

## Product Summary

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F</sub> (Max) (V) @ +25°C	I <sub>R</sub> (Typ) (μA) @ +25°C
650	6	1.7	2.2

## Features and Benefits

- Low Conduction and Switching Loss
- High-Temperature Application
- Positive Temperature Coefficient on V<sub>F</sub>
- 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.

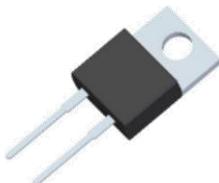
<https://www.diodes.com/quality/product-definitions/>

## Description and Applications

Packaged in the robust industry-standard TO220AC (Type WX) package, the DSC06C065 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

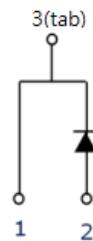
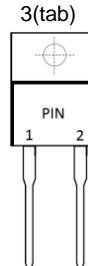
TO220AC (Type WX)



Top View

## 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 
- Weight: 1.868 grams (Approximate)



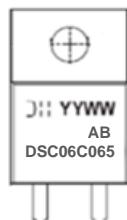
## Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DSC06C065	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  
 DSC06C065 = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 25 = 2025)  
 WW = Week (01 to 53)  
 AB = Fab and Assembly Code

**Maximum Ratings** (@  $T_C = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	650	V
DC Blocking Voltage	$V_{DC}$		
Average Rectified Output Current	$I_O$	6	A
Non-Repetitive Peak Forward Surge Current 10ms Half Sine Wave Form	$I_{FSM}$	29	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Notes 5, 6 & 7)	$R_{\theta JC}$	4	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Lead (Notes 5, 6 & 7)	$R_{\theta JL}$	3	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$

Notes:

- 5. Thermal resistance test performed in accordance with JESD-51.
- 6. Rating with heatsink - 60mm x 60mm x 1.8mm.
- 7. Device mounted on 1inch<sup>2</sup> 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** (@  $T_C = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Voltage	$V_{BR}$	650	—	—	V	$I_R = 0.1\text{mA}$
Forward Voltage Drop	$V_F$	—	1.54 2.17	1.7 2.5	V	$I_F = 6\text{A}, T_J = +25^\circ\text{C}$ $I_F = 6\text{A}, T_J = +175^\circ\text{C}$
Leakage Current	$I_R$	—	2.2 164	170 —	$\mu\text{A}$	$V_R = 650\text{V}, T_J = +25^\circ\text{C}$ $V_R = 650\text{V}, T_J = +175^\circ\text{C}$
Total Capacitive Charge	$Q_C$	—	16	—	nC	$I_F = 6\text{A}, dI/dt = 200\text{A}/\mu\text{s}$ $V_R = 400\text{V}, T_J = +25^\circ\text{C}$
Total Capacitance	$C_T$	—	187 147 37	—	pF	$V_R = 0.1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 40\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$

