

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

<b>V<sub>RRM</sub></b>	<b>600 V</b>	<b>I<sub>F</sub></b>	<b>8 A</b>
<b>V<sub>F(TYP)</sub></b>	<b>1.3 V</b>	<b>T<sub>RR(TYP)</sub></b>	<b>60 ns</b>

**Features**

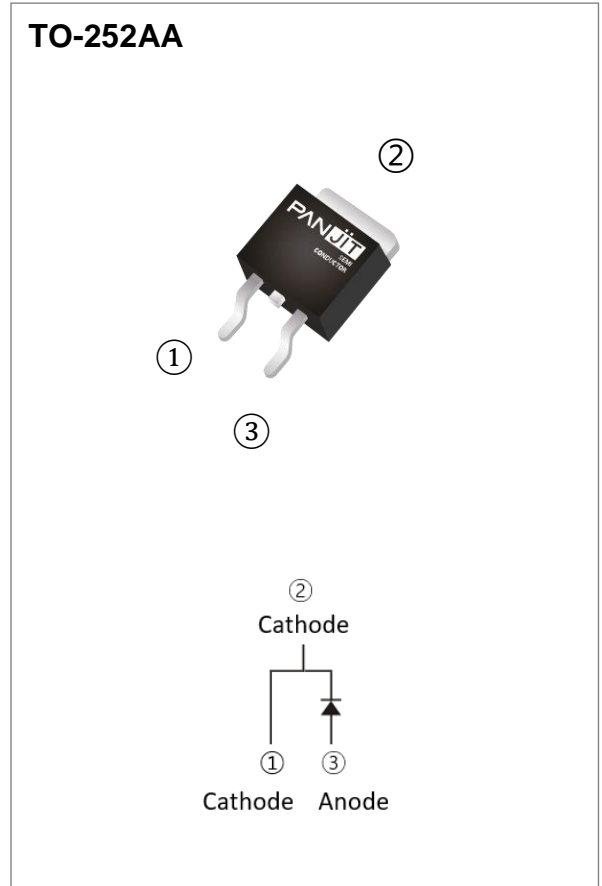
- Fast recovery
- Low forward voltage
- Optimized trade-off performance between V<sub>F</sub> & T<sub>RR</sub>
- Soft recovery characteristic for better EMI
- High junction temperature 150 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

**Mechanical Data**

- Case: TO-252AA molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0113 ounces, 0.3217 grams

**Application**

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



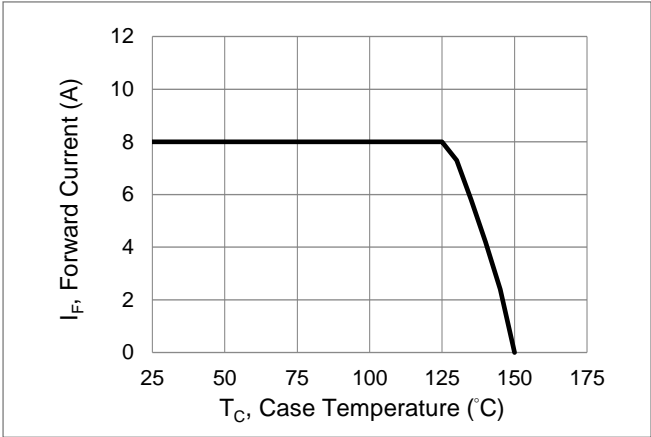
**Maximum Ratings and Thermal Characteristics** (T<sub>C</sub> = 25 °C unless otherwise specified)

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 @ T <sub>C</sub> =133°C	I <sub>F(AV)</sub>	8	A
Repetitive Peak Surge Current <i>t<sub>p</sub> = 8.3 ms, sine-wave, D=0.5</i>	I <sub>FRM</sub>	16	A
Peak Forward Surge Current <i>t<sub>p</sub> = 8.3 ms, single half sine-wave</i>	I <sub>FSM</sub>	85	A
Maximum Power Dissipation	P <sub>total</sub>	50	W
Operating Junction Temperature Range	T <sub>J</sub>	-55~150	°C
Storage Temperature Range	T <sub>STG</sub>	-55~150	°C

