

## 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	10	1.7	1.8

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

## Description and Applications

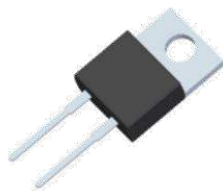
Packaged in the robust industry-standard TO220AC (Type WX) package, the DIODES™ DSC10065 provides excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode, or blocking diode in:

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

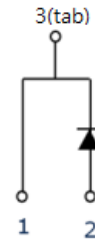
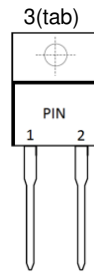
## Mechanical Data

- 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 <sup>(e3)</sup>
- Weight: 1.868 grams (Approximate)

TO220AC (Type WX)



Top View

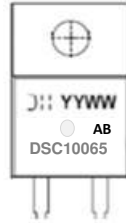


## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DSC10065	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



J: = Manufacturer's Marking  
 DSC10065 = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 22 = 2022)  
 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	$I_O$	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Half-Sine Wave Form	$I_{FSM}$	60	A

## Thermal Characteristics

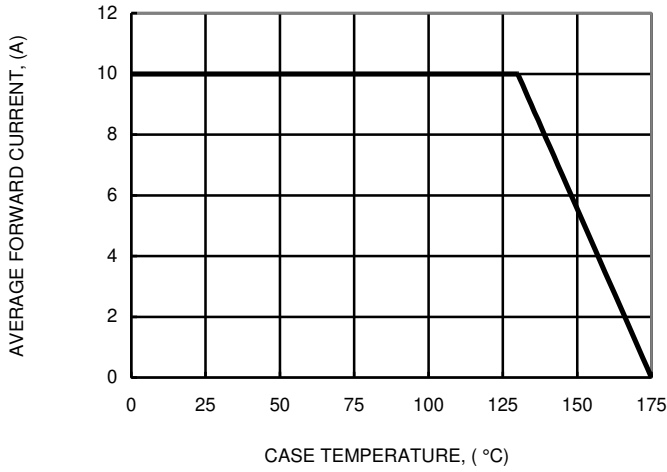
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Notes 5 & 6)	$R_{\theta JC}$	2	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Lead (Notes 5 & 6)	$R_{\theta JL}$	2	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$

Notes: 5. Thermal resistance test performed in accordance with JESD-51.  
 6. The unit mounted on copper heatsink 50mm x 50mm x 1.6mm.

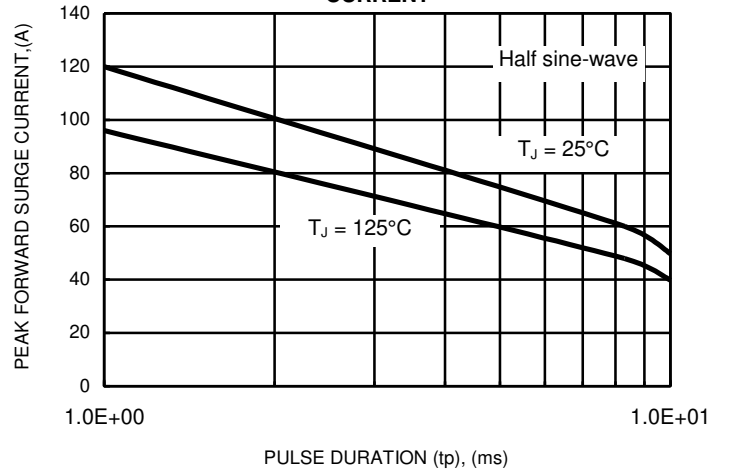
## Electrical Characteristics (@ $T_C = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Voltage	$V_{BR}$	650	—	—	V	$I_R = 0.25\text{mA}$
Forward Voltage Drop	$V_F$	—	1.52 1.92	1.7 2.5	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$ $I_F = 10\text{A}, T_J = +175^\circ\text{C}$
Leakage Current	$I_R$	—	1.8 25	250 800	$\mu\text{A}$	$V_R = 650\text{V}, T_J = +25^\circ\text{C}$ $V_R = 650\text{V}, T_J = +175^\circ\text{C}$
Total Capacitive Charge	$Q_C$	—	23	—	nC	$I_F = 10\text{A}, di/dt = 250\text{A}/\mu\text{s}$ $V_R = 400\text{V}, T_J = +25^\circ\text{C}$
Total Capacitance	$C_T$	—	400 325 93	—	pF	$V_R = 0.1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 40\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$