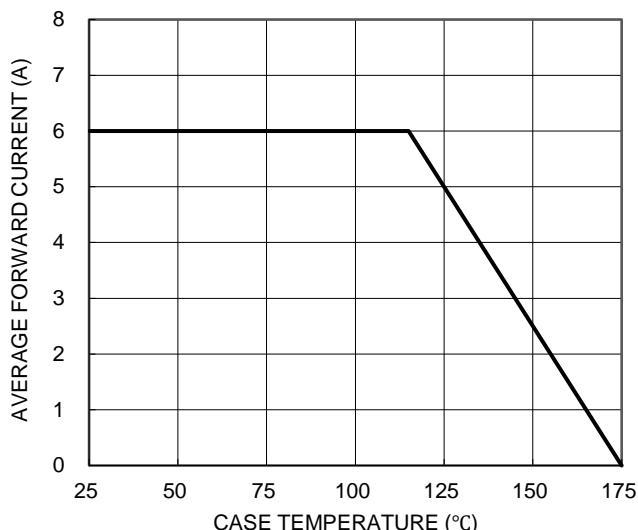


Figure 1. Forward Current Derating Curve

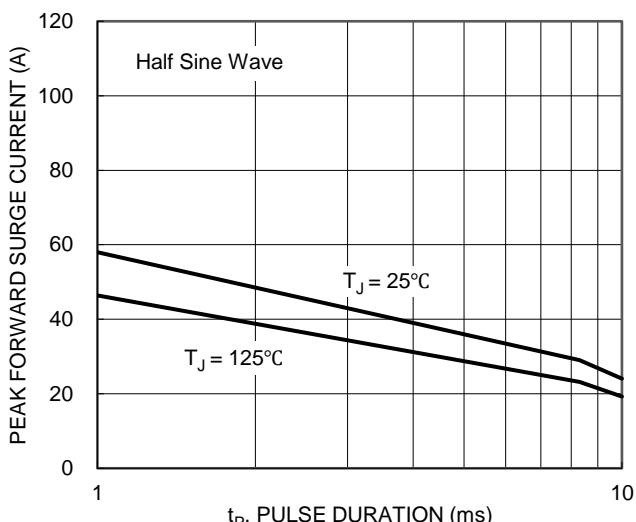


Figure 2. Non-Repetitive Peak Surge Forward Current

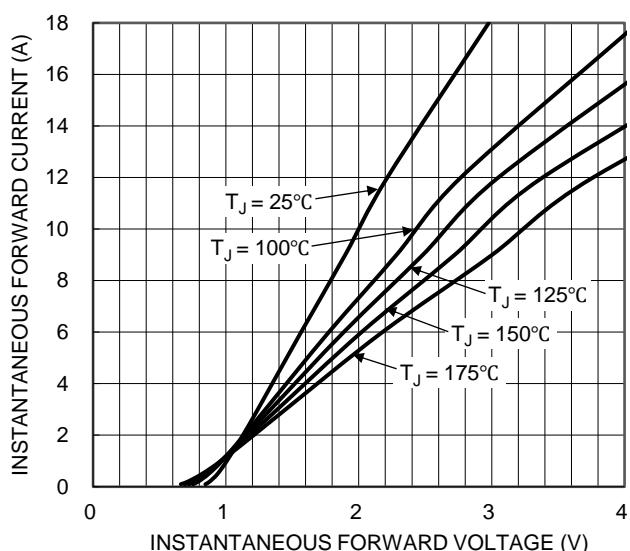


Figure 3. Typical Forward Characteristics

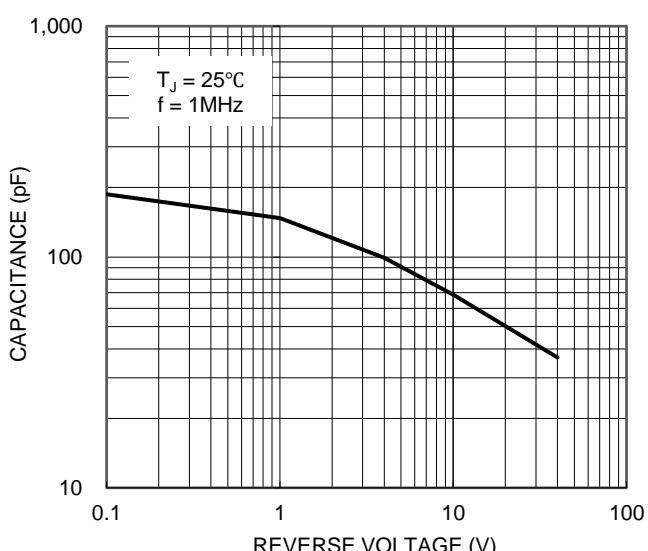


Figure 4. Typical Junction Capacitance

