DSC04A065

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	4	1.5	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 or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Description and Applications

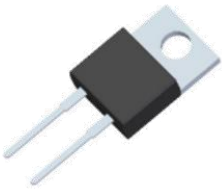
Packaged in the robust industry-standard TO220AC (Type WX) package, the DSC04A065 provides excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode, or blocking diode in:

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

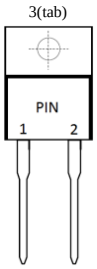
Mechanical Data

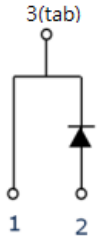
- Package: TO220AC
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 1.868 grams (Approximate)

TO220AC (Type WX)



Top View





Ordering Information (Note 4)

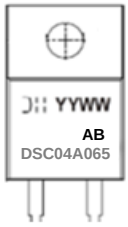
Orderable Part Number	Package	Packing	
		Qty.	Carrier
DSC04A065	TO220AC (Type WX)	50 Pieces	Tube

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/.

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Marking Information



= Manufacturer's Marking
DSC04A065 = 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°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	4	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)	$R_{\theta JC}$	7	°C/W
Typical Thermal Resistance, Junction to Lead (Notes 5, 6, 7)	$R_{\theta JL}$	5	°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. The unit mounted on 35mm x 35mm x 1.7mm copper heatsink.
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 = 0.10mA
Forward Voltage Drop	V_F	— —	1.32 1.65	1.5 2.25	V	I_F = 4A, T_J = +25°C I_F = 4A, T_J = +175°C
Leakage Current	I_R	— —	1.1 109	170 —	μA	V_R = 650V, T_J = +25°C V_R = 650V, T_J = +175°C
Total Capacitive Charge	Q_C	—	12	—	nC	I_F = 4A, di/dt = 200A/μs, V_R = 400V, T_J = +25°C
Total Capacitance	C_T	— — —	187 147 37	— — —	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

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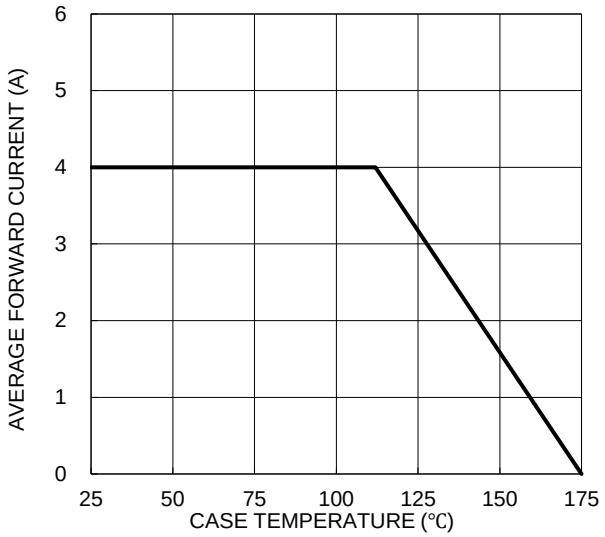


