

## Optima Diode - Low forward voltage drop, Fast Recovery Diode

VRRM	600 V	l <sub>F</sub>	30 A
V <sub>F(TYP)</sub>	1.3 V	T <sub>RR(TYP)</sub>	75 ns

#### **Features**

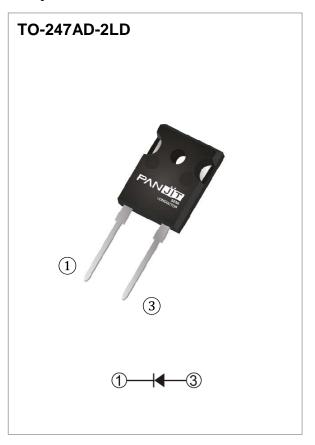
- Fast recovery
- Low forward voltage
- Optimized trade-off performance between V<sub>F</sub> & T<sub>RR</sub>
- Soft recovery characteristic for better EMI
- High junction temperature 150 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

## **Mechanical Data**

- Case: TO-247AD-2LD molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.2136 ounces, 6.056 grams



• PFC, UPS, PV Inverter, EV Charging Station, Welder



# Maximum Ratings and Thermal Characteristics (Tc = 25 °C unless otherwise specified)

PARAMETER	SYMBOL	LIMIT	UNITS
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	600	V
DC Blocking Voltage	V <sub>DC</sub>	600	V
Diode Forward Current @ Tc=125°C	I <sub>F(AV)</sub>	30	Α
Repetitive Peak Surge Current tp = 8.3 ms, sine-wave, D=0.5	IFRM	60	А
Peak Forward Surge Current  tp = 8.3 ms, single half sine-wave	I <sub>FSM</sub>	270	А
Maximum Power Dissipation	P <sub>total</sub>	179	W
Operating Junction Temperature Range	TJ	-55~150	°C
Storage Temperature Range	T <sub>STG</sub>	-55~150	°C

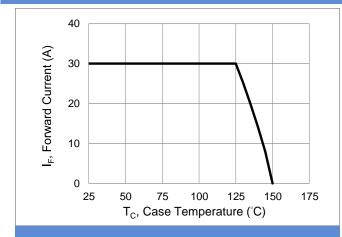


# **Electrical Characteristics** (T<sub>C</sub> = 25 °C unless otherwise specified)

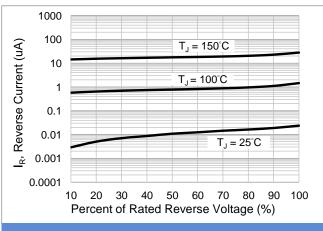
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
E I II I	V <sub>F</sub>	I <sub>F</sub> = 30 A, T <sub>J</sub> = 25 °C	-	1.3	1.8	
Forward voltage drop		I <sub>F</sub> = 30 A, T <sub>J</sub> = 125 °C	-	1.2	-	V
Dovorno lookogo gurront	I <sub>R</sub>	V <sub>R</sub> = 600 V, T <sub>J</sub> = 25 °C	-	-	250	μΑ
Reverse leakage current		V <sub>R</sub> = 600 V, T <sub>J</sub> = 125 °C	-	-	1	mA
Davaraa raaayar tima	$T_RR$	I <sub>F</sub> =0.5A, I <sub>R</sub> =1A, I <sub>RR</sub> =0.25A T <sub>J</sub> = 25 °C	-	-	55	ns
Reverse recovery time		$I_F = 1 \text{ A}, V_R = 30 \text{ V},$ $di/dt = 300 \text{ A/}\mu\text{s},$ $T_J = 25 ^{\circ}\text{C}$	-	-	40	ns
Reverse recovery time	T <sub>RR</sub>		-	75	115	ns
Peak recovery current	I <sub>RRM</sub>	I <sub>F</sub> = 30 A, V <sub>R</sub> = 400 V,	-	6.6	ı	Α
Reverse recovery charge	Q <sub>RR</sub>	di/dt = 300 A/µs,	-	325	ı	nC
Softness factor = tb / ta	S	T <sub>J</sub> = 25 °C	-	0.9	ı	
Reverse recovery time	T <sub>RR</sub>	$I_F = 30 \text{ A}, V_R = 400 \text{ V},$ $di/dt = 300 \text{ A/}\mu\text{s},$	-	115	ı	ns
Peak recovery current	I <sub>RRM</sub>		-	14.5	ı	Α
Reverse recovery charge	Q <sub>RR</sub>		-	1150		nC
Softness factor = tb / ta	S	T <sub>J</sub> = 125 °C	-	0.46	-	
Thermal Resistance	R <sub>θ</sub> JC		-	-	0.7	°C/W



### **TYPICAL CHARACTERISTIC CURVES**



**Fig.1 Forward Current Derating Curve** 



**Fig.3 Typical Reverse Characteristics** 

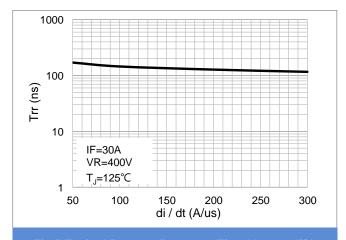
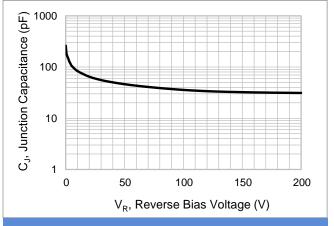


Fig.5 Typical Reverse Recovery Time Versus di/dt



**Fig.2 Typical Junction Capacitance** 

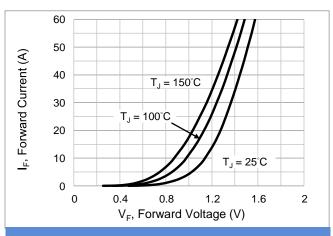


Fig.4 Typical Forward Characteristics

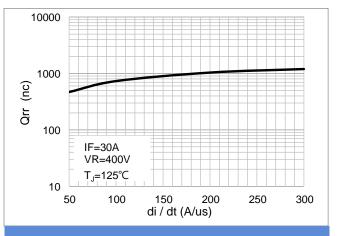


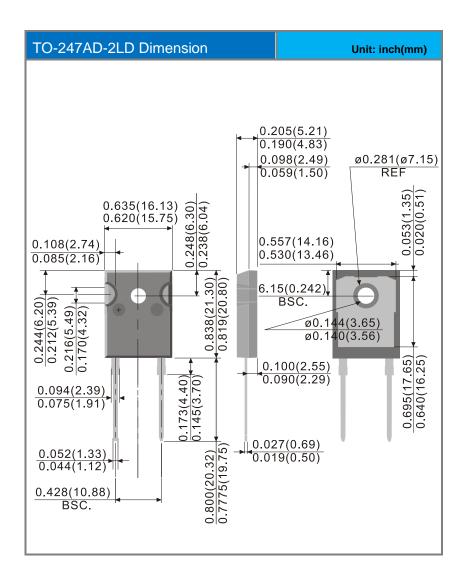
Fig.6 Typical Reverse Recovery Charges Versus di/dt



## **Product and Packing Information**

Part No.	Package Type	Packing Type	Marking
PSDH3060L1	TO-247AD-2LD	30pcs / Tube	SDH3060L1

## **Packaging Information**





## Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..
- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.
- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are
  responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no
  representation or warranty that such applications will be suitable for the specified use without further testing
  or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.
- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.