DSC10C065

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	1.7	1.2

Features and Benefits

- Low Conduction and Switching Loss
- High Temperature Application
- Positive Temperature Coefficient on V_F
- Fast Reverse Recovery
- High Surge Current Capability
- **Lead-Free Finish; 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/**

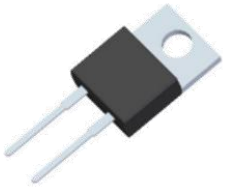
Description and Applications

Packaged in the robust industry-standard TO220AC (Type WX) package, the DIODES™ DSC10C065 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

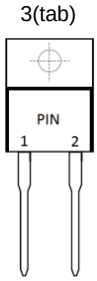
Mechanical Data

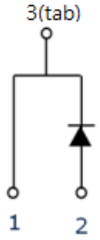
- Package: TO220AC
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 1.868 grams (Approximate)



Top View

TO220AC (Type WX)



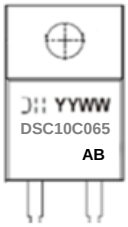


Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DSC10C065	TO220AC (Type WX)	50 pieces	Tube

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
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
DSC10C065 = Product Type Marking Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 23 = 2023)
WW = Week (01 to 53)
AB = Foundry 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 Wave Form	I_{FSM}	47	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Notes 5, 6, 7)	$R_{\theta JC}$	4	°C/W
Typical Thermal Resistance, Junction to Lead (Notes 5, 6, 7)	$R_{\theta JL}$	3	°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. With heatsink-100mm*100mm*1.6mm.
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	— —	1.41 1.79	1.7 2.5	V	I_F = 10A, T_J = +25°C I_F = 10A, T_J = +175°C
Leakage Current	I_R	— —	1.2 132	230 —	μA	V_R = 650V, T_J = +25°C V_R = 650V, T_J = +175°C
Total Capacitive Charge	Q_C	—	27	—	nC	I_F = 10A, dI/dt = 200A/μs, V_R = 400V, T_J = +25°C
Total Capacitance	C_T	—	355 265 68	—	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