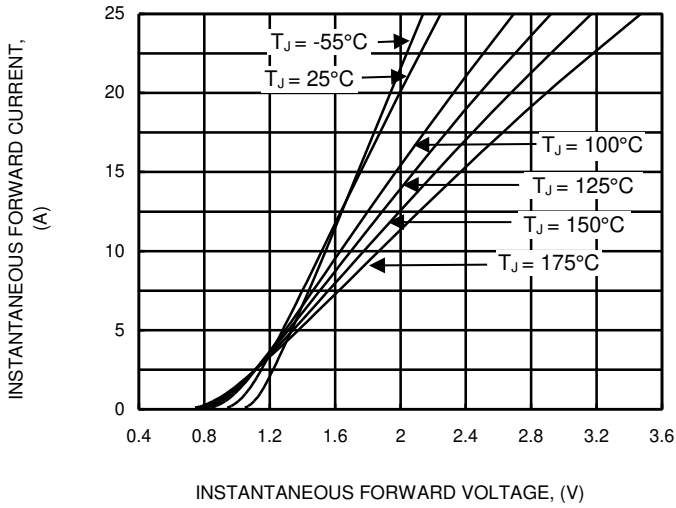
**FIG.1 FORWARD CURRENT DERATING CURVE**



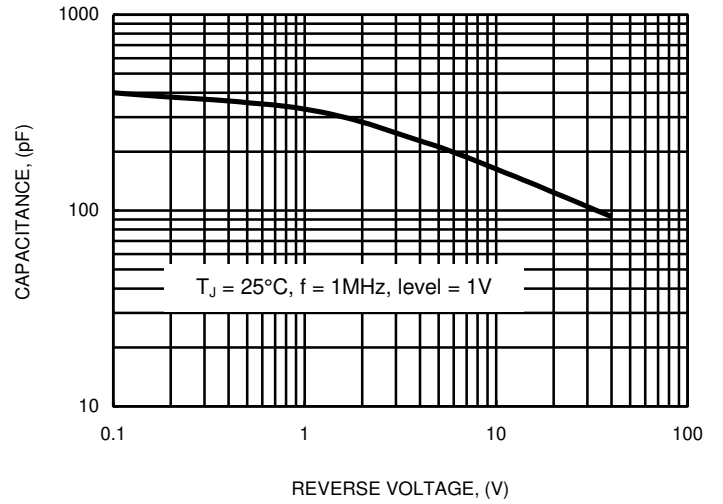
**FIG.2 NON-REPETITIVE PEAK SURGE FORWARD CURRENT**



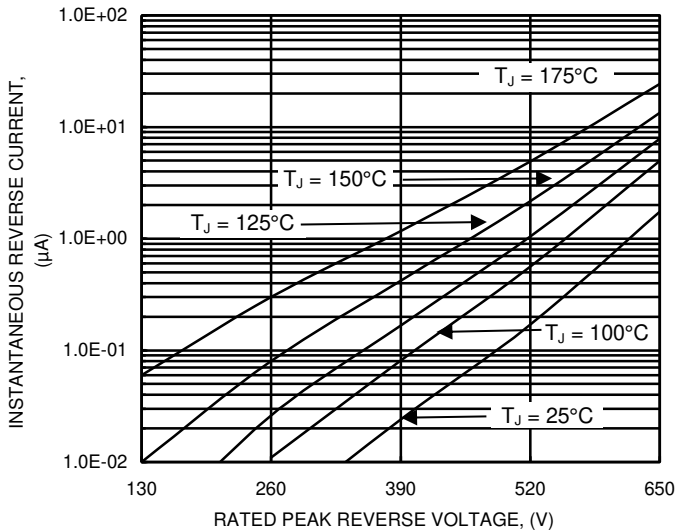
**FIG.3 TYPICAL FORWARD CHARACTERISTICS**



