

## Product Summary

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ (MAX) (V) @ +25°C	$I_R$ (TYP) ( $\mu$ A) @ +25°C
650	8	1.7	0.8

## Description and Applications

Packaged in the robust industry-standard TO252 (Type WX) package, the DIODES™ DSC08C065D1 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

## 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/>**

## Mechanical Data

- Package: TO252
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 <sup>(e3)</sup>
- Weight: 0.310 grams (Approximate)

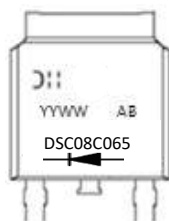


## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DSC08C065D1-13	TO252 (Type WX)	2500	Reel

- 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



DII = Manufacturer's Marking  
 DSC08C065 = 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** (@  $T_C = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{DC}$	650	V
Average Rectified Output Current	$I_O$	8	A
Non-Repetitive Peak Forward Surge Current 10ms Half-Sine Wave Form	$I_{FSM}$	38	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Notes 5, 6, 7)	$R_{\theta JC}$	3	$^\circ\text{C/W}$
Typical Thermal Resistance, Junction to Lead (Notes 5, 6, 7)	$R_{\theta JL}$	2	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$

- Notes:
- Thermal resistance test performed in accordance with JESD-51.
  - With Aluminum Fin Heatsink-85mm\*32mm\*24mm.
  - 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	$I_R = 0.10\text{mA}$
Forward Voltage Drop	$V_F$	—	1.46 1.94	1.7 2.5	V	$I_F = 8\text{A}, T_J = +25^\circ\text{C}$ $I_F = 8\text{A}, T_J = +175^\circ\text{C}$
Leakage Current	$I_R$	—	0.8 111	200 —	$\mu\text{A}$	$V_R = 650\text{V}, T_J = +25^\circ\text{C}$ $V_R = 650\text{V}, T_J = +175^\circ\text{C}$
Total Capacitive Charge	$Q_C$	—	21	—	nC	$I_F = 8\text{A}, dI/dt = 200\text{A}/\mu\text{s}$ , $V_R = 400\text{V}, T_J = +25^\circ\text{C}$
Total Capacitance	$C_T$	—	278 222 56	— — —	pF	$V_R = 0.1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 40\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$