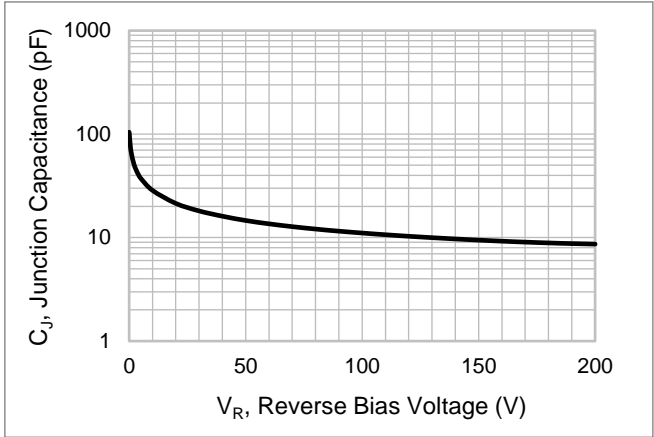
**Electrical Characteristics** ( $T_C = 25\text{ }^\circ\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Forward voltage drop	$V_F$	$I_F = 8\text{ A}, T_J = 25\text{ }^\circ\text{C}$	-	1.3	1.8	V
		$I_F = 8\text{ A}, T_J = 125\text{ }^\circ\text{C}$	-	1.2	-	
Reverse leakage current	$I_R$	$V_R = 600\text{ V}, T_J = 25\text{ }^\circ\text{C}$	-	-	100	$\mu\text{A}$
		$V_R = 600\text{ V}, T_J = 125\text{ }^\circ\text{C}$	-	-	500	$\mu\text{A}$
Reverse recovery time	$T_{RR}$	$I_F = 0.5\text{ A}, I_R = 1\text{ A},$ $I_{RR} = 0.25\text{ A}$ $T_J = 25\text{ }^\circ\text{C}$	-	-	40	ns
		$I_F = 1\text{ A}, V_R = 30\text{ V},$ $di/dt = 300\text{ A}/\mu\text{s},$ $T_J = 25\text{ }^\circ\text{C}$	-	-	35	ns
Reverse recovery time	$T_{RR}$	$I_F = 8\text{ A}, V_R = 400\text{ V},$ $di/dt = 300\text{ A}/\mu\text{s},$ $T_J = 25\text{ }^\circ\text{C}$	-	60	90	ns
Peak recovery current	$I_{RRM}$		-	4.5	-	A
Reverse recovery charge	$Q_{RR}$		-	160	-	nC
Softness factor = $t_b / t_a$	S		-	1.7	-	
Reverse recovery time	$T_{RR}$	$I_F = 8\text{ A}, V_R = 400\text{ V},$ $di/dt = 300\text{ A}/\mu\text{s},$ $T_J = 125\text{ }^\circ\text{C}$	-	85	-	ns
Peak recovery current	$I_{RRM}$		-	8	-	A
Reverse recovery charge	$Q_{RR}$		-	440	-	nC
Softness factor = $t_b / t_a$	S		-	1.05	-	
Thermal Resistance	$R_{\theta JC}$		-	-	2.5	$^\circ\text{C}/\text{W}$
	$R_{\theta JA}$		-	-	90	$^\circ\text{C}/\text{W}$

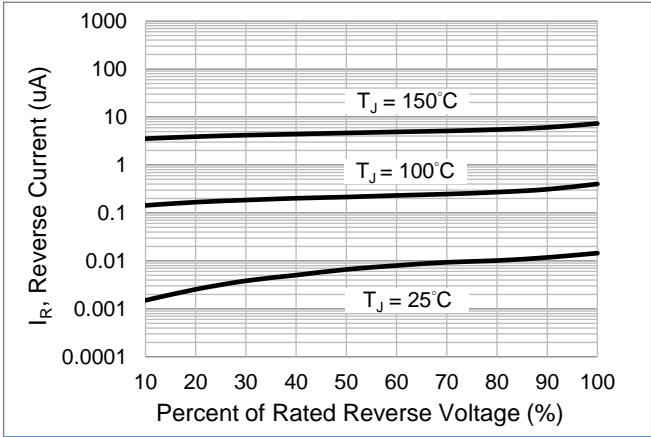
**TYPICAL CHARACTERISTIC CURVES**



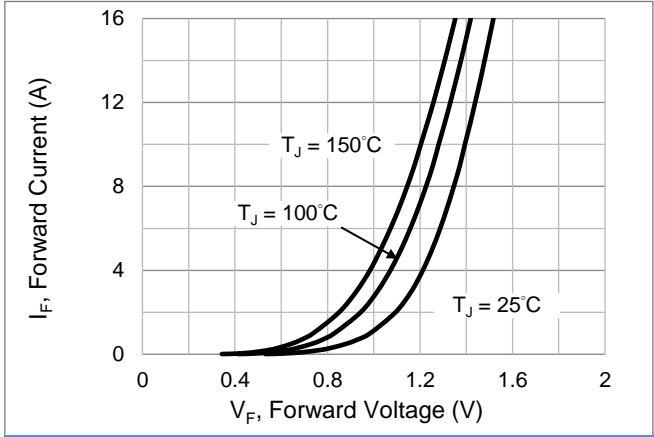
**Fig.1 Forward Current Derating Curve**



