

Product Summary

V _{RRM} (V)	I _o (A)	V _F Max (V) @ +25°C	I _R Typ (μA) @ +25°C
650	4	1.7	1.1

Features and Benefits

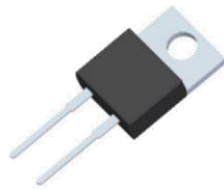
- Low Conduction and Switching Loss
- High Temperature Application
- Positive Temperature Coefficient on V_F
- Fast Reverse Recovery
- High Surge Current Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications 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 TO220AC (Type WX) package, the DIODES™ DSC04C065 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)

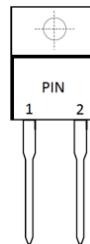


Top View

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 (E3)
- Weight: 1.868 grams (Approximate)

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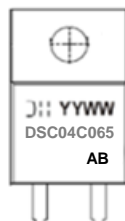


Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DSC04C065	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
- DSC04C065 = Product Type Marking Code
- YYWW = Date Code Marking
- YY = Last Two Digits of Year (ex: 22 = 2022)
- WW = Week (01 to 53)
- AB = Foundry and Assembly Code

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Surge Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{DC}	650	V
Average Rectified Output Current	I_O	4	A
Non-Repetitive Peak Forward Surge Current 8.3ms Half-Sine Wave Form	I_{FSM}	28	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Notes 5, 6 & 7)	$R_{\theta JC}$	6	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Lead (Notes 5, 6 & 7)	$R_{\theta JL}$	5	$^\circ\text{C}/\text{W}$
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 35mm x 35mm x 1.8mm copper heat sink.
 7. Device mounted on 1inch² 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	$I_R = 0.10\text{mA}$
Forward Voltage Drop	V_F	—	1.44 1.91	1.7 2.5	V	$I_F = 4\text{A}, T_J = +25^\circ\text{C}$ $I_F = 4\text{A}, T_J = +175^\circ\text{C}$
Leakage Current	I_R	—	1.1 66	170 —	μA	$V_R = 650\text{V}, T_J = +25^\circ\text{C}$ $V_R = 650\text{V}, T_J = +175^\circ\text{C}$
Total Capacitive Charge	Q_C	—	11	—	nC	$I_F = 4\text{A}, dI/dt = 200\text{A}/\mu\text{s}$ $V_R = 400\text{V}, T_J = +25^\circ\text{C}$
Total Capacitance	C_T	—	150 118 30	— — —	pF	$V_R = 0.1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 40\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$

