

## Product Summary

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ (Max) (V) @ +25°C	$I_R$ (Typ) ( $\mu$ A) @ +25°C
650	6	1.7	4.5

## 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](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

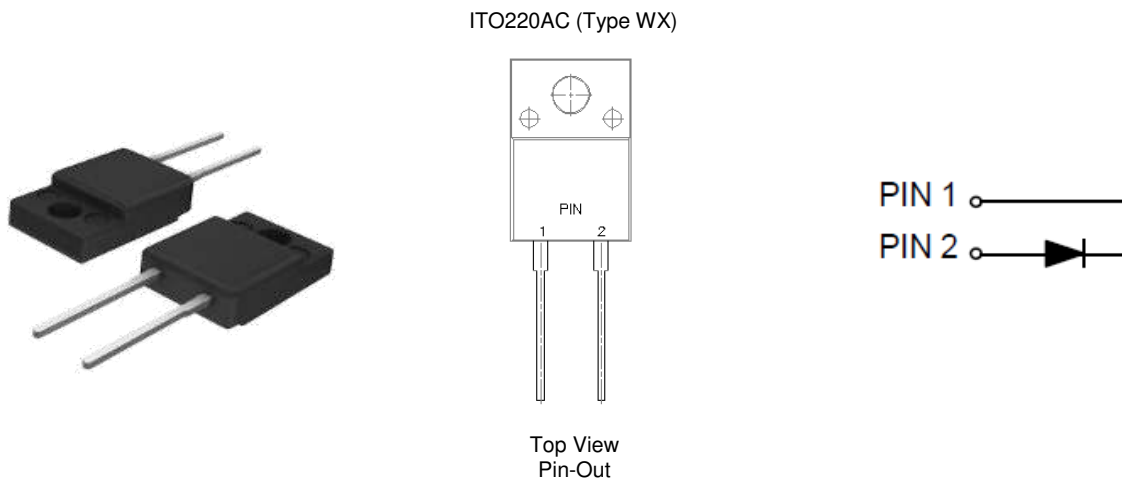
## Description and Applications

Packaged in the robust industry-standard ITO220AC (Type WX) package, the DIODES™ DSC06C065FP 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: ITO220AC
- 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  $\text{e3}$
- Weight: 1.497 grams (Approximate)

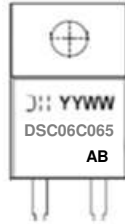


## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DSC06C065FP	ITO220AC (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



J:: = Manufacturer's Marking  
 DSC06C065 = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 23 = 2023)  
 WW = Week (01 to 53)  
 AB = Fab and Assembly Code

## Maximum Ratings (@T<sub>C</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>DC</sub>	650	V
Average Rectified Output Current	I <sub>O</sub>	6	A
Non-Repetitive Peak Forward Surge Current 10ms Half-Sine Wave Form	I <sub>FSM</sub>	29	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Notes 5, 6, 7)	R <sub>θJC</sub>	6	°C/W
Typical Thermal Resistance, Junction to Lead (Notes 5, 6, 7)	R <sub>θJL</sub>	8	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

Notes: 5. Thermal resistance test performed in accordance with JESD-51.  
 6. With Heatsink—170mm×170mm×44.3mm + aluminum plate—15mm×36mm×1.6mm.  
 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<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJC</sub> or junction to ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJA</sub>.

## Electrical Characteristics (@T<sub>C</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Voltage	V <sub>BR</sub>	650	—	—	V	I <sub>R</sub> = 0.1mA
Forward Voltage Drop	V <sub>F</sub>	—	1.54 2.10	1.7 2.5	V	I <sub>F</sub> = 6A, T <sub>J</sub> = +25°C I <sub>F</sub> = 6A, T <sub>J</sub> = +175°C
Leakage Current	I <sub>R</sub>	—	4.5 214	170 —	μA	V <sub>R</sub> = 650V, T <sub>J</sub> = +25°C V <sub>R</sub> = 650V, T <sub>J</sub> = +175°C
Total Capacitive Charge	Q <sub>C</sub>	—	17	—	nC	I <sub>F</sub> = 6A, dI/dt = 200A/μs, V <sub>R</sub> = 400V, T <sub>J</sub> = +25°C
Total Capacitance	C <sub>T</sub>	—	191 151 38	— — —	pF	V <sub>R</sub> = 0.1V, T <sub>J</sub> = +25°C, f = 1MHz V <sub>R</sub> = 1V, T <sub>J</sub> = +25°C, f = 1MHz V <sub>R</sub> = 40V, T <sub>J</sub> = +25°C, f = 1MHz

