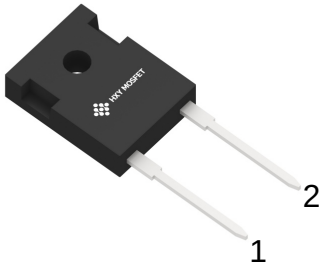
IDWD10G120C5

Silicon Carbide Schottky Diode

Features

- 1200-Volt Schottky Rectifier
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F



TO-247-2L



Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives

Part Number	Package	Qty(PCS)
IDWD10G120C5	TO-247-2L	30

Maximum Ratings (T_C = 25 ˚C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V	
V_{RSM}	Surge Peak Reverse Voltage	1200	V	
I_F	Continuous Forward Current	27.3 13.1 10	A	T_C=25˚C T_C=135˚C T_C=149.5°C
I_{FRM}	Repetitive Peak Forward Surge Current	50	A	T_C=25˚C, t_P = 10 ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	100	A	T_C=25˚C, t_p = 10 ms, Half Sine Wave
P_{tot}	Power Dissipation	136 59	W	T_C=25˚C T_C=110˚C
T_J , T_{stg}	Operating Junction and Storage Temperature	-55 to +175	˚C	
	TO-220 Mounting Torque	1	Nm	M3 Screw
$\int i^2dt$	i^2dt value	50	A^2s	T_C=25˚C, t_p = 10 ms, Half Sine Wave

Electrical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_{DC}	DC Blocking Voltage	1200			V	
V_F	Forward Voltage		1.47 2.23	1.7 2.5	V	I_F = 10 A T_J=25°C I_F = 10 A T_J=175°C
I_R	Reverse Current		3.5 17	50 100	μA	V_R = 1200 V T_J=25°C V_R = 1200 V T_J=175°C
Q_C	Total Capacitive Charge		39		nC	V_R = 800 V T_J = 25°C
C	Total Capacitance		579 37 30		pF	V_R = 0 V, T_J = 25°C, f = 1 MHz V_R = 400 V, T_J = 25°C, f = 1 MHz V_R = 800 V , T_J = 25°C, f = 1 MHz
E_C	Capacitance Stored Energy		20		μJ	V_R = 800 V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.10	°C/W

