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

TO-220AC

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-220AC molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.067 ounces, 1.89 grams

Application

- PFC, UPS, PV Inverter, EV Charging Station, Welder
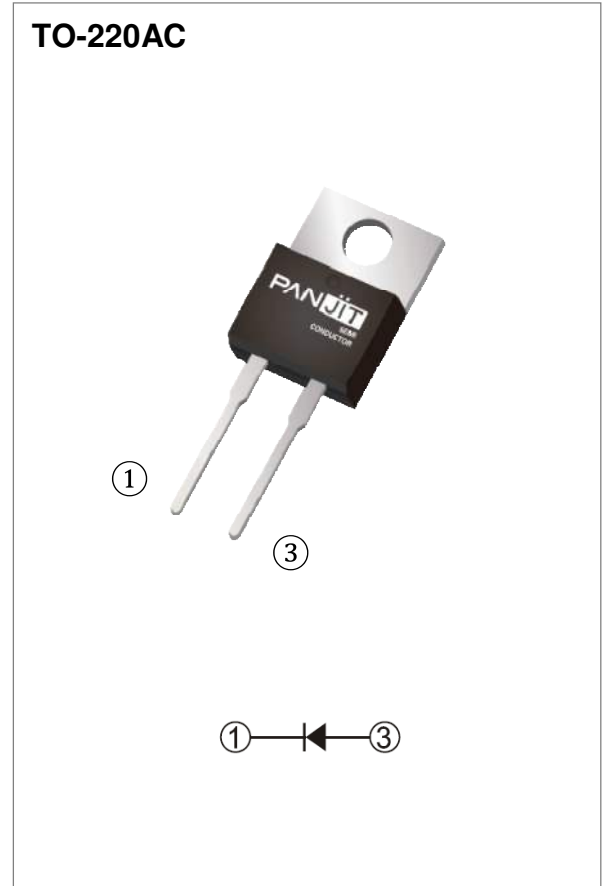
Maximum Ratings and Thermal Characteristics (T_C = 25 °C unless otherwise specified)

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}	95	A
Maximum Power Dissipation	P_{total}	69	W
Operating Junction Temperature Range	T_J	-55~150	°C
Storage Temperature Range	T_{STG}	-55~150	°C

Electrical Characteristics ($T_C = 25\,^oC$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Forward voltage drop	V_F	$I_F = 8$ A, $T_J = 25\,^oC$	-	1.3	1.8	V
		$I_F = 8$ A, $T_J = 125\,^oC$	-	1.2	-	
Reverse leakage current	I_R	$V_R = 600$ V, $T_J = 25\,^oC$	-	-	100	µA
		$V_R = 600$ V, $T_J = 125\,^oC$	-	-	500	µA
Reverse recovery time	T_{RR}	$I_F{=}0.5A$, $I_R{=}1A$, $I_{RR}{=}0.25A$ $T_J = 25\,^oC$	-	-	40	ns
		$I_F = 1$ A, $V_R = 30$ V, di/dt = 300 A/µs, $T_J = 25\,^oC$	-	-	35	ns
Reverse recovery time	T_{RR}	$I_F = 8$ A, $V_R = 400$ V, di/dt = 300 A/µs, $T_J = 25\,^oC$	-	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, $T_J = 125\,^oC$	-	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	$R_{\theta JC}$		-	-	1.8	$^oC/W$