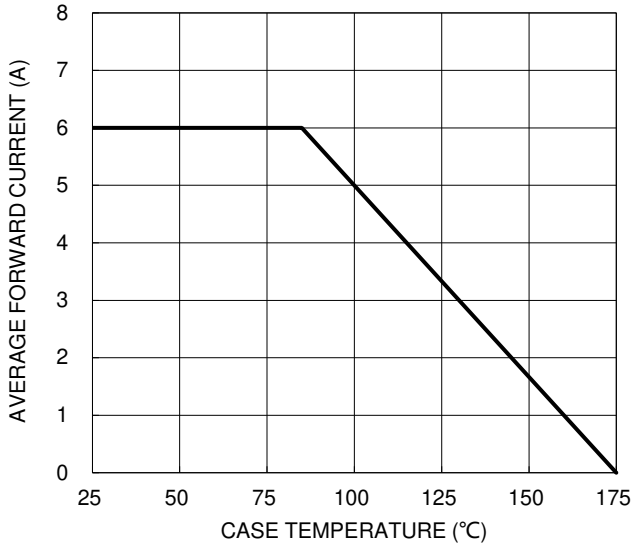


Figure 1. Forward Current Derating Curve

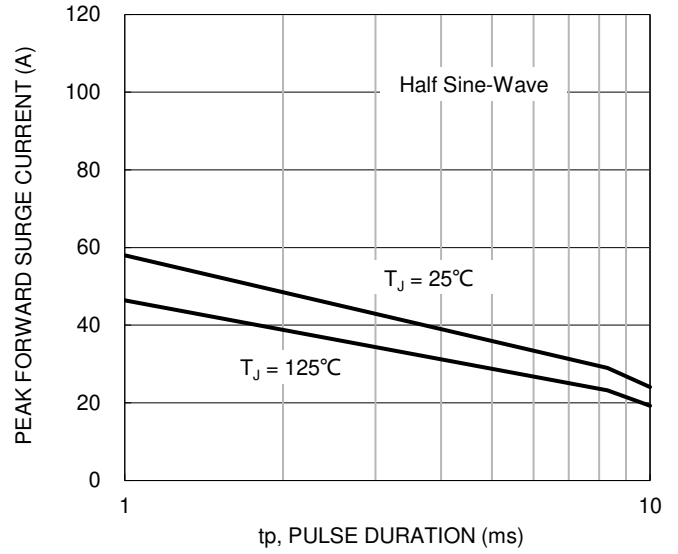


Figure 2. Non-Repetitive Peak Surge Forward Current

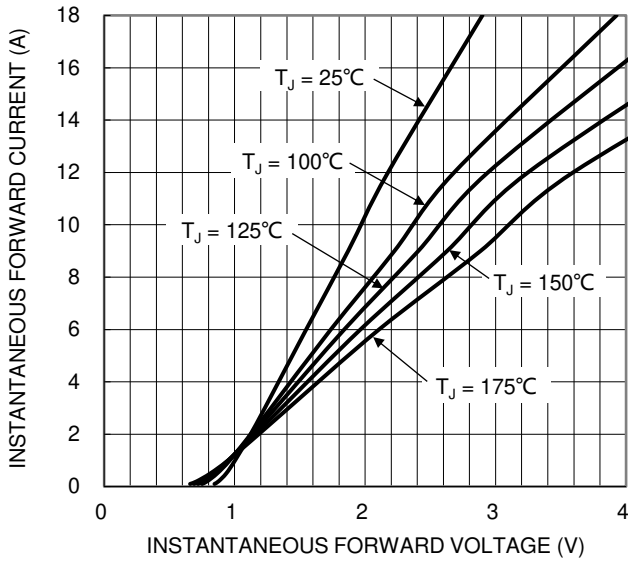


Figure 3. Typical Forward Characteristics

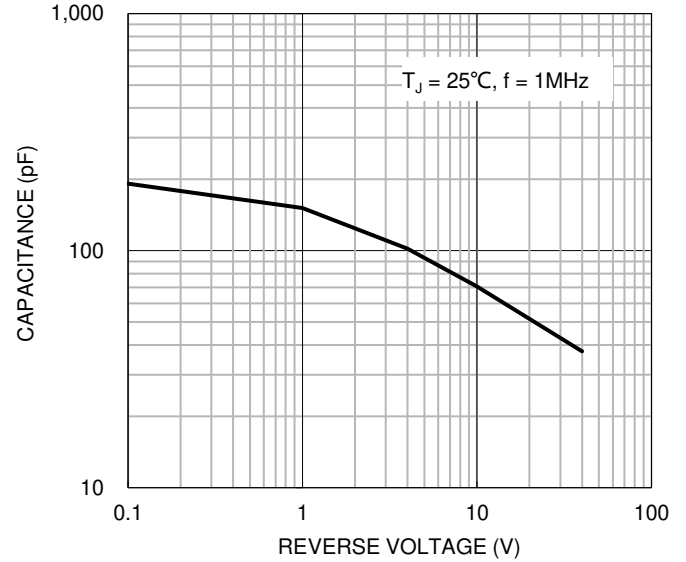


Figure 4. Typical Junction Capacitance

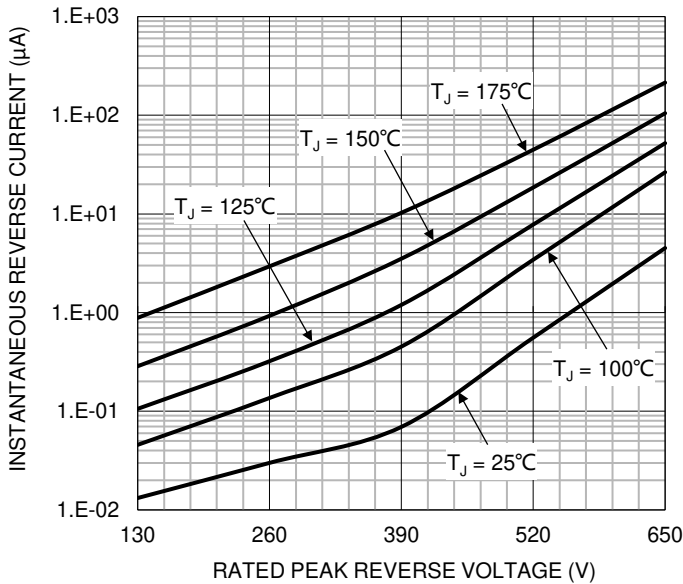


Figure 5. Typical Reverse Characteristics

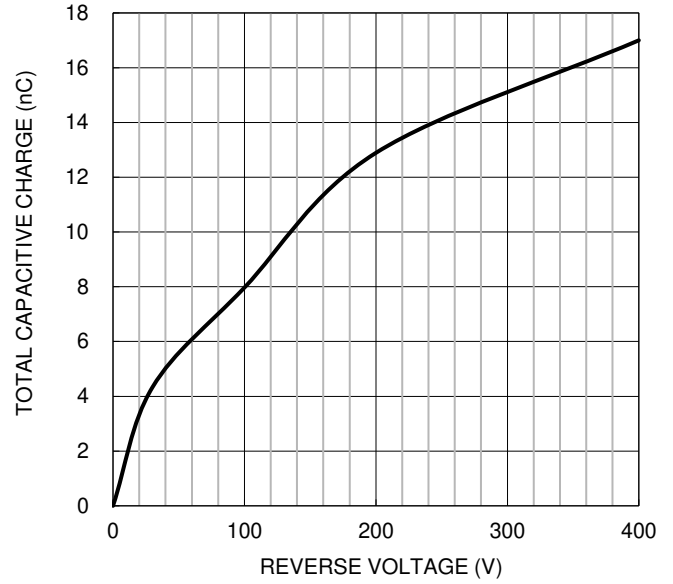
