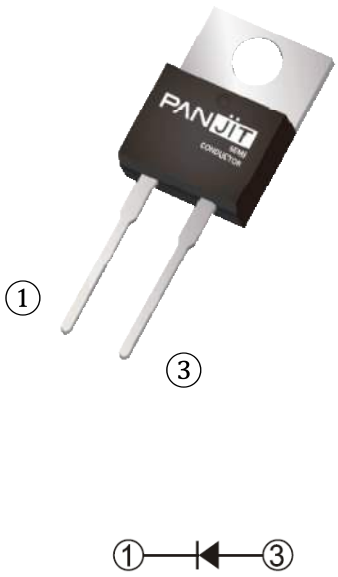
Optima Diode - Low forward voltage drop, Fast Recovery Diode

V_{RRM}	1200 V	I_F	30 A
$V_{F(TYP)}$	2.1 V	$T_{RR(TYP)}$	160 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}	1200	V
DC Blocking Voltage	V_{DC}	1200	V
Diode Forward Current @ Tc=115°C	$I_{F(AV)}$	30	A
Repetitive Peak Surge Current *tp = 8.3 ms, sine-wave, D=0.5*	I_{FRM}	60	A
Peak Forward Surge Current *tp = 8.3 ms, single half sine-wave*	I_{FSM}	160	A
Maximum Power Dissipation	P_{total}	179	W
Operating Junction Temperature Range	T_J	-55~150	°C
Storage Temperature Range	T_{STG}	-55~150	°C

Electrical Characteristics (T_C = 25 °C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Forward voltage drop	V_F	I_F = 30 A, T_J = 25 °C	-	2.1	2.6	V
		I_F = 30 A, T_J = 125 °C	-	1.8	-	
Reverse leakage current	I_R	V_R = 1200 V, T_J = 25 °C	-	-	250	μA
		V_R = 1200 V, T_J = 125 °C	-	-	1	mA
Reverse recovery time	T_{RR}	I_F=0.5A, I_R=1A, I_{RR}=0.25A T_J = 25 °C	-	-	55	ns
		I_F = 1 A, V_R = 30 V, di/dt = 300 A/μs, T_J = 25 °C	-	-	40	ns
Reverse recovery time	T_{RR}	I_F = 30 A, V_R = 400 V, di/dt = 300 A/μs, T_J = 25 °C	-	160	240	ns
Peak recovery current	I_{RRM}		-	8.0	-	A
Reverse recovery charge	Q_{RR}		-	700	-	nC
Softness factor = tb / ta	S		-	2.5	-	
Reverse recovery time	T_{RR}	I_F = 30 A, V_R = 400 V, di/dt = 300 A/μs, T_J = 125 °C	-	240	-	ns
Peak recovery current	I_{RRM}		-	16.0	-	A
Reverse recovery charge	Q_{RR}		-	2200	-	nC
Softness factor = tb / ta	S		-	1.8	-	
Thermal Resistance	$R_{\theta JC}$		-	-	0.7	°C/W

