

Optima Diode - Low forward voltage drop, Fast Recovery Diode

V_{RRM}	600 V	I_F	15 A
V_{F(TYP)}	1.3 V	T_{RR(TYP)}	70 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

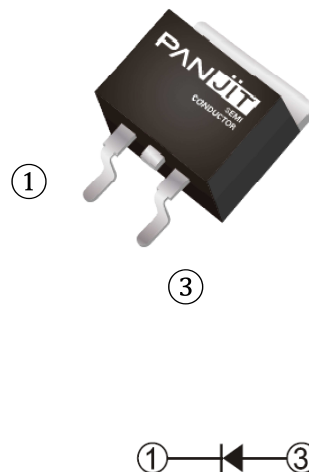
Mechanical Data

- Case: TO-263 package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0487 ounces, 1.38 grams

Application

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

TO-263



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 @ T _C =125°C	I _{F(AV)}	15	A
Repetitive Peak Surge Current <i>t_p = 8.3 ms, sine-wave, D=0.5</i>	I _{FRM}	30	A
Peak Forward Surge Current <i>t_p = 8.3 ms, single half sine-wave</i>	I _{FSM}	180	A
Maximum Power Dissipation	P _{total}	89	W
Operating Junction Temperature Range	T _J	-55~150	°C
Storage Temperature Range	T _{STG}	-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	$I_F = 15\text{ A}$, $T_J = 25\text{ }^{\circ}\text{C}$	-	1.3	1.8	V
		$I_F = 15\text{ A}$, $T_J = 125\text{ }^{\circ}\text{C}$	-	1.2	-	
Reverse leakage current	I_R	$V_R = 600\text{ V}$, $T_J = 25\text{ }^{\circ}\text{C}$	-	-	100	μA
		$V_R = 600\text{ V}$, $T_J = 125\text{ }^{\circ}\text{C}$	-	-	500	μA
Reverse recovery time	T_{RR}	$I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $I_{RR} = 0.25\text{ A}$ $T_J = 25\text{ }^{\circ}\text{C}$	-	-	45	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}	$I_F = 15\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 300\text{ A}/\mu\text{s}$, $T_J = 25\text{ }^{\circ}\text{C}$	-	70	110	ns
Peak recovery current	I_{RRM}		-	5.4	-	A
Reverse recovery charge	Q_{RR}		-	250	-	nC
Softness factor = t_b / t_a	S		-	1.65	-	
Reverse recovery time	T_{RR}	$I_F = 15\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 300\text{ A}/\mu\text{s}$, $T_J = 125\text{ }^{\circ}\text{C}$	-	100	-	ns
Peak recovery current	I_{RRM}		-	10.7	-	A
Reverse recovery charge	Q_{RR}		-	730	-	nC
Softness factor = t_b / t_a	S		-	0.75	-	
Thermal Resistance	$R_{\theta JC}$		-	-	1.4	$^{\circ}\text{C}/\text{W}$
	$R_{\theta JA}$		-	-	58	$^{\circ}\text{C}/\text{W}$