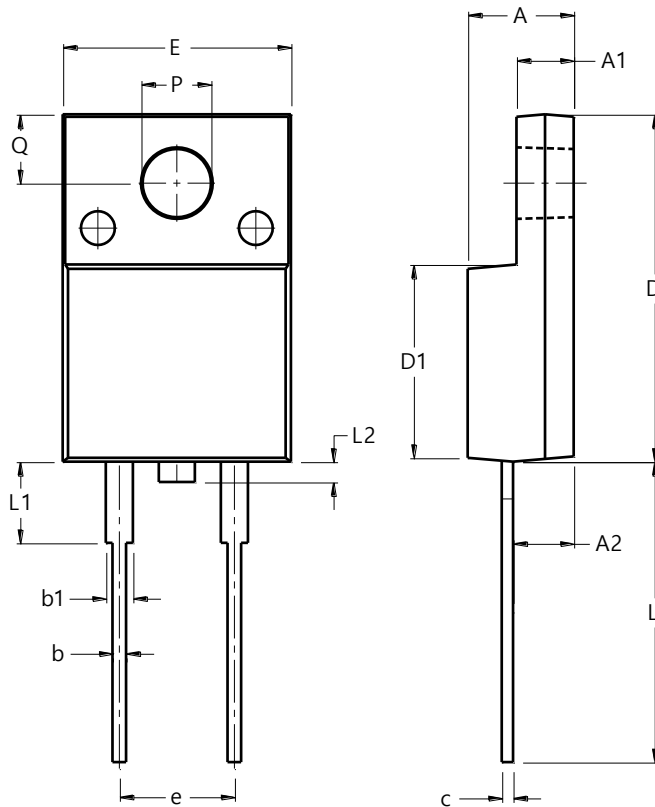


Figure 6. Typical Capacitive Charges

**Package Outline Dimensions**

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

ITO220AC (Type WX)



ITO220AC (Type WX)		
Dim	Min	Max
A	4.46	4.87
A1	2.48	2.80
A2	2.50	2.80
b	0.50	0.80
b1	1.15	1.70
c	0.45	0.70
D	14.95	15.95
D1	8.50	8.80
E	10.00	10.40
e	4.95	5.25
L	13.00	13.70
L1	3.30	3.90
L2	0.00	1.27
Q	2.76	3.36
PØ	3.00	3.30
All Dimensions in mm		

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