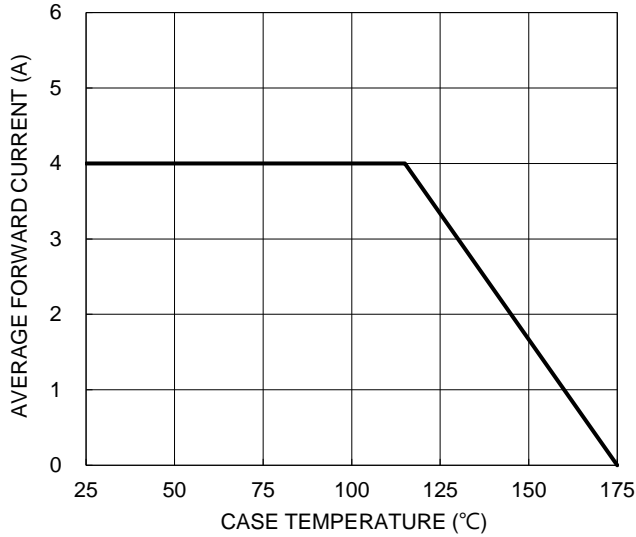


Figure 1. Forward Current Derating Curve

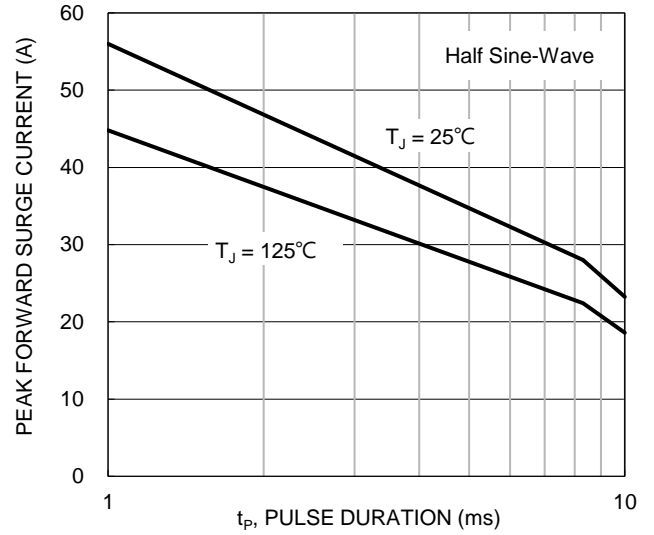


Figure 2. Non-Repetitive Peak Surge Forward Current

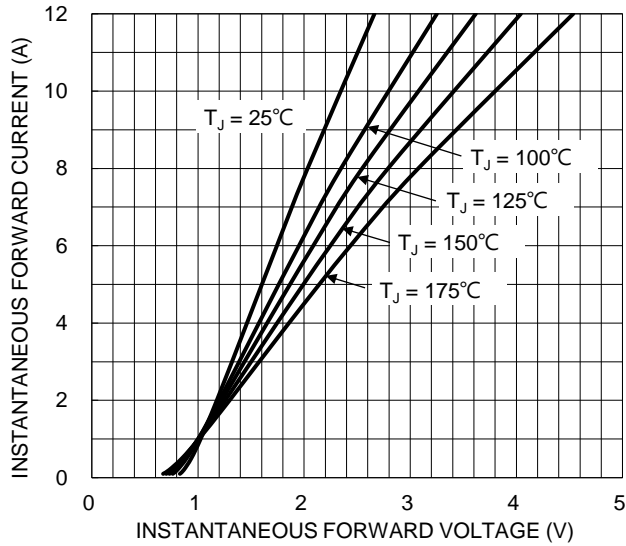


Figure 3. Typical Forward Characteristics

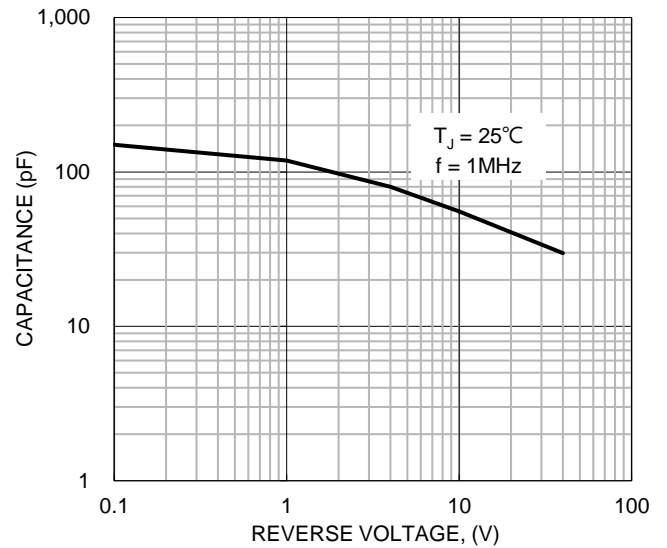


Figure 4. Typical Junction Capacitance