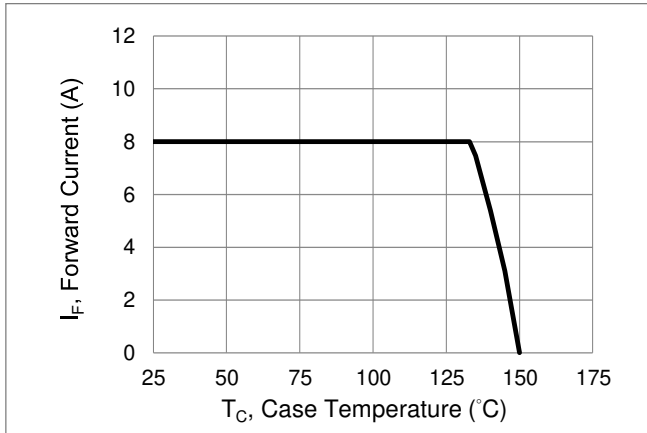## TYPICAL CHARACTERISTIC CURVES
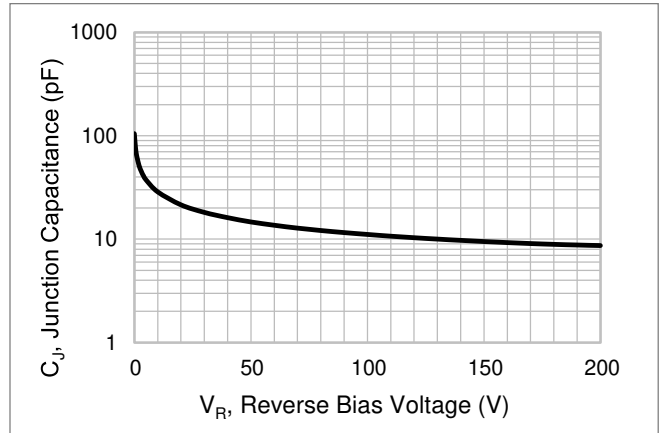

Fig.1 Forward Current Derating Curve

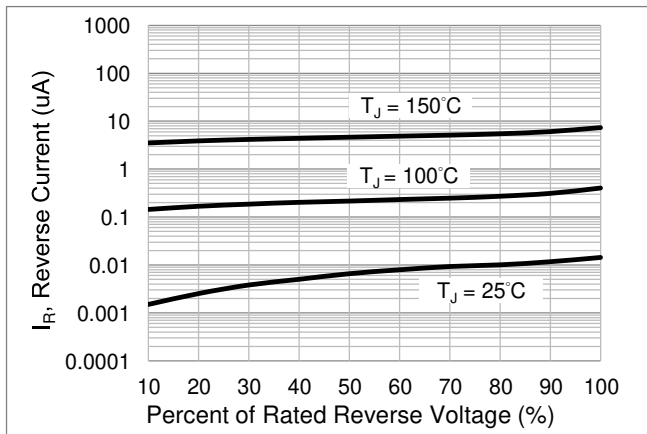**Fig.2 Typical Junction Capacitance**

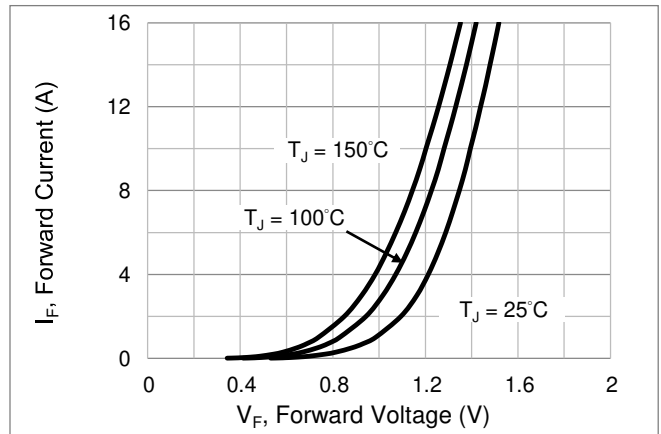**Fig.3 Typical Reverse Characteristics**

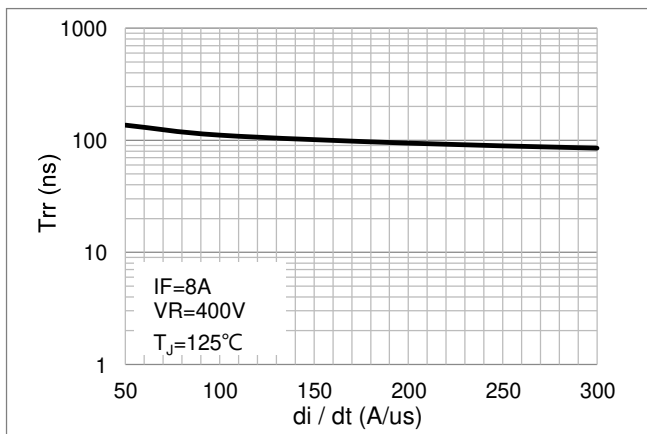**Fig.4 Typical Forward Characteristics**

