

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

VRRM	1200 V	IF	30 A
V <sub>F(TYP)</sub>	2.1 V	T <sub>RR(TYP)</sub>	160 ns

#### **Features**

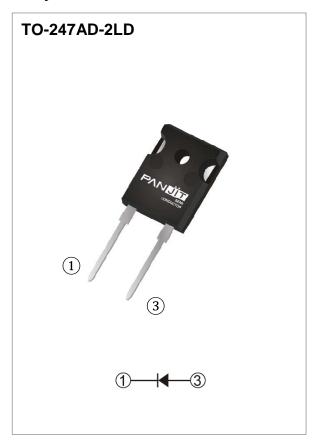
- Fast recovery
- Low forward voltage
- Optimized trade-off performance between V<sub>F</sub> & T<sub>RR</sub>
- Soft recovery characteristic for better EMI
- High junction temperature 150 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### **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>	1200	V
DC Blocking Voltage	V <sub>DC</sub>	1200	V
Diode Forward Current @ Tc=100°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>	220	А
Maximum Power Dissipation	P <sub>total</sub>	139	W
Operating Junction Temperature Range	TJ	-55~150	°C
Storage Temperature Range	T <sub>STG</sub>	-55~150	°C



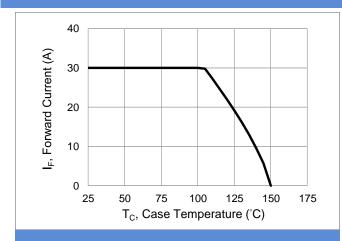
# **Electrical Characteristics** (T<sub>C</sub> = 25 °C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Farmand and to an almost	V <sub>F</sub>	I <sub>F</sub> = 30 A, T <sub>J</sub> = 25 °C	-	2.1	2.6	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Forward voltage drop		I <sub>F</sub> = 30 A, T <sub>J</sub> = 125 °C	-	1.8	ı	V
Davis and Jackson assessed	I <sub>R</sub>	V <sub>R</sub> = 1200 V, T <sub>J</sub> = 25 °C	-	-	250	μA
Reverse leakage current		V <sub>R</sub> = 1200 V, T <sub>J</sub> = 125 °C	-	-	1	mA
Reverse recovery time	T <sub>RR</sub>	I <sub>F</sub> =0.5A, I <sub>R</sub> =1A, I <sub>RR</sub> =0.25A	-	-	55	ns
		T <sub>J</sub> = 25 °C				
		$I_F = 1 \text{ A}, V_R = 30 \text{ V},$ $di/dt = 300 \text{ A/}\mu\text{s},$ $T_J = 25 ^{\circ}\text{C}$	-	-	40	ns
Reverse recovery time	TRR		-	160	240	ns
Peak recovery current	I <sub>RRM</sub>	$I_F = 30 \text{ A}, V_R = 400 \text{ V},$	-	8.0	ı	Α
Reverse recovery charge	Q <sub>RR</sub>	di/dt = 300 A/μs, T <sub>J</sub> = 25 °C	-	700	ı	nC
Softness factor = tb / ta	S	1J=25°C	-	2.5	-	
Reverse recovery time	$T_RR$	$I_{RRM}$ I <sub>F</sub> = 30 A, V <sub>R</sub> = 400 V, di/dt = 300 A/ $\mu$ s,	-	240	-	ns
Peak recovery current	I <sub>RRM</sub>		-	16.0	-	Α
Reverse recovery charge	Q <sub>RR</sub>		-	2200	1	nC
Softness factor = tb / ta	S	T <sub>J</sub> = 125 °C	-	1.8	-	
Thermal Resistance	Rejc		-	-	0.9	°C/W

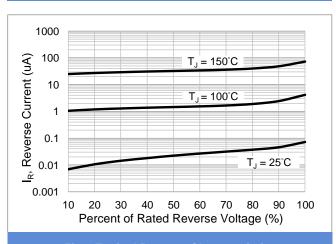




### **TYPICAL CHARACTERISTIC CURVES**



**Fig.1 Forward Current Derating Curve** 



**Fig.3 Typical Reverse Characteristics** 

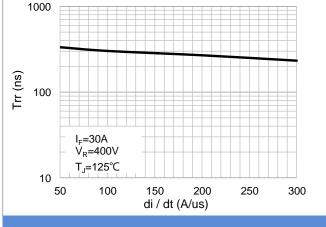


Fig.5 Typical Reverse Recovery Time Versus di/dt

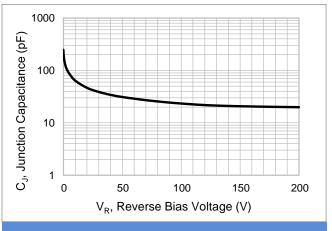


Fig.2 Typical Junction Capacitance

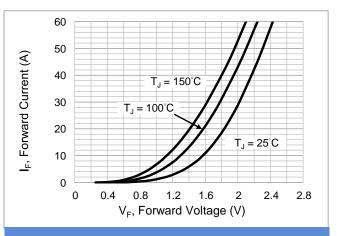


Fig.4 Typical Forward Characteristics

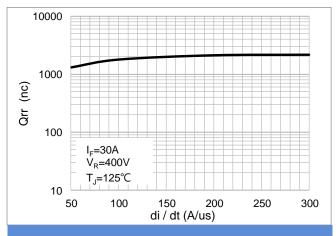


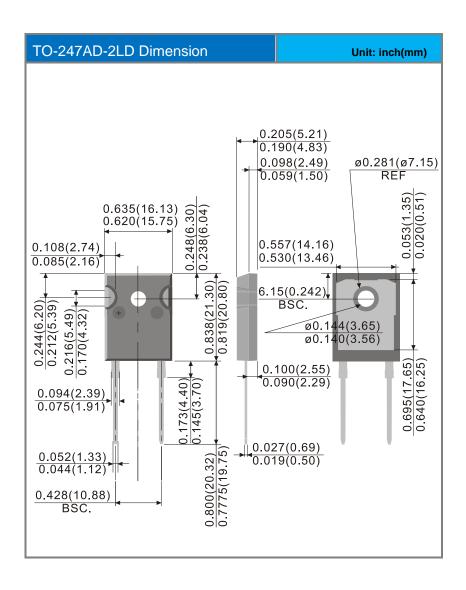
Fig.6 Typical Reverse Recovery Charges Versus di/dt



### **Product and Packing Information**

Part No.	Package Type	Packing Type	Marking
PSDH30120L1	TO-247AD-2LD	30pcs / Tube	SDH30120L1

## **Packaging Information**





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