Typical Performance

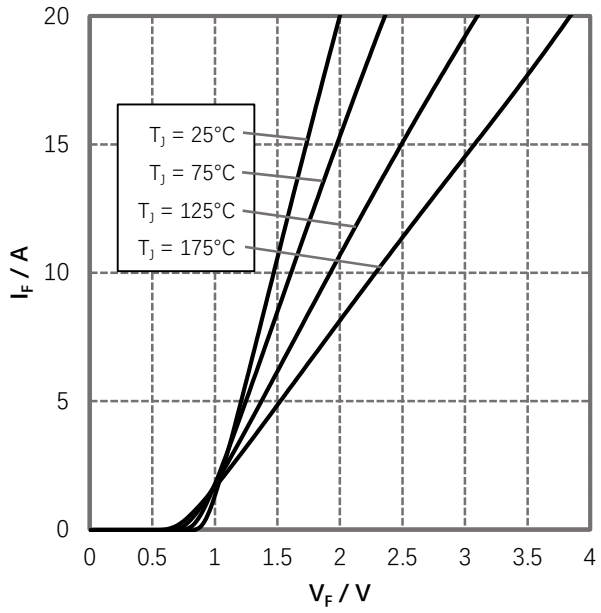


Figure 1. Forward Characteristics

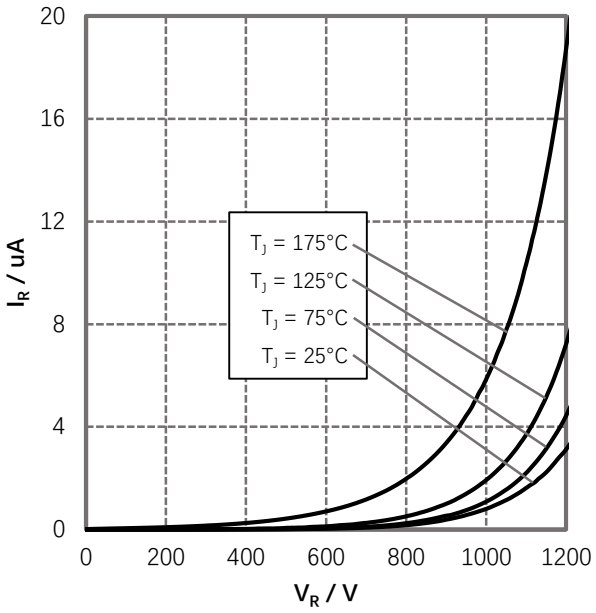


Figure 2. Reverse Characteristics

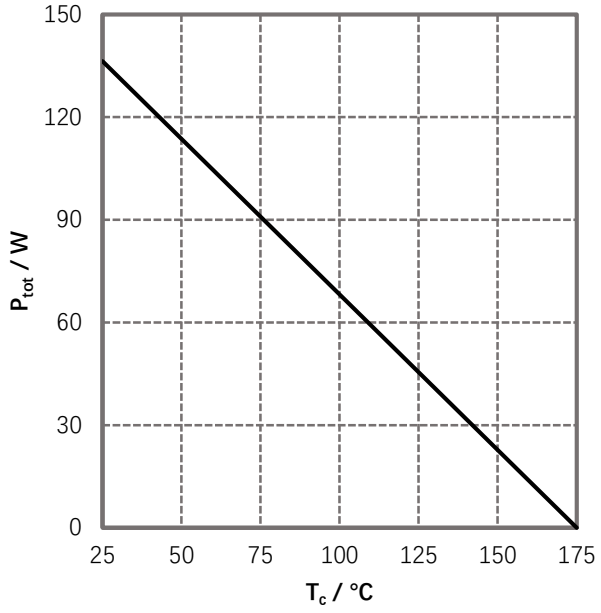


Figure 3. Power Derating

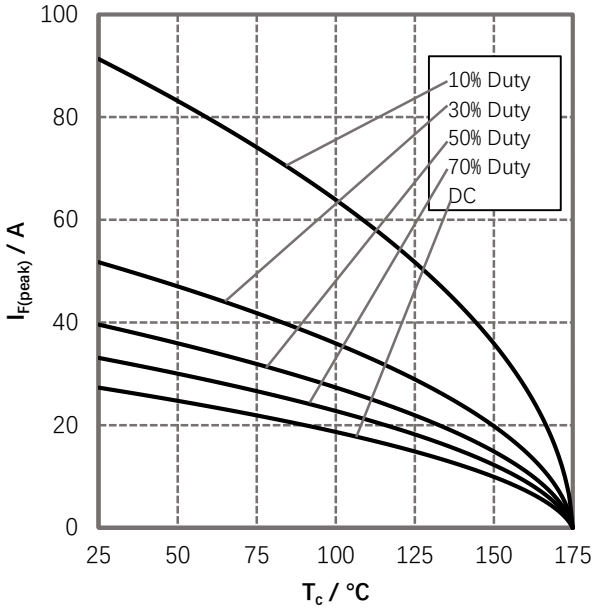


Figure 4. Current Derating