Fig.5 Typical Reverse Recovery Time Versus di/dt

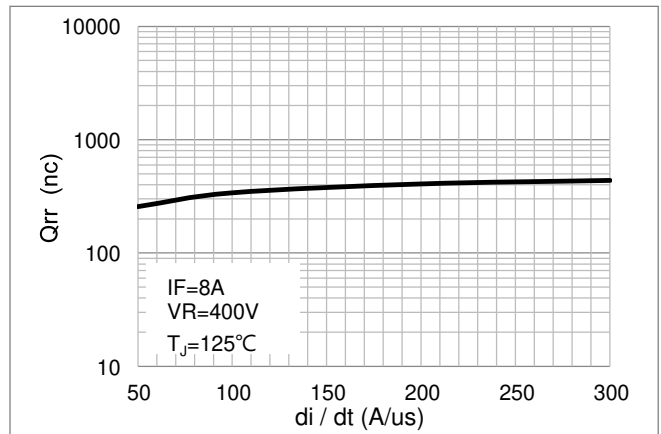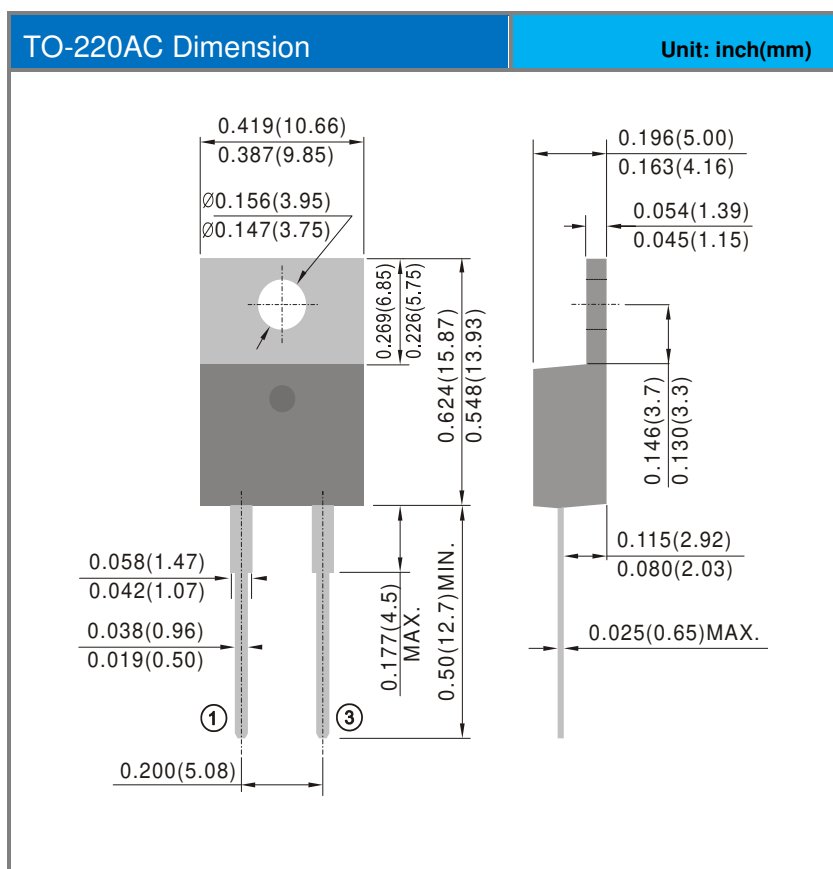**Fig.6 Typical Reverse Recovery Charges Versus di/dt**

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PSDP0860L1	TO-220AC	50pcs / Tube	SDP0860L1

Packaging Information

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