TYPICAL CHARACTERISTIC CURVES

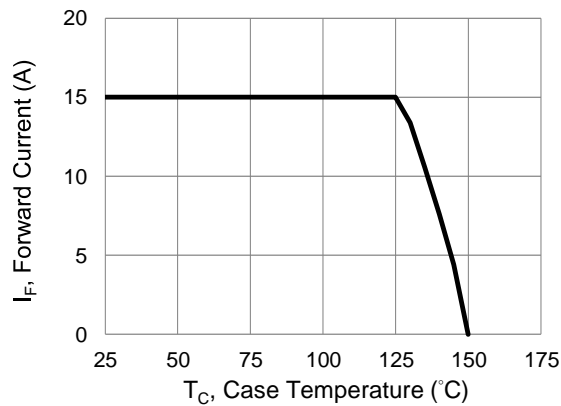


Fig.1 Forward Current Derating Curve

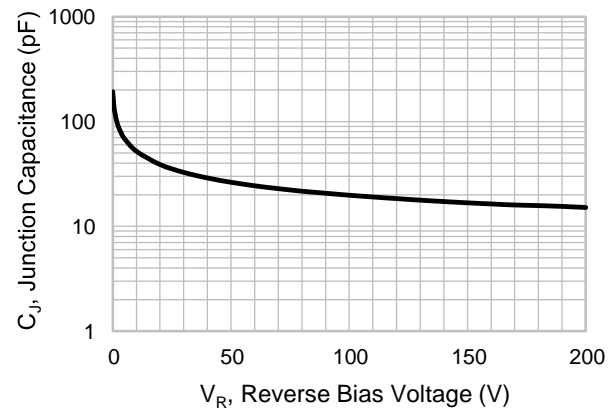


Fig.2 Typical Junction Capacitance

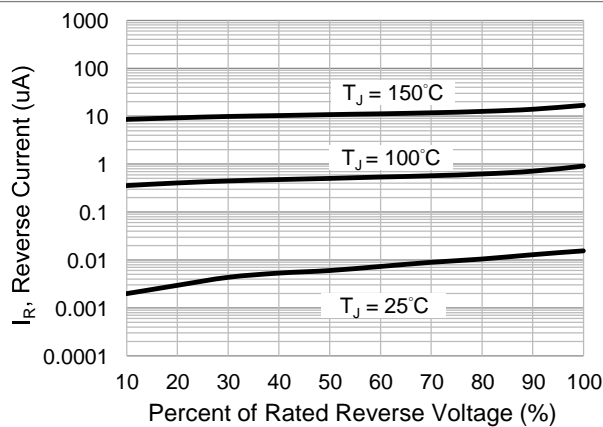


Fig.3 Typical Reverse Characteristics

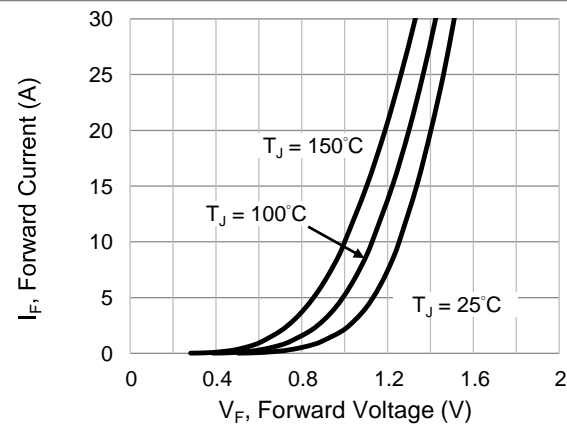


Fig.4 Typical Forward Characteristics

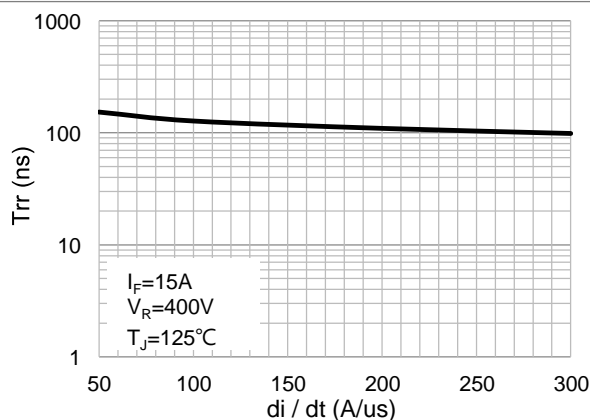