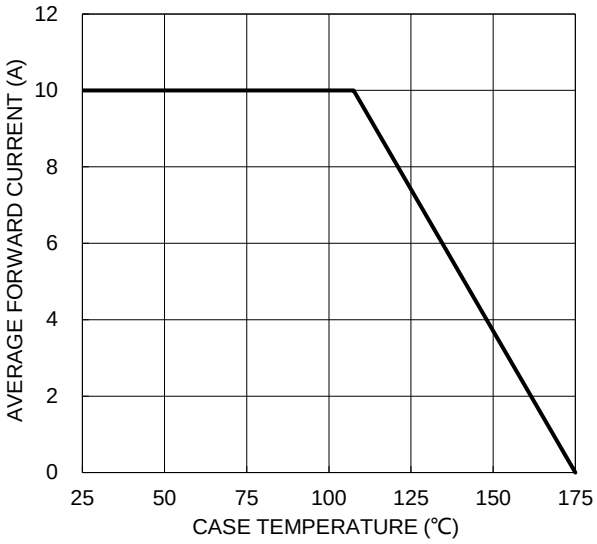


Figure 1. Forward Current Derating Curve

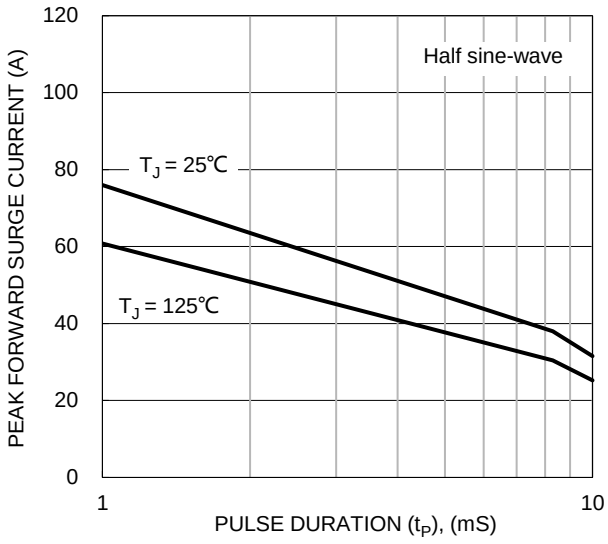


Figure 2. Non-Repetitive Peak Surge Forward Current

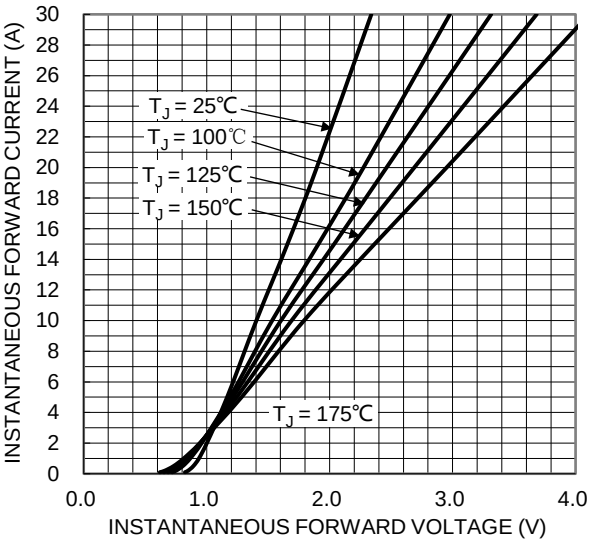


Figure 3. Typical Forward Characteristics

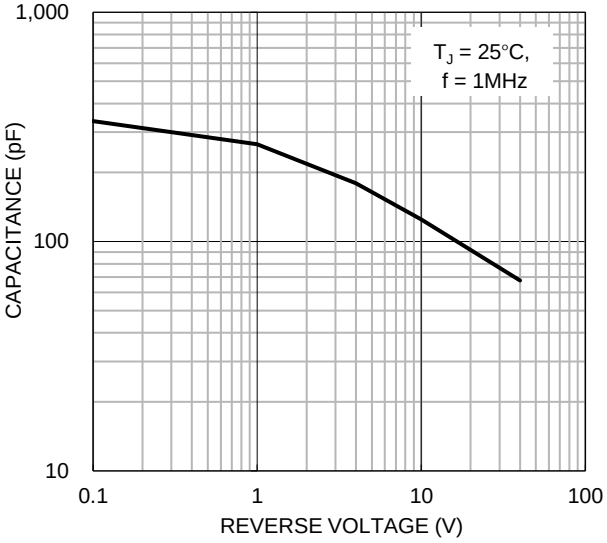


Figure 4. Typical Junction Capacitance

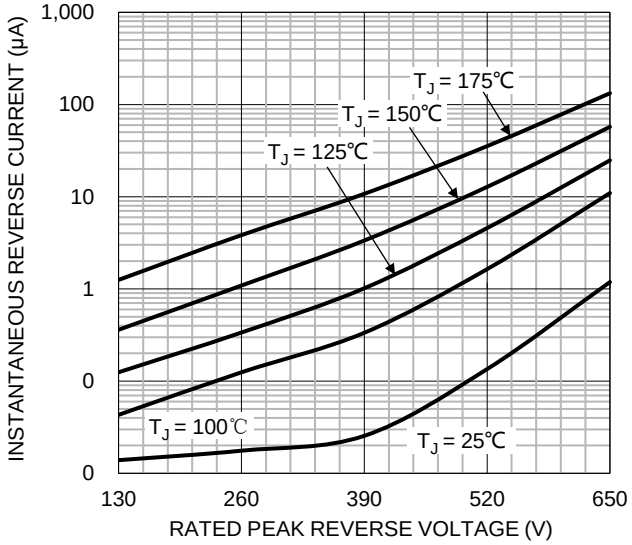


Figure 5. Typical Reverse Characteristics

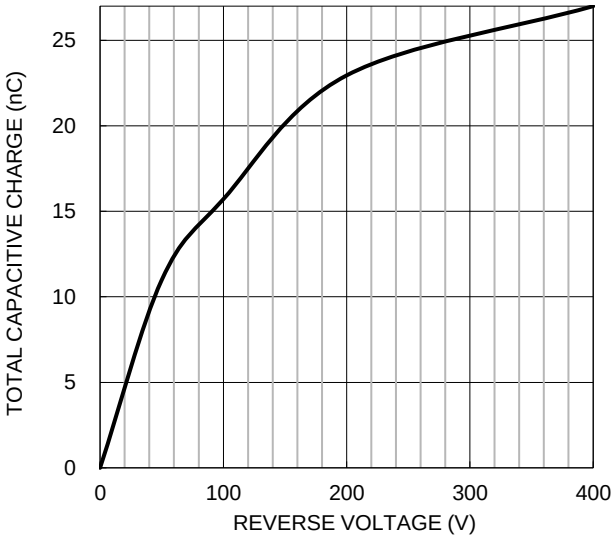