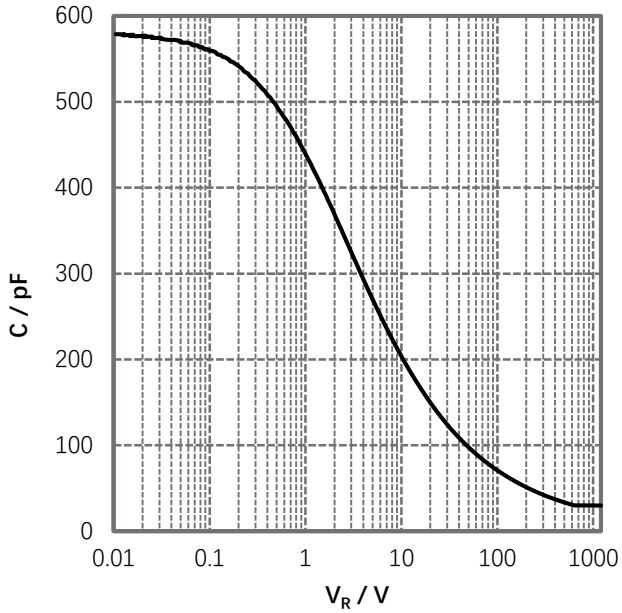


Figure 5. Capacitance vs. Reverse Voltage

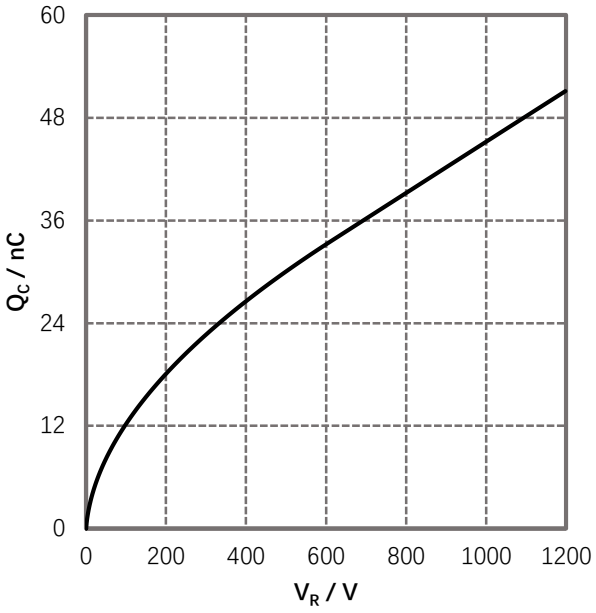


Figure 6. Total Capacitance Charge vs. Reverse Voltage

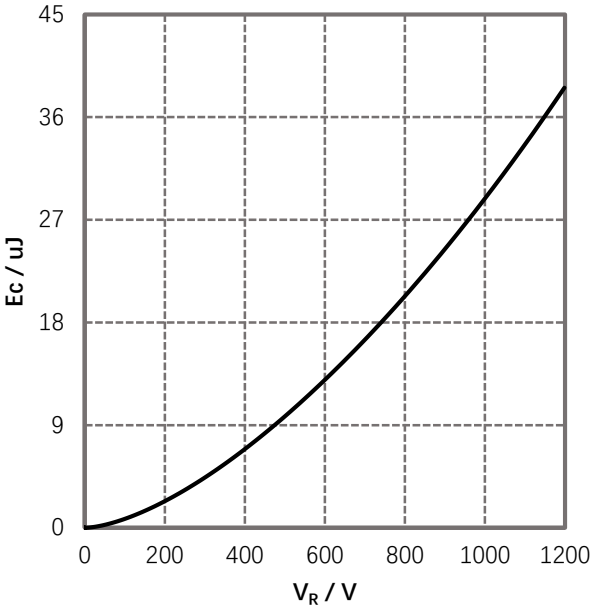


Figure 7. Capacitance Stored Energy

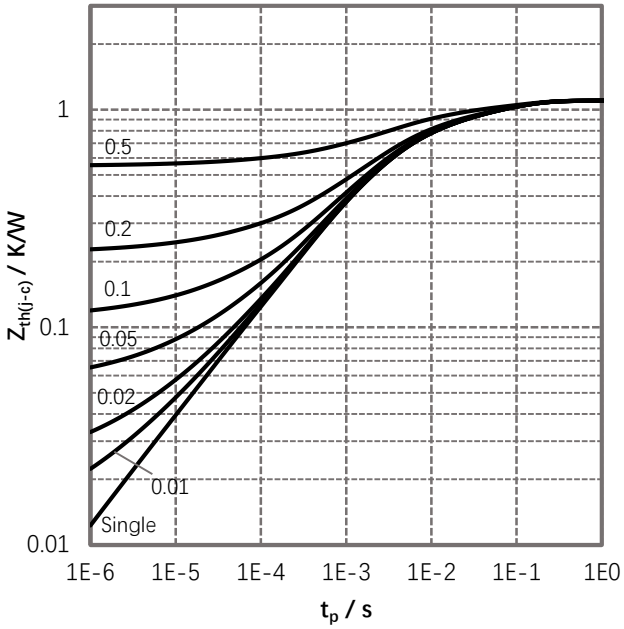
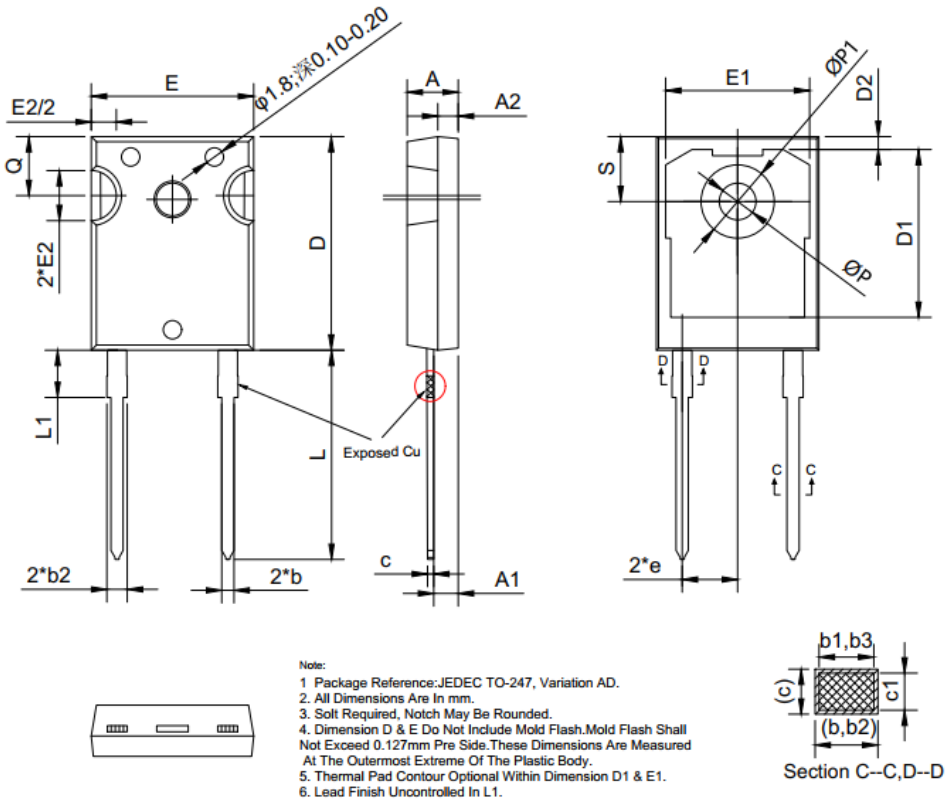