Fig.5 Typical Reverse Recovery Time Versus di/dt

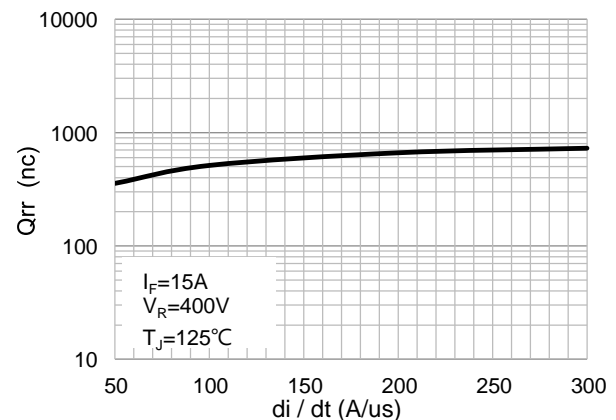
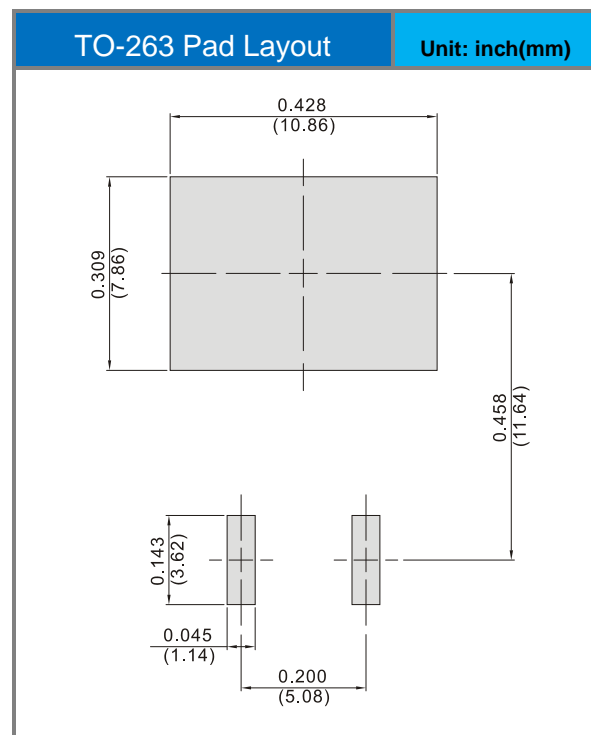
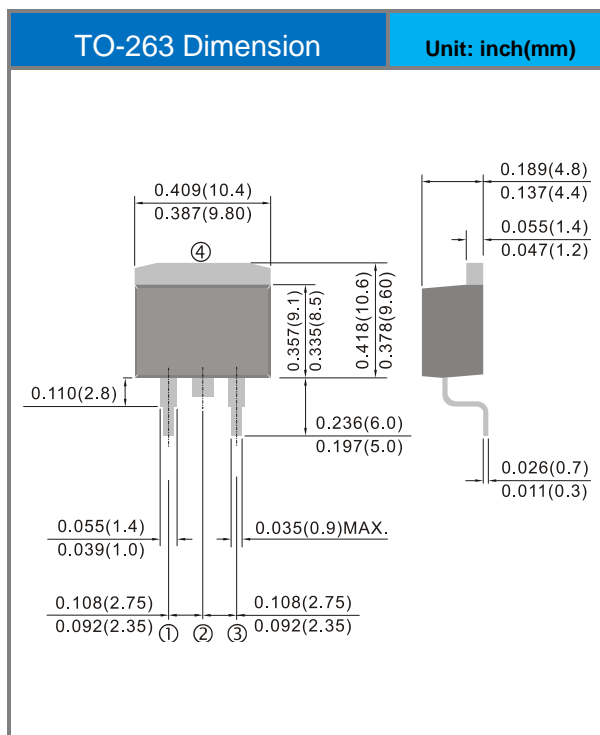


Fig.6 Typical Reverse Recovery Charges Versus di/dt

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PSDB1560L1	TO-263	50pcs / Tube 800pcs / Reel	SDB1560L1

Packaging Information & Mounting Pad Layout



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