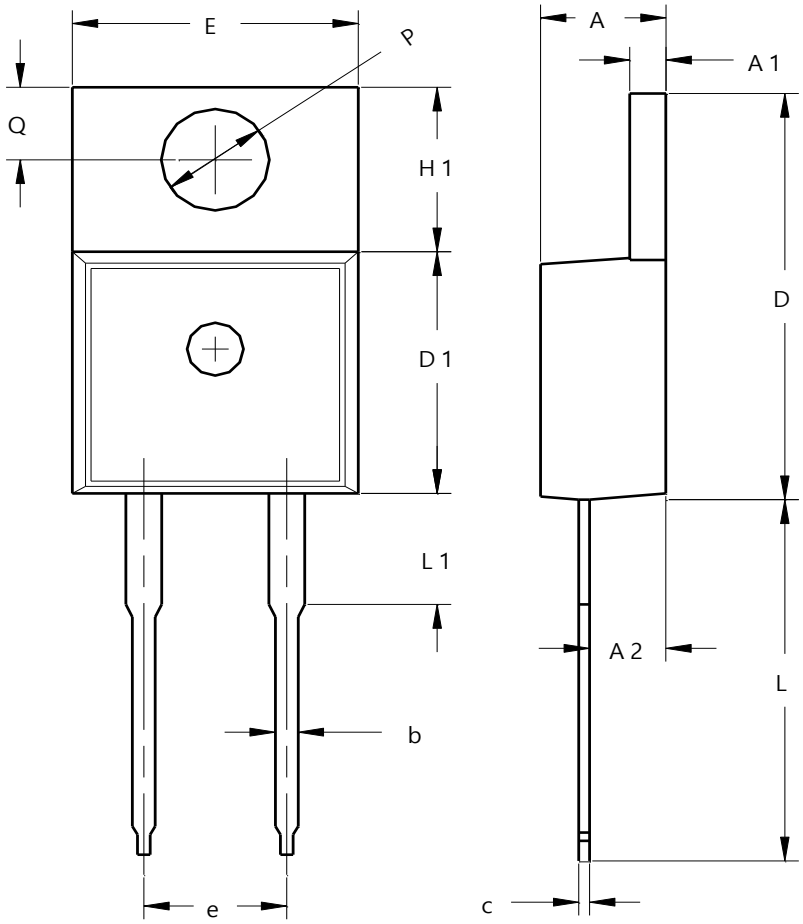


Figure 6. Typical Capacitive Charges

Package Outline Dimensions

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

TO220AC (Type WX)



TO220AC (Type WX)		
Dim	**Min**	**Typ**
A	3.56	4.83
A1	1.14	1.40
A2	2.03	2.92
b	0.51	1.14
c	0.30	0.64
D	14.40	15.20
D1	8.26	9.28
E	9.65	10.67
e	4.83	5.33
H1	5.84	6.86
L	12.70	14.73
L1	--	4.20
PØ	3.53	4.09
Q	2.54	3.43
All Dimensions in mm		

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