Optima Diode - Low forward voltage drop, Fast Recovery Diode

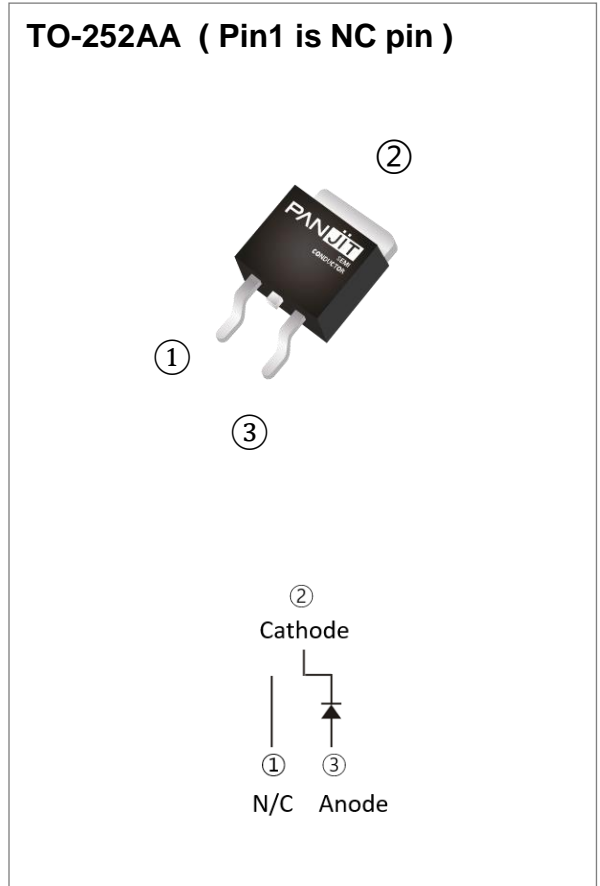| V_{RRM}	600 V	I_F	8 A
$V_{F(TYP)}$	1.3 V	$T_{RR(TYP)}$	60 ns

Features

- Fast recovery
- Low forward voltage
- Optimized trade-off performance between V_F & T_{RR}
- 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: 0.3217 grams

Application

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

TO-252AA (Pin1 is NC pin)

② Cathode

① N/C   ③ Anode

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

PARAMETER	SYMBOL	LIMIT	UNITS
Repetitive Peak Reverse Voltage	V_{RRM}	600	V
DC Blocking Voltage	V_{DC}	600	V
Diode Forward Current @ Tc=133°C	$I_{F(AV)}$	8	A
Repetitive Peak Surge Current *tp = 8.3 ms, sine-wave, D=0.5*	I_{FRM}	16	A
Peak Forward Surge Current *tp = 8.3 ms, single half sine-wave*	I_{FSM}	85	A
Maximum Power Dissipation	P_{total}	50	W
Operating Junction Temperature Range	T_J	-55~150	°C
Storage Temperature Range	T_{STG}	-55~150	°C

Electrical Characteristics (T$_C$ = 25 ^{o}C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Forward voltage drop	V$_F$	I$_F$ = 8 A, T$_J$ = 25 ^{o}C	-	1.3	1.8	V
		I$_F$ = 8 A, T$_J$ = 125 ^{o}C	-	1.2	-	
Reverse leakage current	I$_R$	V$_R$ = 600 V, T$_J$ = 25 ^{o}C	-	-	100	µA
		V$_R$ = 600 V, T$_J$ = 125 ^{o}C	-	-	500	µA
Reverse recovery time	T$_{RR}$	I$_F$=0.5A, I$_R$=1A, I$_{RR}$=0.25A T$_J$ = 25 ^{o}C	-	-	40	ns
		I$_F$ = 1 A, V$_R$ = 30 V, di/dt = 300 A/µs, T$_J$ = 25 ^{o}C	-	-	35	ns
Reverse recovery time	T$_{RR}$	I$_F$ = 8 A, V$_R$ = 400 V, di/dt = 300 A/µs, T$_J$ = 25 ^{o}C	-	60	90	ns
Peak recovery current	I$_{RRM}$		-	4.5	-	A
Reverse recovery charge	Q$_{RR}$		-	160	-	nC
Softness factor = tb / ta	S		-	1.7	-	
Reverse recovery time	T$_{RR}$	I$_F$ = 8 A, V$_R$ = 400 V, di/dt = 300 A/µs, T$_J$ = 125 ^{o}C	-	85	-	ns
Peak recovery current	I$_{RRM}$		-	8	-	A
Reverse recovery charge	Q$_{RR}$		-	440	-	nC
Softness factor = tb / ta	S		-	1.05	-	
Thermal Resistance	R$_{\theta JC}$		-	-	2.5	^{o}C/W
	R$_{\theta JA}$		-	-	90	^{o}C/W