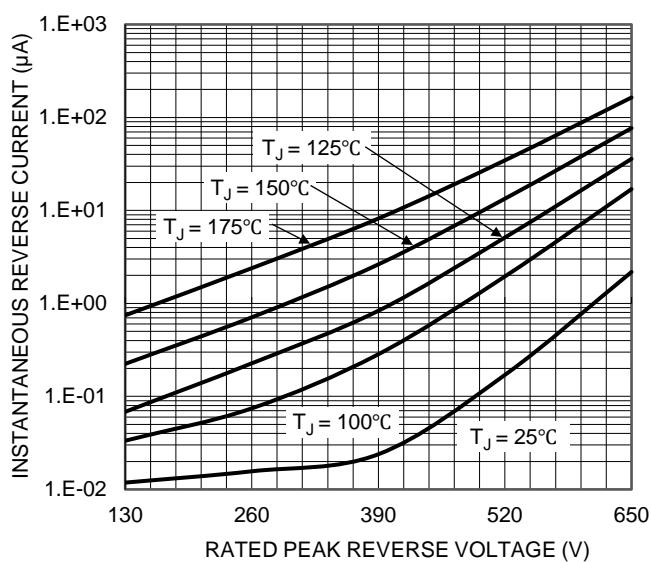


Figure 5. Typical Reverse Characteristics

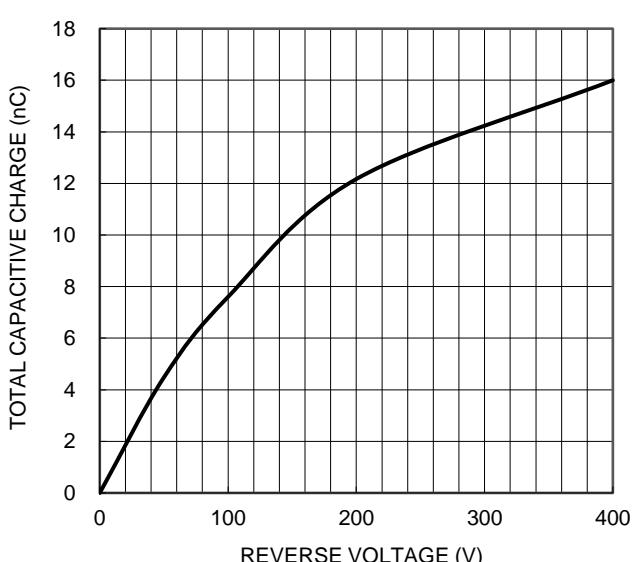
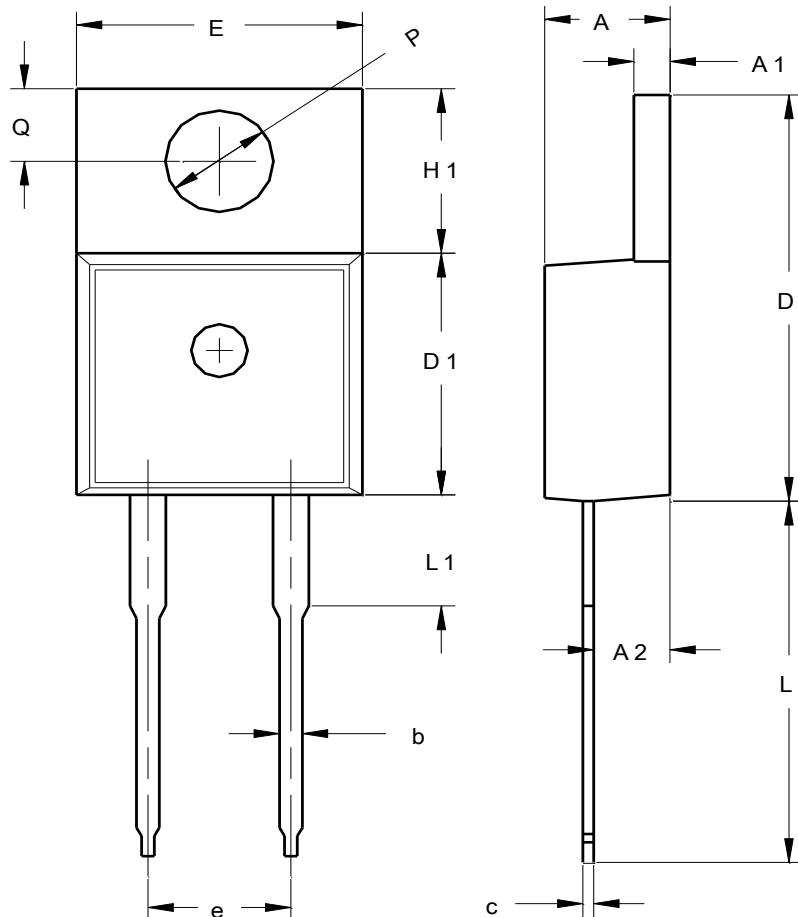


Figure 6. Typical Capacitive Charges

## 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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