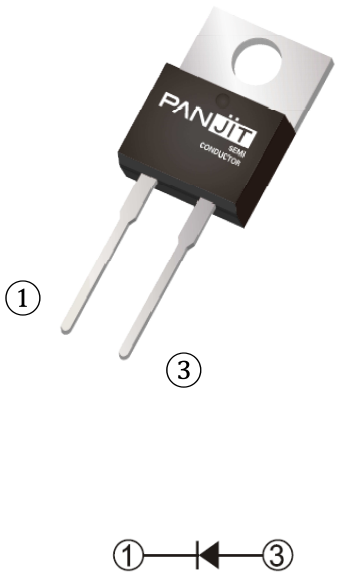
Optima Diode - Low forward voltage drop, Fast Recovery Diode

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

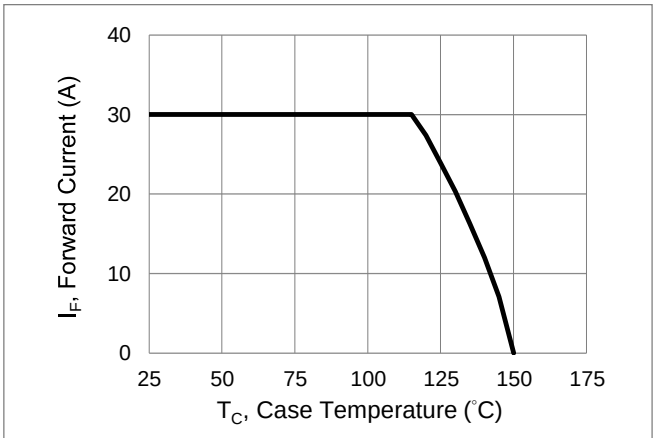


Fig.1 Forward Current Derating Curve

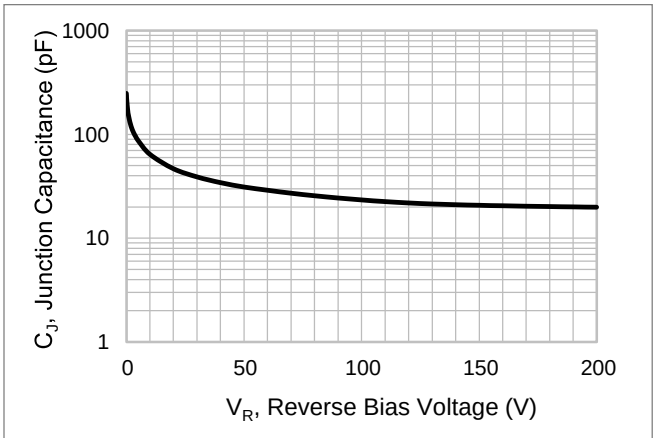


Fig.2 Typical Junction Capacitance

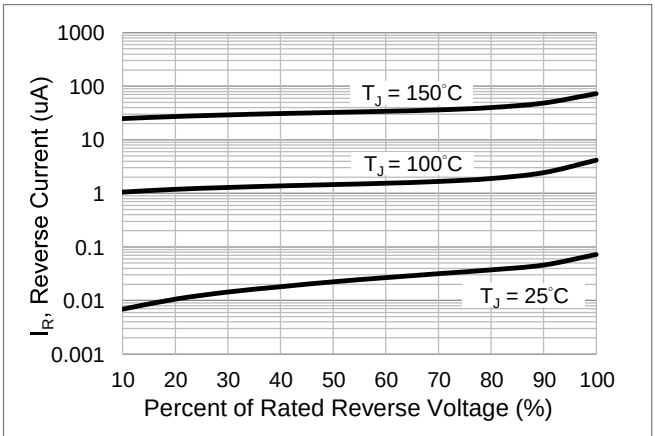


Fig.3 Typical Reverse Characteristics

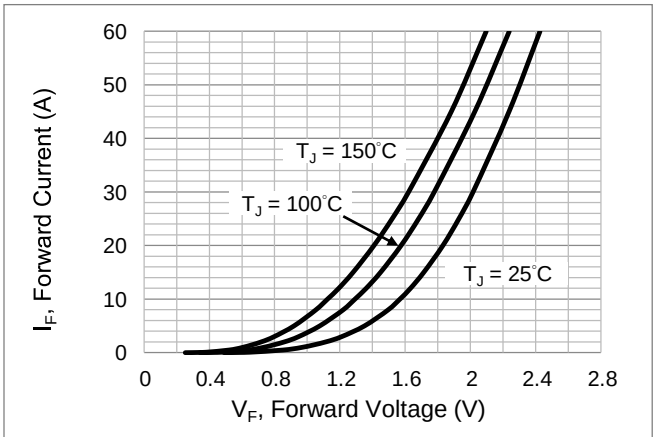


Fig.4 Typical Forward Characteristics

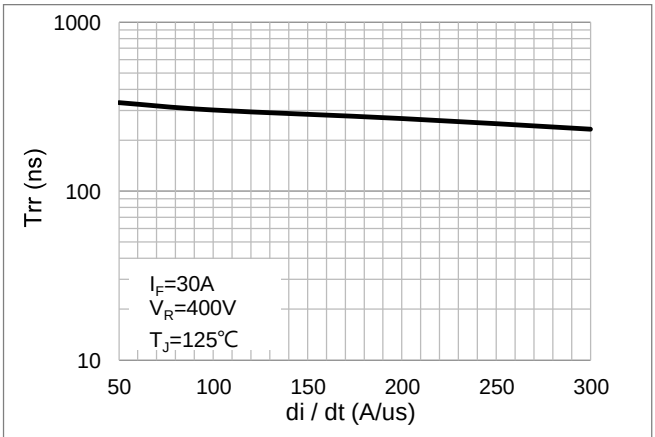