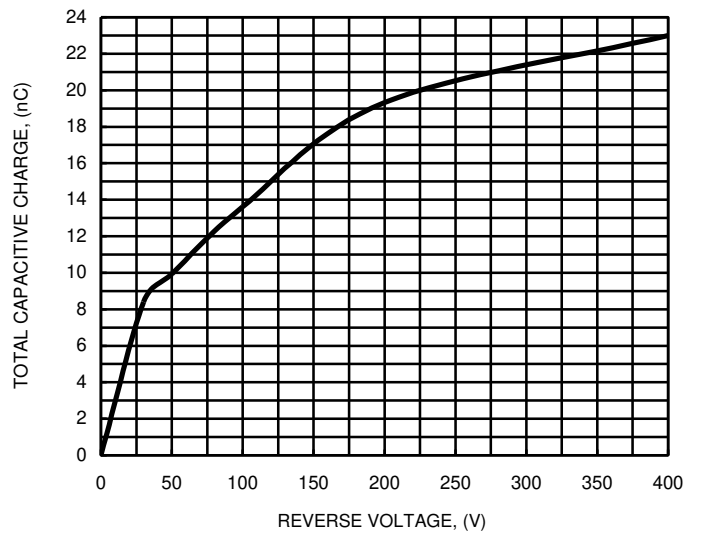
**FIG.4 TYPICAL JUNCTION CAPACITANCE**



**FIG.5 TYPICAL REVERSE CHARACTERISTICS**



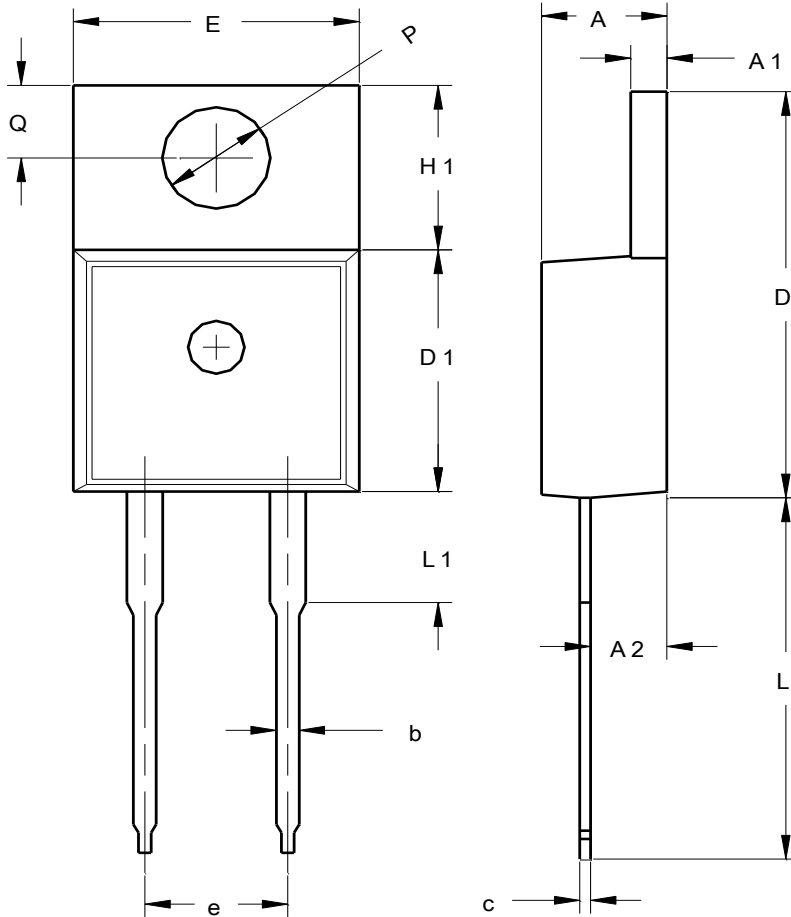
**FIG.6 TYPICAL CAPACITIVE CHARGES**



**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
P $\varnothing$	3.53	4.09
Q	2.54	3.43
<b>All Dimensions in mm</b>		

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