

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

V <sub>RRM</sub>	600 V	IF	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**

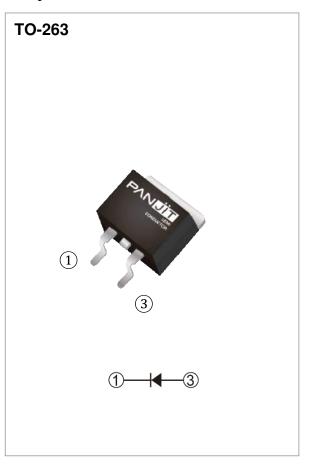
• Case: TO-263 package

• Terminals: Solderable per MIL-STD-750, Method 2026

• Approx. Weight: 0.0487 ounces, 1.38 grams

### **Application**

• 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=105°C	I <sub>F(AV)</sub>	30	Α
Repetitive Peak Surge Current	I <sub>FRM</sub>	60	Α
tp = 8.3  ms, sine-wave,  D=0.5			
Peak Forward Surge Current  tp = 8.3 ms, single half sine-wave	I <sub>FSM</sub>	230	Α
Maximum Power Dissipation	P <sub>total</sub>	96	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
Established and a second	VF	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	ı	V
Devene leekene evenet	IR	V <sub>R</sub> = 600 V, T <sub>J</sub> = 25 °C	-	-	250	μA
Reverse leakage current		V <sub>R</sub> = 600 V, T <sub>J</sub> = 125 °C	-	-	1	mA
Davida vasavani tima	_	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	T <sub>RR</sub>	$I_F = 1 \text{ A}, V_R = 30 \text{ V},$ $di/dt = 300 \text{ A/}\mu\text{s},$ $T_J = 25 ^{\circ}\text{C}$	-	-	40	ns
Reverse recovery time	T <sub>RR</sub>	1 00 4 1/ 400 1/	-	75	115	ns
Peak recovery current	I <sub>RRM</sub>	$I_F = 30 \text{ A}, V_R = 400 \text{ V},$ $di/dt = 300 \text{ A/}\mu\text{s},$ $T_J = 25 ^{\circ}\text{C}$	-	6.6	ı	Α
Reverse recovery charge	Qrr		-	325	-	nC
Softness factor = tb / ta	S	1J=25°C	-	0.9	-	
Reverse recovery time	T <sub>RR</sub>		-	115	-	ns
Peak recovery current	I <sub>RRM</sub>	$I_F = 30 \text{ A}, V_R = 400 \text{ V},$	-	14.5	-	Α
Reverse recovery charge	Qrr	di/dt = 300 A/µs,	-	1150	-	nC
Softness factor = tb / ta	S	T <sub>J</sub> = 125 °C	-	0.46	-	
Thermal Desigtance	Rejc		-	-	1.3	°C/W
Thermal Resistance	R <sub>θJA</sub>		-	-	53	°C/W



### **TYPICAL CHARACTERISTIC CURVES**

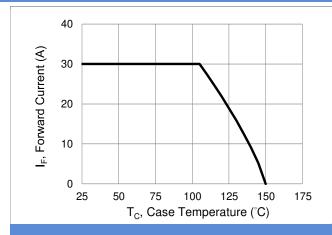


Fig.1 Forward Current Derating Curve

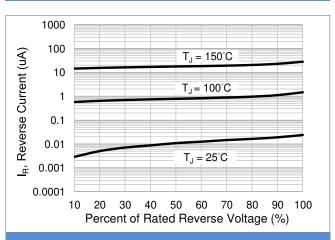


Fig.3 Typical Reverse Characteristics

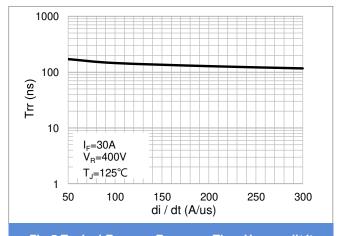


Fig.5 Typical Reverse Recovery Time Versus di/dt

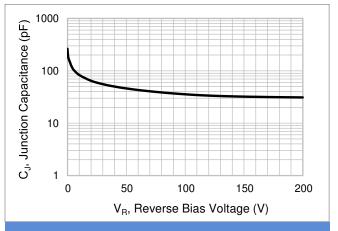


Fig.2 Typical Junction Capacitance

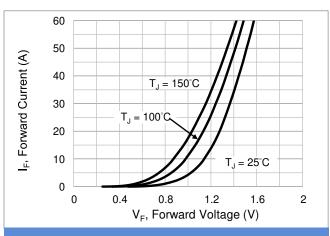


Fig.4 Typical Forward Characteristics

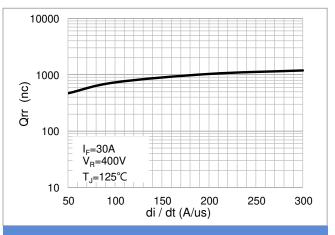


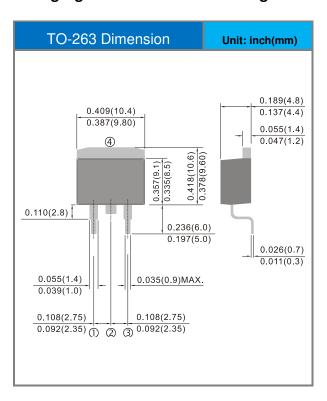
Fig.6 Typical Reverse Recovery Charges Versus di/dt

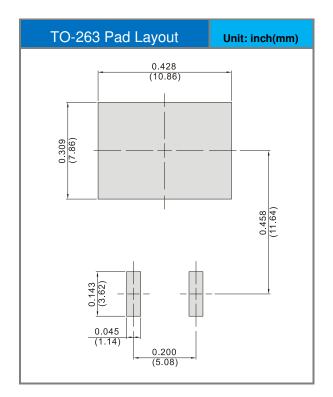


## **Product and Packing Information**

Part No.	Package Type	Packing Type	Marking	
DCDD000014	TO 000	50pcs / Tube	SDB3060L1	
PSDB3060L1	TO-263	800pcs / Reel		

# **Packaging Information & Mounting Pad Layout**







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