Fig.5 Typical Reverse Recovery Time Versus di/dt

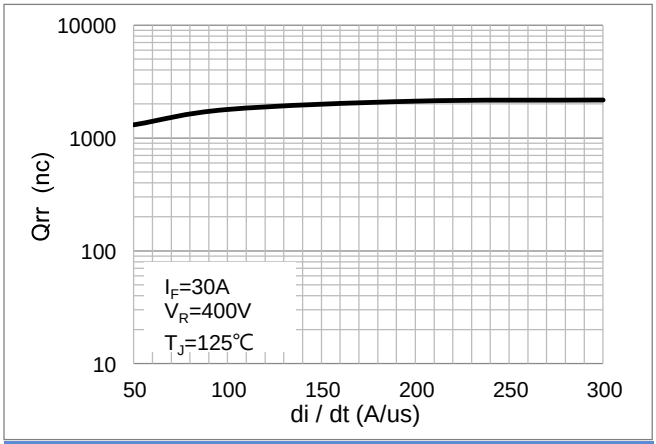


Fig.6 Typical Reverse Recovery Charges Versus di/dt

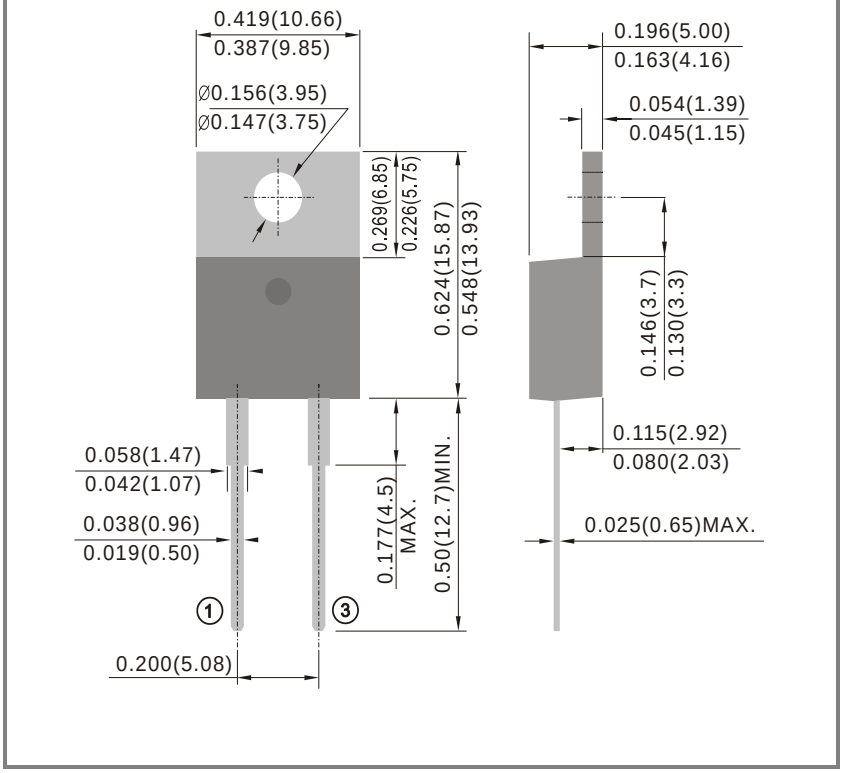
Product and Packing Information

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

Packaging Information

TO-220AC Dimension

Unit: inch(mm)



Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..
- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.
- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.
- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.