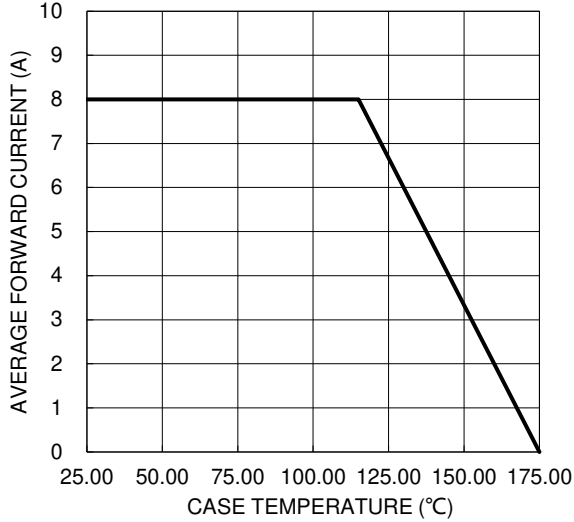


Figure 1. Forward Current Derating Curve

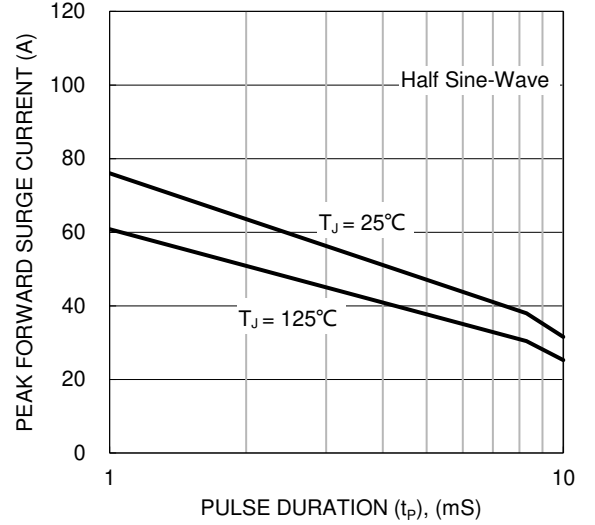


Figure 2. Non-Repetitive Peak Surge Forward Current

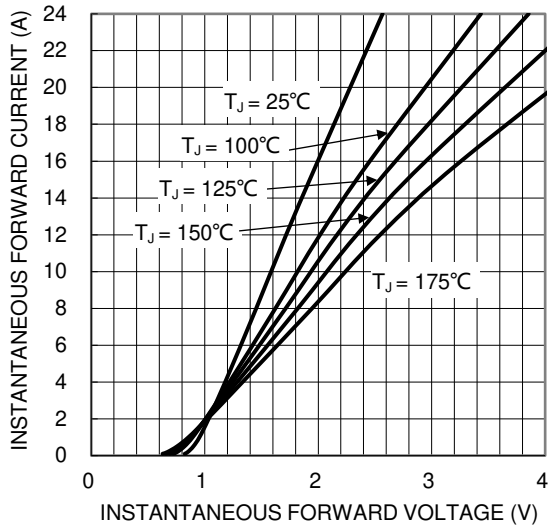


Figure 3. Typical Forward Characteristics

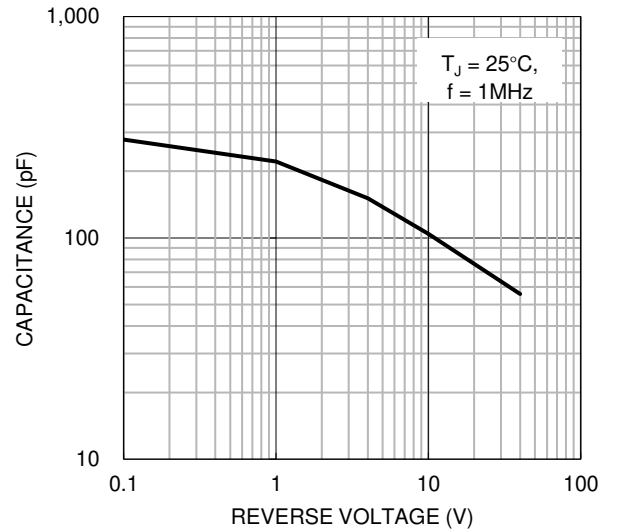


Figure 4. Typical Junction Capacitance

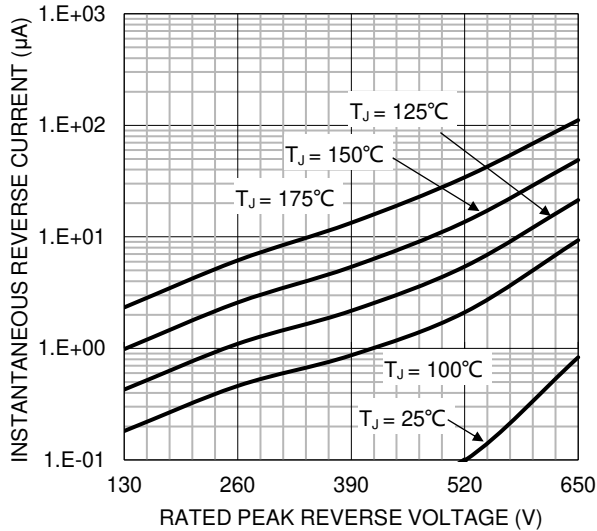


Figure 5. Typical Reverse Characteristics

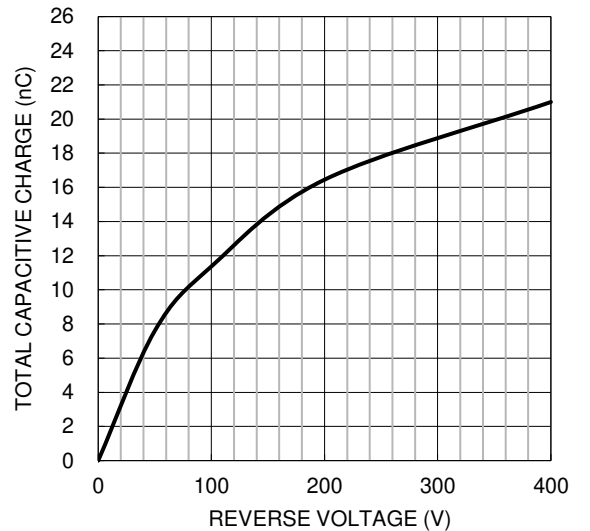
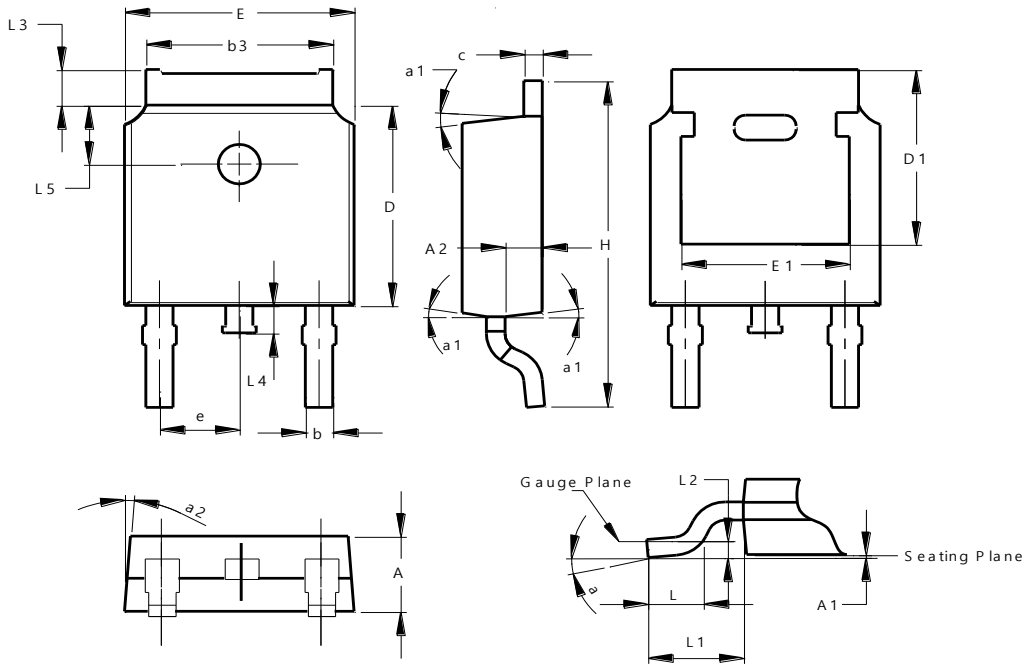


Figure 6. Typical Capacitive Charges

**Package Outline Dimensions**

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

**TO252 (Type WX)**

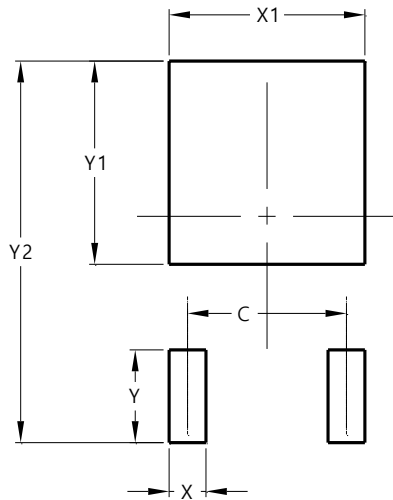


TO252 (Type WX)			
Dim	Min	Max	Typ
<b>A</b>	2.20	2.40	2.30
<b>A1</b>	0.00	0.15	--
<b>A2</b>	0.97	1.17	1.07
<b>b</b>	0.68	0.90	0.78
<b>b3</b>	5.20	5.50	5.33
<b>c</b>	0.43	0.63	0.53
<b>D</b>	5.98	6.22	6.10
<b>D1</b>	5.30 REF		
<b>e</b>	2.286 REF		
<b>E</b>	6.40	6.80	6.60
<b>E1</b>	4.63	5.03	4.83
<b>H</b>	9.40	10.50	10.10
<b>L</b>	1.38	1.75	1.50
<b>L1</b>	2.90 REF		
<b>L2</b>	0.51 BSC		
<b>L3</b>	0.88	1.28	--
<b>L4</b>	--	1.00	--
<b>L5</b>	1.65	1.95	1.80
<b>a</b>	0°	8°	-
<b>a1</b>	5°	9°	7°
<b>a2</b>	5°	9°	7°
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

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

**TO252 (Type WX)**



Dimensions	Value (in mm)
<b>C</b>	4.572
<b>X</b>	1.060
<b>X1</b>	5.632
<b>Y</b>	2.600
<b>Y1</b>	5.700
<b>Y2</b>	10.700

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