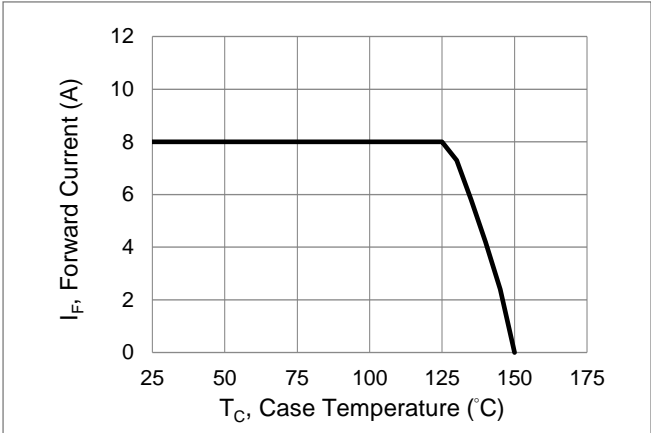**TYPICAL CHARACTERISTIC CURVES**

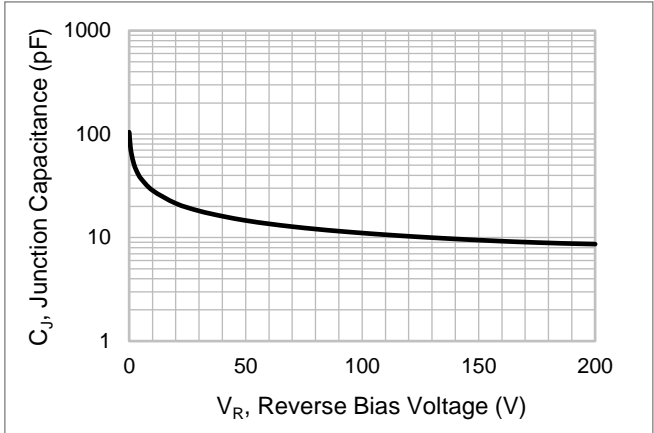**Fig.1 Forward Current Derating Curve**

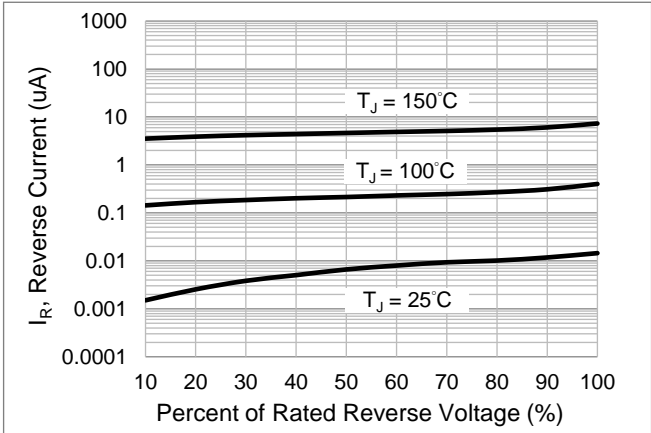**Fig.2 Typical Junction Capacitance**
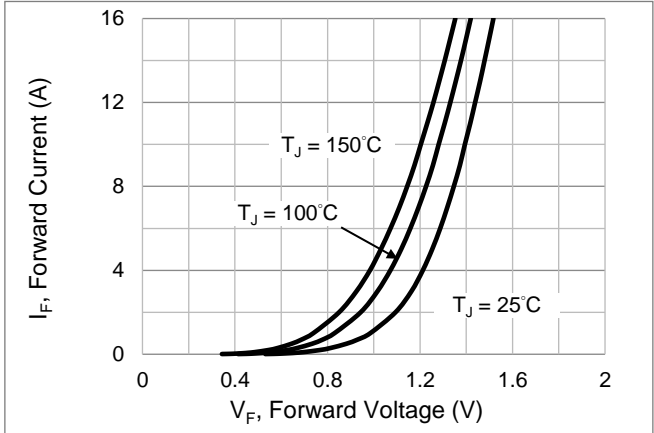

Fig.3 Typical Reverse Characteristics

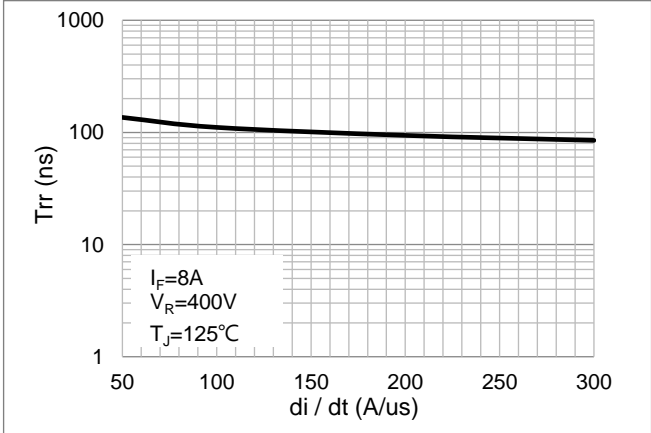**Fig.4 Typical Forward Characteristics**
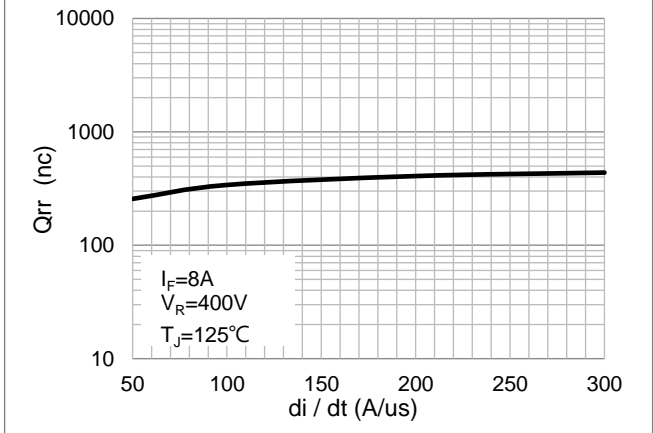

Fig.5 Typical Reverse Recovery Time Versus di/dt

Fig.6 Typical Reverse Recovery Charges Versus di/dt

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PSDC0860L1	TO-252AA	3,000 pcs / 13" reel	SDC0860L1

Packaging Information & Mounting Pad Layout

TO-252AA Dimension — Unit: inch(mm)

TO-252AA Pad Layout — Unit: inch(mm)