Lead-free Green

DSC10A065LP

SILICON CARBIDE SCHOTTKY DIODE

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ (Max)}$ (V) @ +25°C	$I_{R\ (Typ)}$ (µA) @ +25°C
650	10	1.5	0.19

Features and Benefits

- Low Conduction and Switching Loss
- High-Temperature Application
- Positive Temperature Coefficient on V_F
- Fast Reverse Recovery
- High Surge Current Capability
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Description and Applications

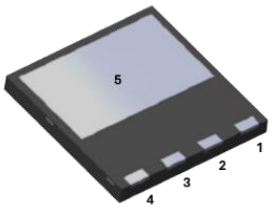
Packaged in the robust industry-standard DFN8080 package, the DSC10A065LP provides excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode, or blocking diode in:

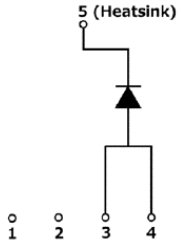
- Power factor correction
- Industrial motor drivers
- Power inverters
- SMPS
- UPS

Mechanical Data

- Package: DFN8080
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.214 grams (Approximate)

DFN8080



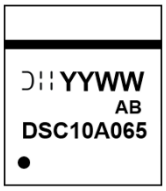


Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DSC10A065LP-13	DFN8080	2,500	Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



= Manufacturer's Marking
DSC10A065 = Product Type Marking Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 24 = 2024)
WW = Week (01 to 53)
AB = Fab and Assembly Code

Maximum Ratings (@T_C = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage DC Blocking Voltage	V_{RRM} V_{DC}	650	V
Average Rectified Output Current	I_O	10	A
Non-Repetitive Peak Forward Surge Current 10ms Half Sine Waveform	I_{FSM}	55	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Notes 5, 6, 7)	$R_{\theta JC}$	1.23	°C/W
Typical Thermal Resistance, Junction to Ambient (Notes 5, 6, 7)	$R_{\theta JA}$	3.83	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C

Notes:
5. Thermal resistance test performed in accordance with JESD-51.
6. The unit mounted on copper heatsink ink-80mm*80mm*1.5mm.
7. Device mounted on 1inch^2 copper pad, 2oz. The heat generated must be less than the thermal conductivity from junction to case: $dP_D/dT_J < 1/R_{\theta JC}$ or junction to ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

Electrical Characteristics (@T_C = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Voltage	V_{BR}	650	—	—	V	I_R = 0.1mA
Forward Voltage Drop	V_F	— —	1.35 1.66	1.50 2.25	V	I_F = 10A, T_J = +25°C I_F = 10A, T_J = +175°C
Leakage Current	I_R	— —	0.19 2.59	20 190	µA	V_R = 650V, T_J = +25°C V_R = 650V, T_J = +175°C
Total Capacitive Charge	Q_C	—	14	—	nC	I_F = 10A, di/dt = 200A/µs, V_R = 400V, T_J = +25°C
Total Capacitance	C_T	— — —	516 394 96	— — —	pF	V_R = 0.1V, T_J = +25°C, f = 1MHz V_R = 1V, T_J = +25°C, f = 1MHz V_R = 40V, T_J = +25°C, f = 1MHz