TYPICAL CHARACTERISTIC CURVES

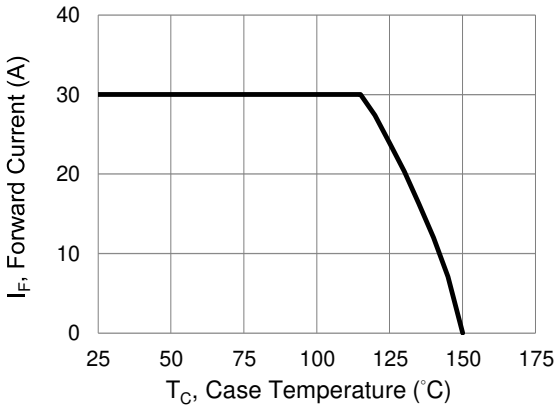


Fig.1 Forward Current Derating Curve

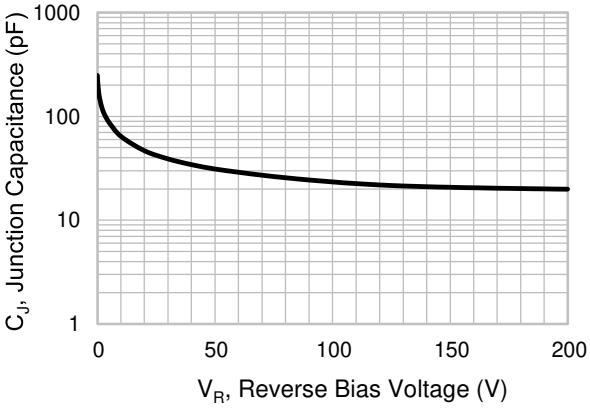


Fig.2 Typical Junction Capacitance

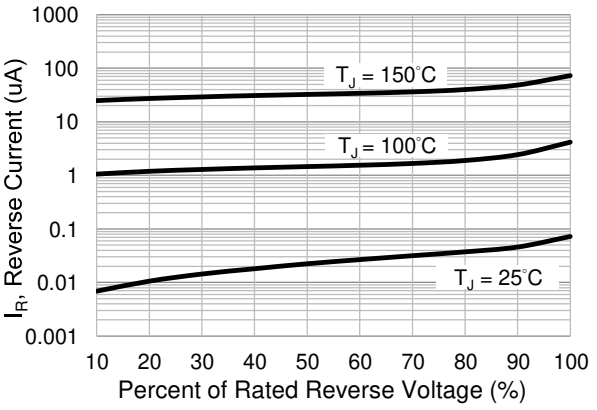


Fig.3 Typical Reverse Characteristics

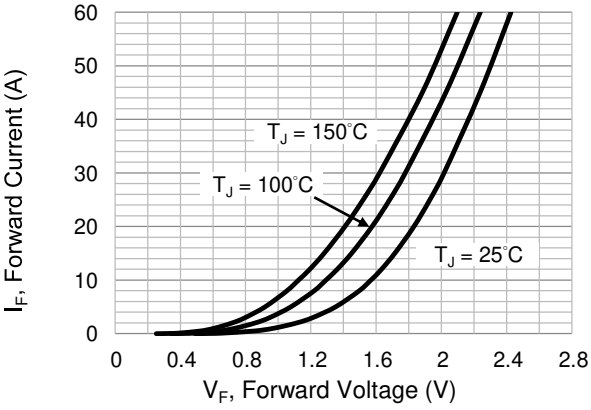


Fig.4 Typical Forward Characteristics

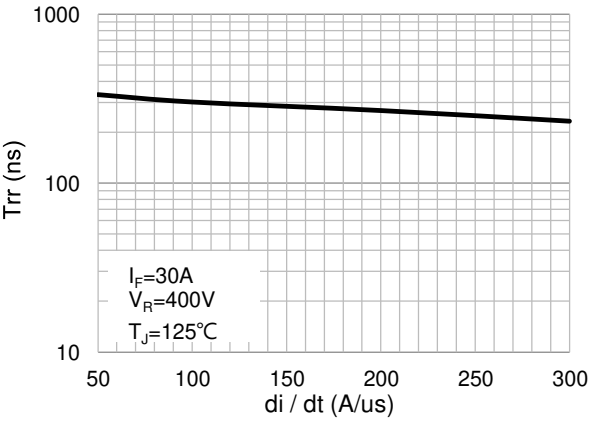


Fig.5 Typical Reverse Recovery Time Versus di/dt

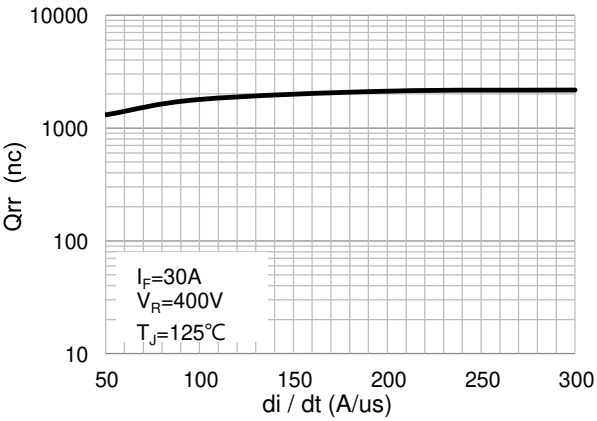


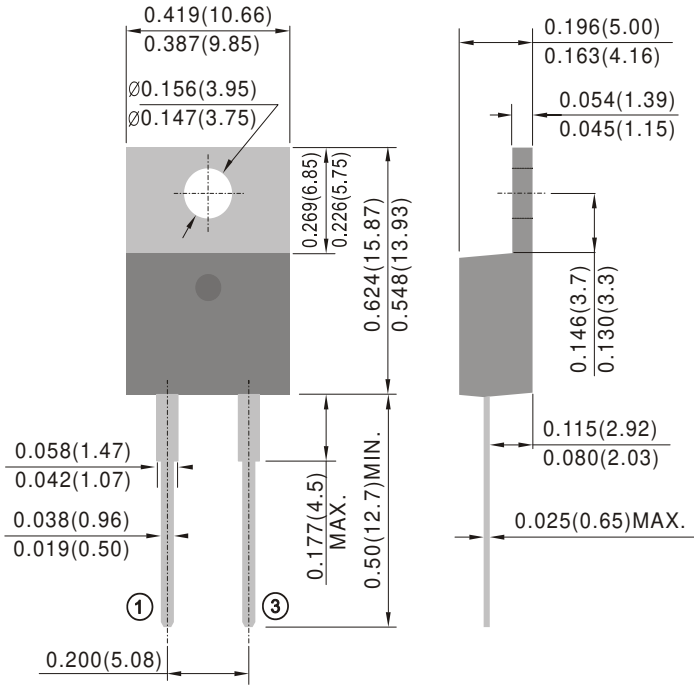
Fig.6 Typical Reverse Recovery Charges Versus di/dt

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PSDP30120L1	TO-220AC	50pcs / Tube	SDP30120L1

Packaging Information

TO-220AC Dimension — Unit: inch(mm)



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