

Silicon Carbide Schottky Barrier Diode

V_{RRM}	1200 V	I_F	2 x 20 A
$V_{F(Typ.)}$	1.5 V	Q_C	90 nC

Features

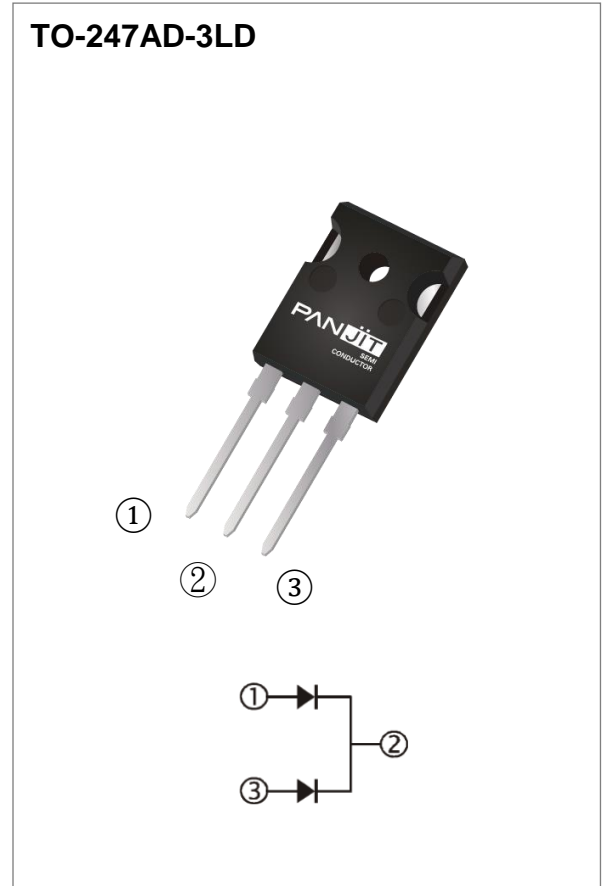
- Temperature Independent Switching Behavior
- High Surge Current Capability
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case: TO-247AD-3LD molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.2198 ounces, 6.231 grams

Application

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



Maximum Ratings and Thermal Characteristics ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise specified)

PARAMETER		SYMBOL	LIMIT	UNITS
Repetitive Peak Reverse Voltage		V_{RRM}	1200	V
DC Blocking Voltage		V_{DC}	1200	V
Continuous Forward Current (Per Leg/Device)	$T_C = 150\text{ }^\circ\text{C}$	I_F	20 / 40	A
Repetitive Peak Surge Current <i>Half Sine Wave, D=0.1</i> (Per Leg)	$T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$	I_{FRM}	124	A
	$T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$		108	
Peak Forward Surge Current <i>Half Sine Wave</i> (Per Leg)	$T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$	I_{FSM}	156	A
	$T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$		144	
Peak Forward Surge Current $t_p = 10\mu\text{s}$, <i>Pulse</i> (Per Leg)			960	
Maximum Power Dissipation (Per Leg)		P_{total}	294.1	W
Operating Junction Temperature Range		T_J	-55~175	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55~175	$^\circ\text{C}$

Electrical Characteristics (Per Leg) ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage Drop	V_F	$I_F = 20\text{ A}, T_J = 25\text{ }^\circ\text{C}$	-	1.5	1.7	V
		$I_F = 20\text{ A}, T_J = 175\text{ }^\circ\text{C}$	-	2.2	-	
Reverse Leakage Current	I_R	$V_R = 1200\text{ V}, T_J = 25\text{ }^\circ\text{C}$	-	2.8	180	μA
		$V_R = 1200\text{ V}, T_J = 175\text{ }^\circ\text{C}$	-	0.06	-	mA
Total Capacitive Charge	Q_C	$I_F = 20\text{ A}, V_R = 800\text{ V}$	-	90	-	nC
Total Capacitance	C	$V_R = 1\text{ V}, f = 1\text{ MHz}$	-	1020	-	pF
		$V_R = 400\text{ V}, f = 1\text{ MHz}$	-	85	-	pF
		$V_R = 800\text{ V}, f = 1\text{ MHz}$	-	62	-	pF
Capacitance Stored Energy	E_C	$V_R = 800\text{ V}$	-	25.9	-	μJ
Thermal Resistance	$R_{\theta JC}$		-	0.51	-	$^\circ\text{C/W}$

TYPICAL CHARACTERISTIC CURVES (Per Leg)