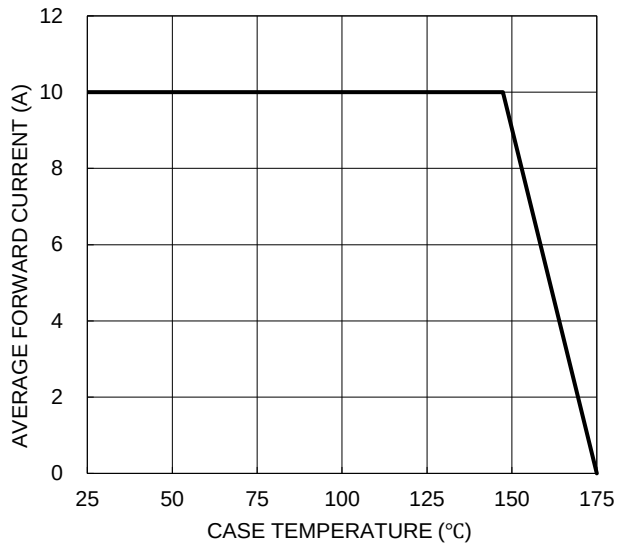


Figure 1. Forward Current Derating Curve

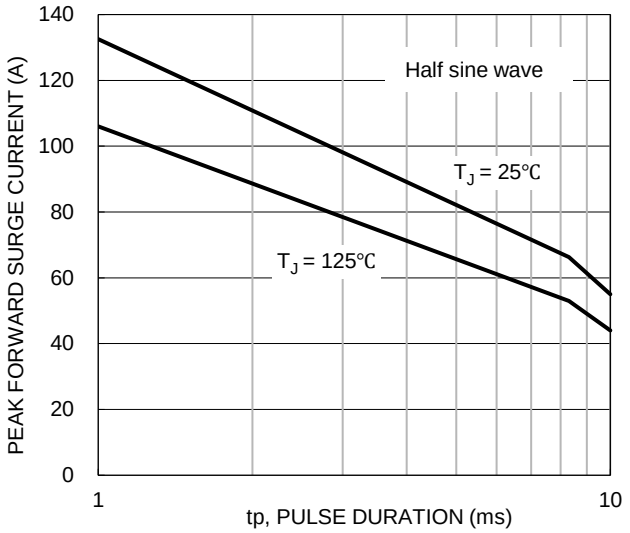


Figure 2. Non-Repetitive Peak Surge Forward Current

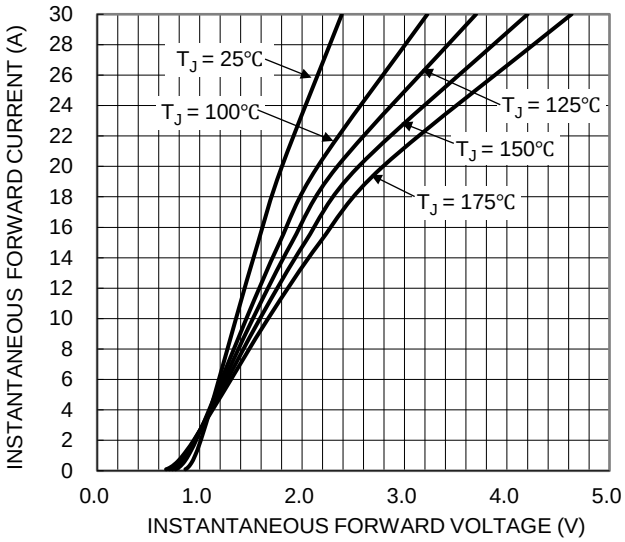


Figure 3. Typical Forward Characteristics

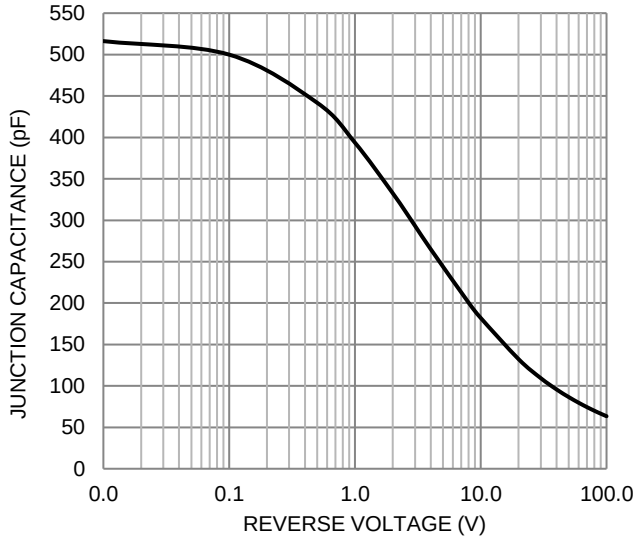


Figure 4. Typical Junction Capacitance

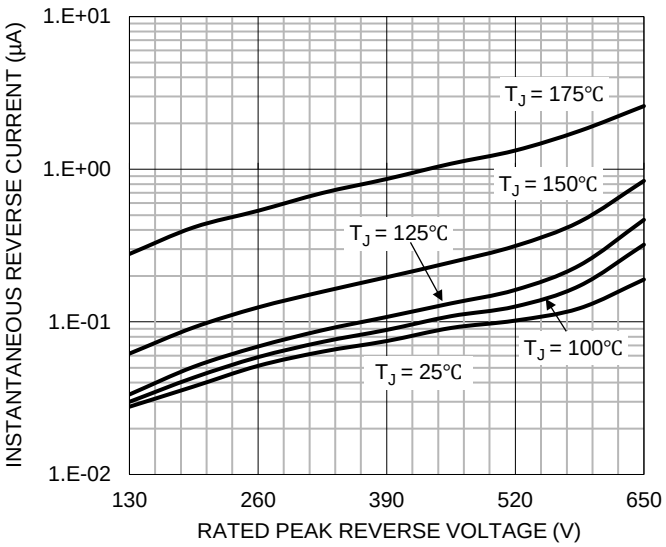


Figure 5. Typical Reverse Characteristics

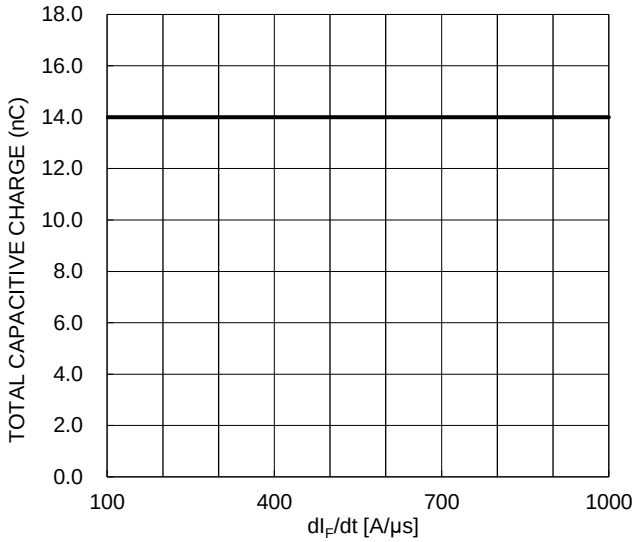


Figure 6. Typical Capacitive Charges vs. Current Slope

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