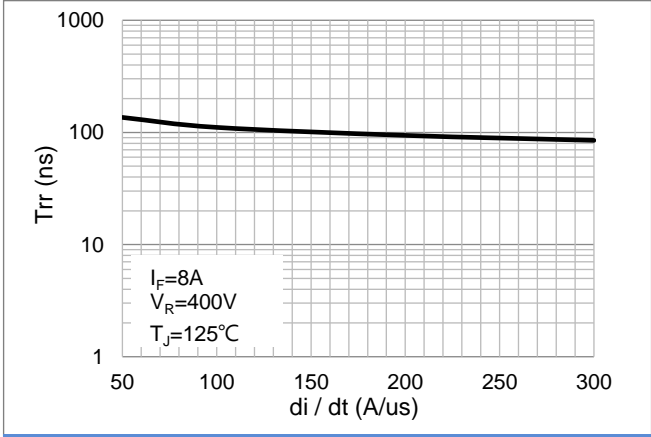
**Fig.2 Typical Junction Capacitance**



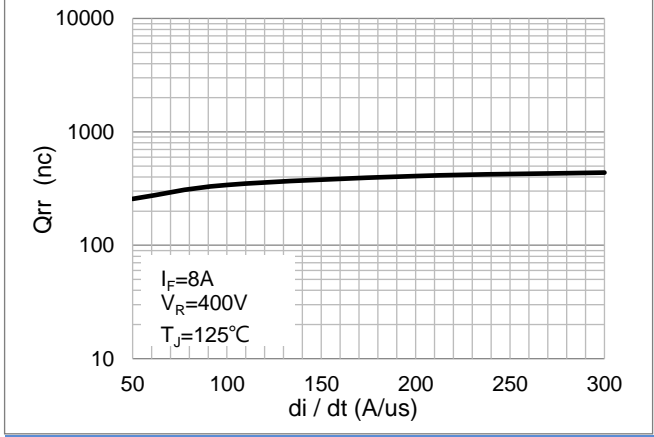
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Recovery Time Versus di/dt**

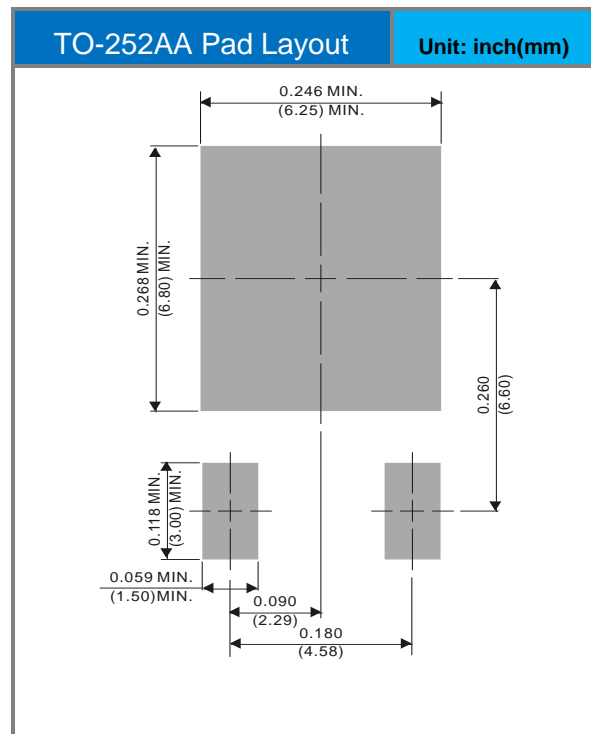
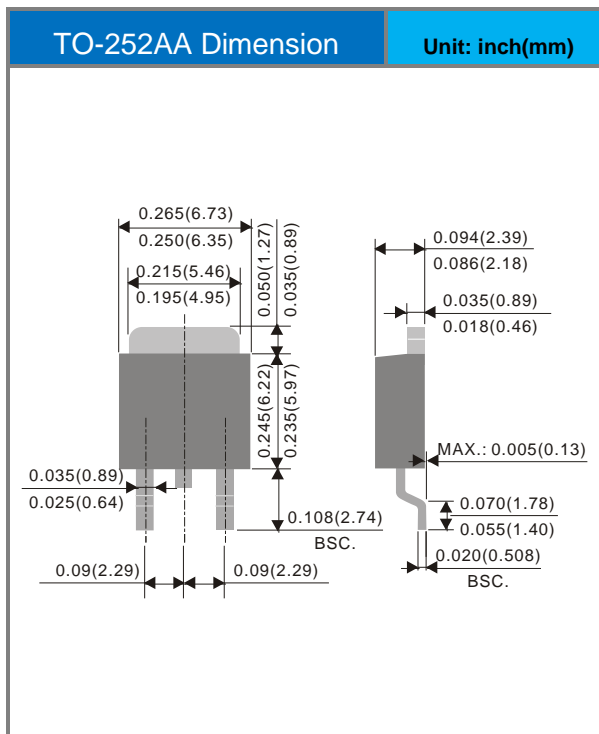


**Fig.6 Typical Reverse Recovery Charges Versus di/dt**

**Product and Packing Information**

Part No.	Package Type	Packing Type	Marking
PSDD0860L1	TO-252AA	3,000 pcs / 13" reel	SDD0860L1

**Packaging Information & Mounting Pad Layout**



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