Figure 1. Forward Current Derating Curve

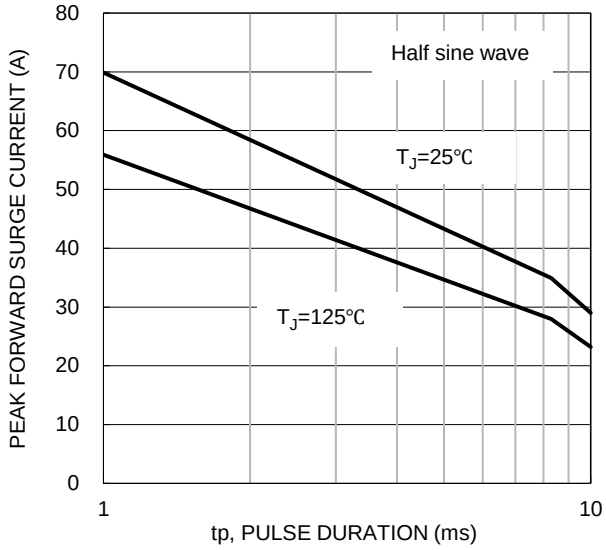


Figure 2. Non-Repetitive Peak Surge Forward Current

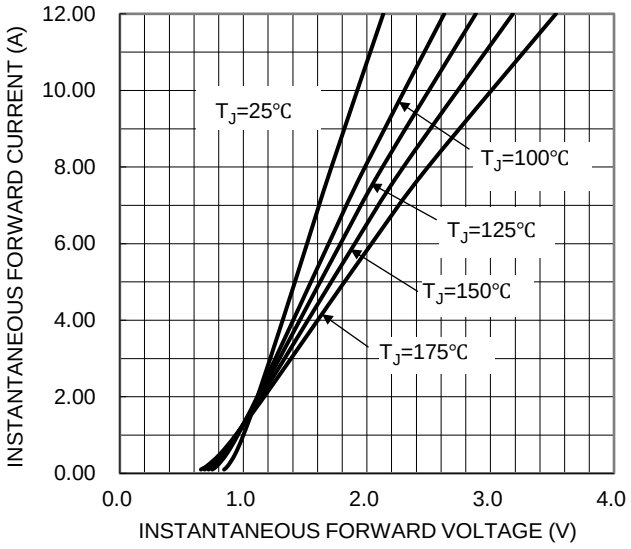


Figure 3. Typical Forward Characteristics

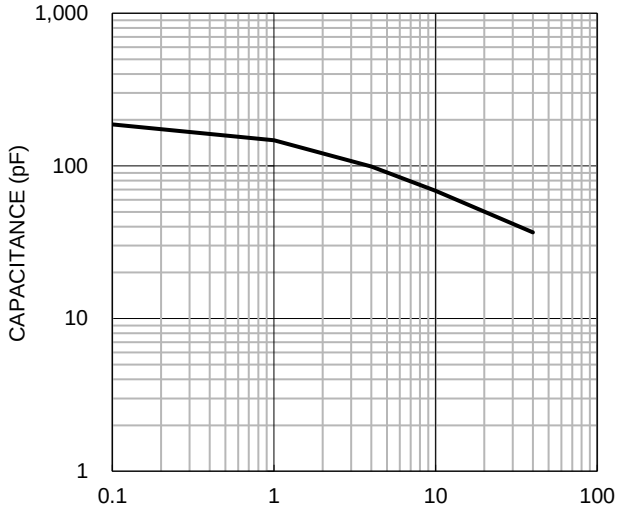


Figure 4. Typical Junction Capacitance

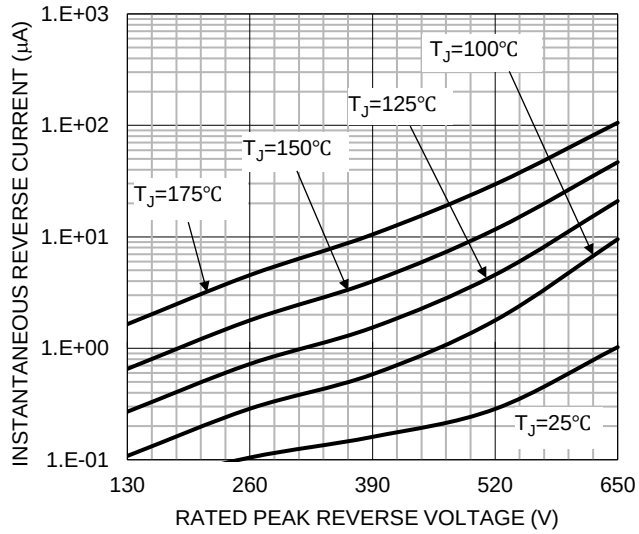


Figure 5. Typical Reverse Characteristics

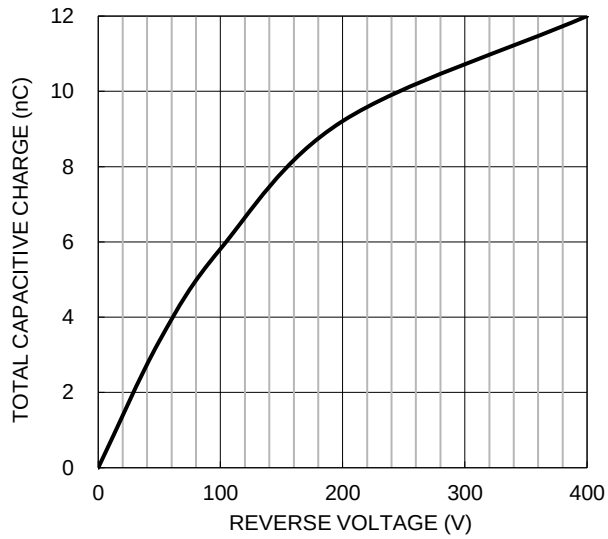


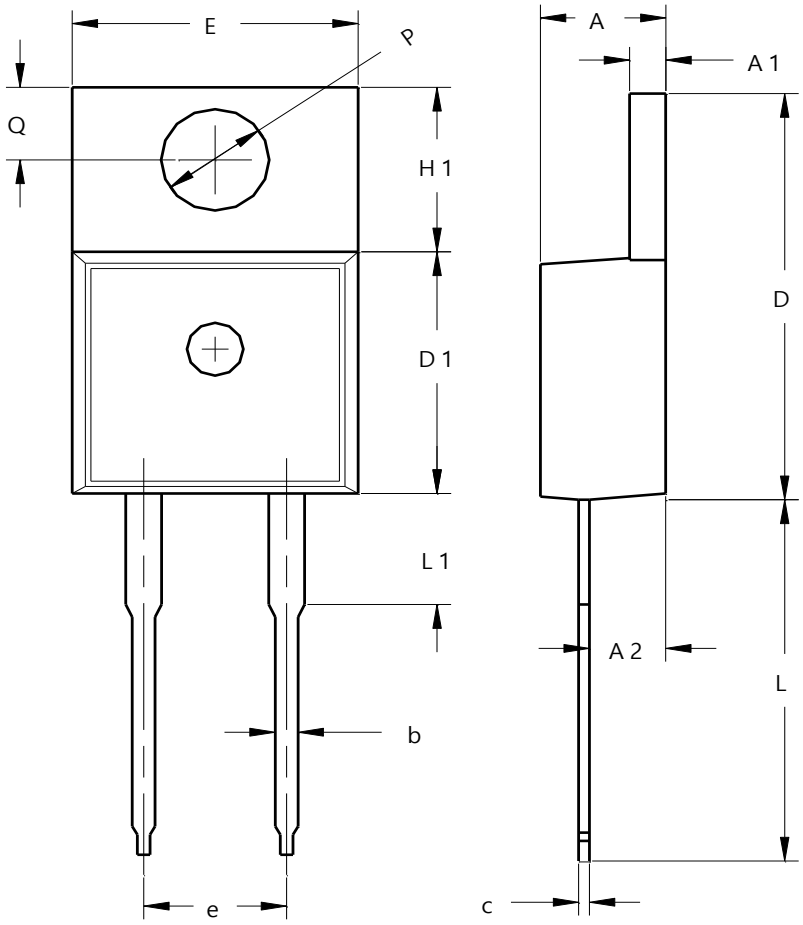
Figure 6. Typical Capacitive Charges

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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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