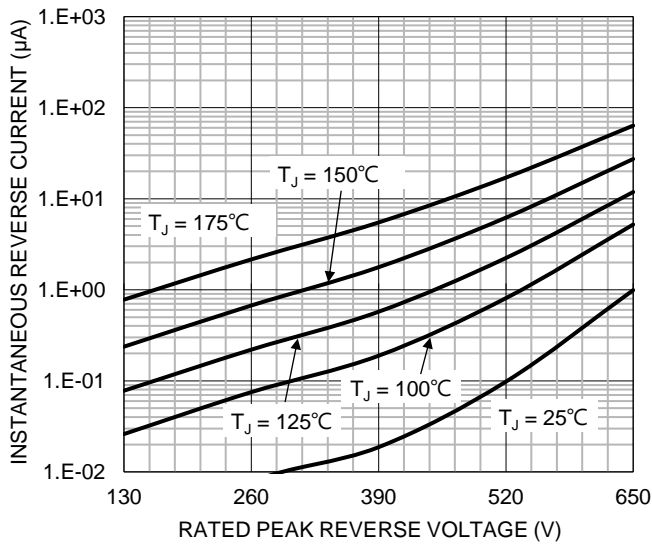


Figure 5. Typical Reverse Characteristics

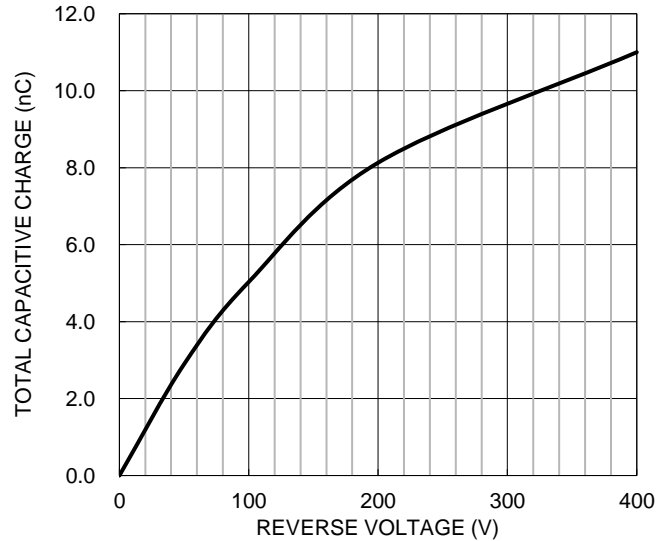
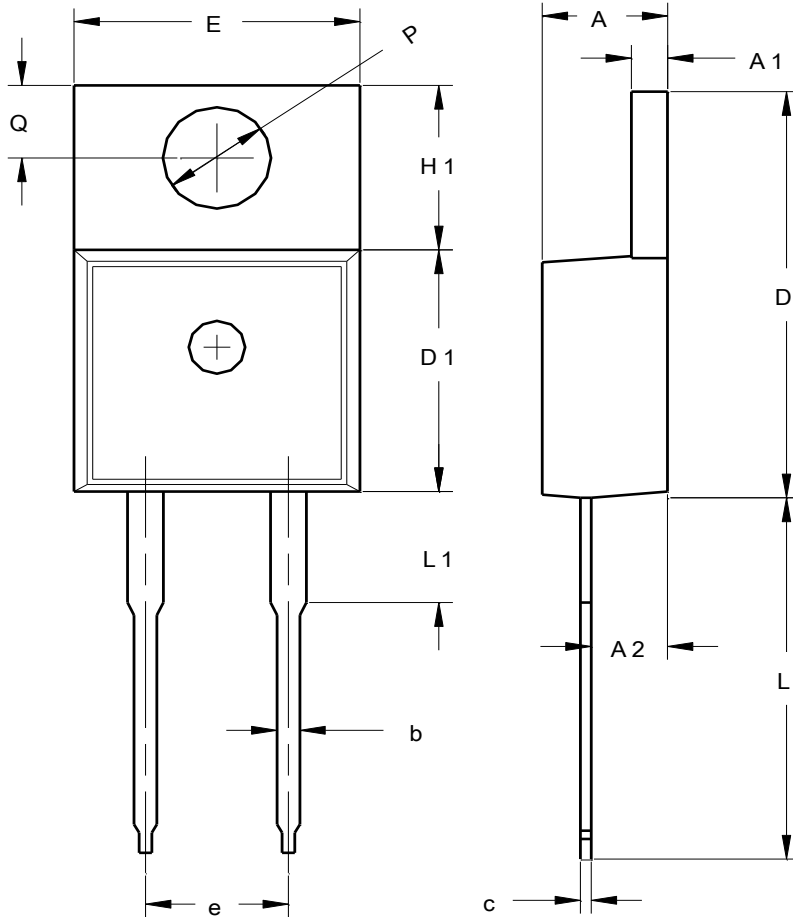


Figure 6. Typical Capacitive Charges

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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