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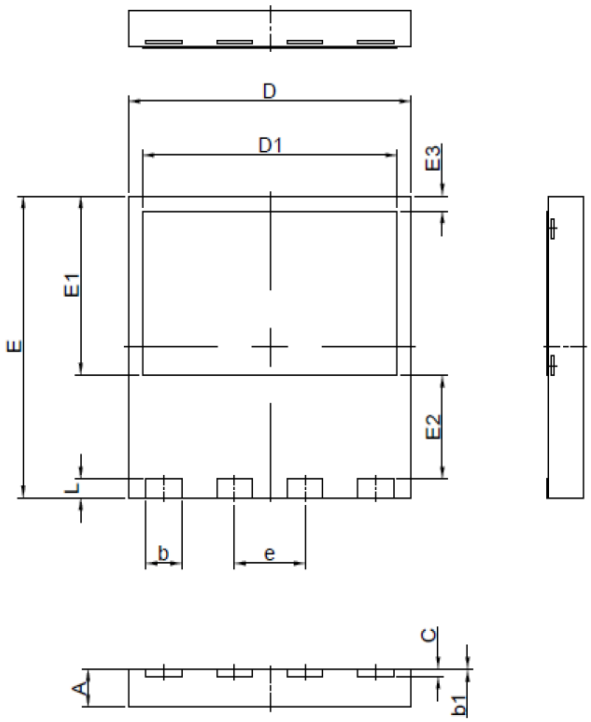
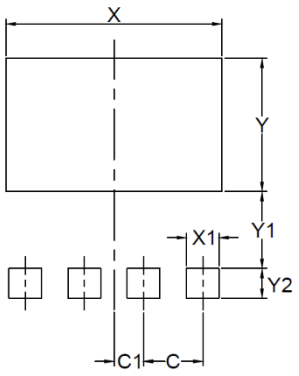


DFN8080			
DIM.	MIN.	MAX.	TYP.
A	0.90	1.10	1.00
b	0.90	1.10	1.00
b1	0	0.05	0.02
C	0.20 REF.		
D	7.90	8.10	8.00
D1	7.10	7.30	7.20
E	7.90	8.10	8.00
E1	4.65	4.85	4.75
E2	2.65	2.85	2.75
E3	0.30	0.50	0.40
e	2.0 BSC		
L	0.40	0.60	0.50
All Dimension in millimeter			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

DFN8080



Dim.	Millimeters
	DFN8080
C	2.0
C1	1.0
X	7.3
X1	1.1
Y	4.5
Y1	2.6
Y2	1.0

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