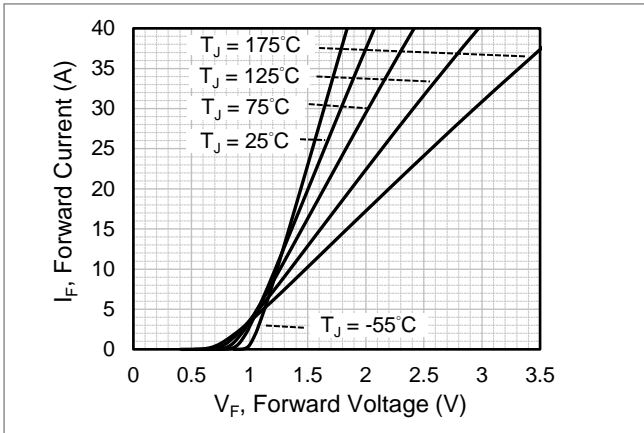


Fig.1 Forward Characteristics

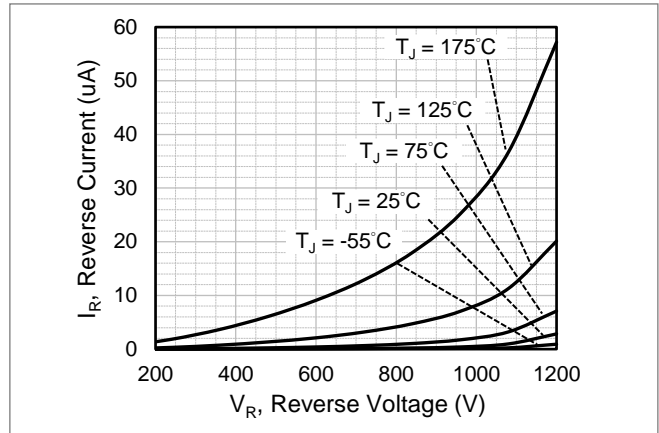


Fig.2 Reverse Characteristics

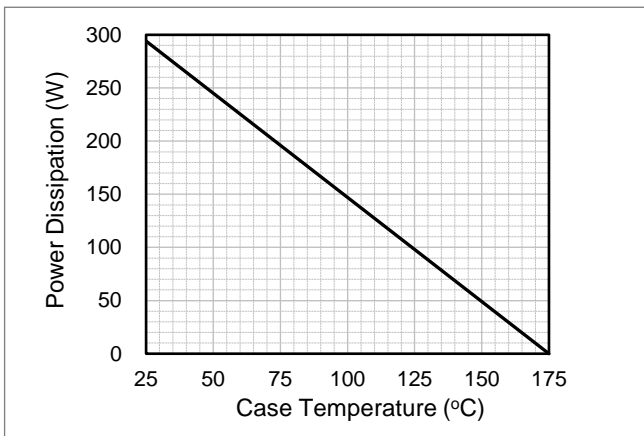


Fig.3 Power Derating Curve

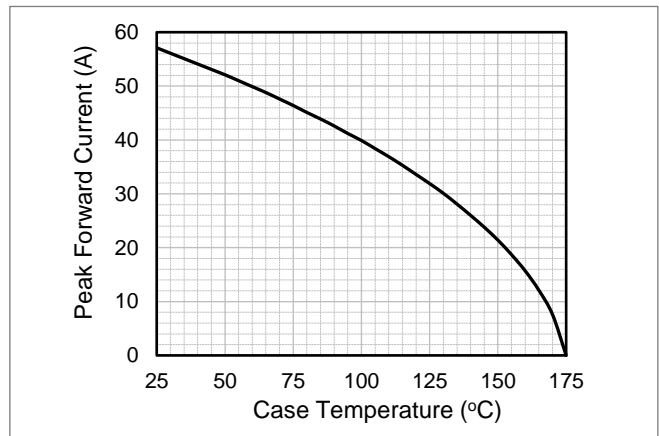


Fig.4 Current Derating Curve

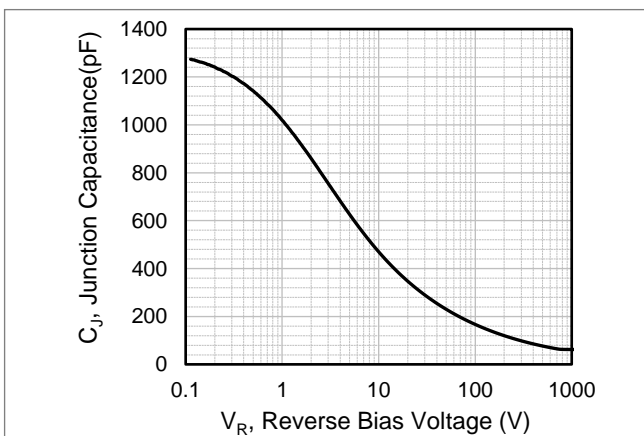


Fig.5 Typical Junction Capacitance

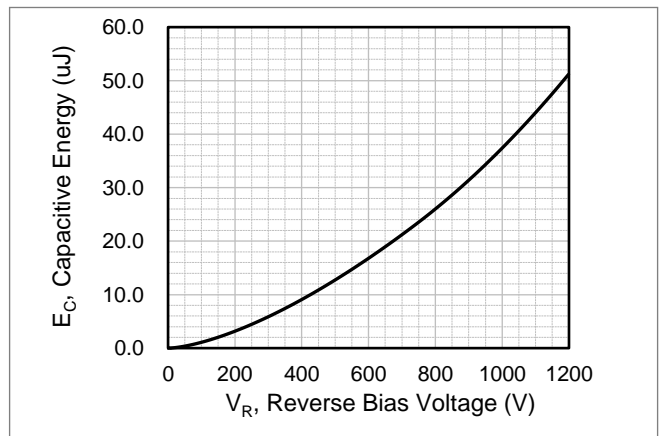


Fig.6 Capacitance Stored Energy

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