Figure 8. Transient Thermal Impedance

Package Information
TO-247-2L



SYMBOL	DIMENSIONS		NOTES
	MIN	MAX	
A	4.83	5.21	
A1	2.29	2.55	
A2	1.50	2.49	
b	1.07	1.33	
b1	1.07	1.28	
b2	1.91	2.41	6
b3	1.91	2.34	
c	0.55	0.69	6
c1	0.55	0.65	
D	20.80	21.10	4
D1	16.25	17.65	5
D2	0.51	1.35	
E	15.75	16.13	4
E1	13.10	14.16	5
E2	3.68	5.49	3
e	5.44BSC		
L	19.81	20.32	6
L1	3.90	4.40	7
ΦP	3.51	3.65	
ΦP1	7.19REF		
Q	5.39	6.20	
S	6.04	6.30	

Note:
1 Package Reference:JEDEC TO-247, Variation AD.
2. All Dimensions Are In mm.
3. Solt Required, Notch May Be Rounded.
4. Dimension D & E Do Not Include Mold Flash.Mold Flash Shall Not Exceed 0.127mm Pre Side.These Dimensions Are Measured At The Outermost Extreme Of The Plastic Body.
5. Thermal Pad Contour Optional Within Dimension D1 & E1.
6. Lead Finish Uncontrolled In L1.
7. ϕP To Have A Maximum Draft Angle Of 1.5° To The Top Of The Part With A Maximum Hole Diameter Of 3.91mm.
8.Dimension"b2"And "b4"Does Not Include Dambar Protrusion. Allowable Dambar Protrusion Shall Be 0.10mm Total In Excess Of "b2"And "b4" Dimension At Maximum Material Condition.

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HXY MOSFET:

AZ4836-01L HACPDQC5V0-HF RLSD32A121V HAZ4007-01H HSD15C.TCT PJEC5V0M1FN2
TPSMB100CA-VR PESDNC2XD5VBF PJSD24CW_R1 HESD36VD3B HLY323BC1524L AZ4007-01H
LM393DR-HXY HSEN2411D3 PESDLC2FD3V3BH HESDSLC3V3D3B 60N06 ESD5LM5.0C-HXY
HSEN3611D3 PESDNC2XD5VBL HCEZ36V,L3F BV05C-H ESD5L5.0C-HXY HRCLAMP3371ZCTFT
TPSMB28A-VR HSG3D15B3.3MA HSTS521050B331 PESDSC2FD5VU HPTVSUC3D5VB AQ15C-01FTG