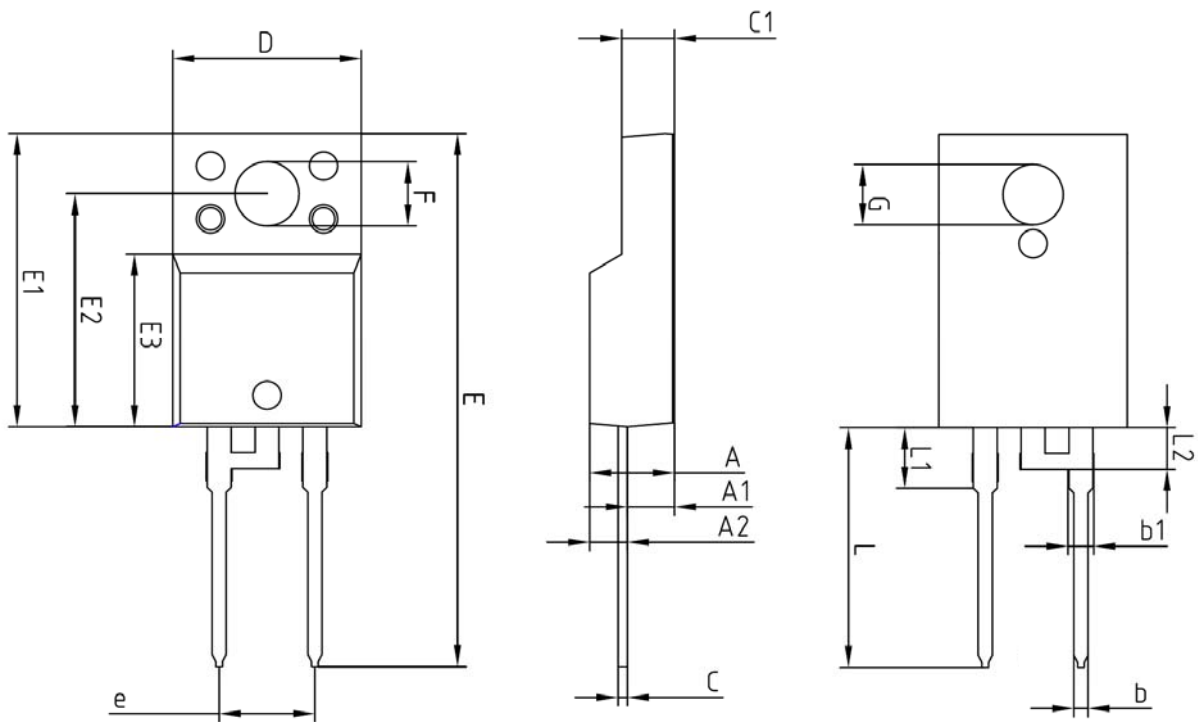


Fig. 6) Typical Junction Capacitance



Package Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	—	—	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	—	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	5.08 BSC			
L	12.40	—	13.00	
L1	3.46 BSC			
L2	2.21 BSC			

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