

## Product Summary

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ (MAX) (V) @ +25°C	$I_R$ (Typ) (μA) @ +25°C
650	4	1.5	1.6

## Description and Applications

Packaged in the robust industry-standard TO252 (Type WX) package, the DIODES™ DSC04A065D1 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

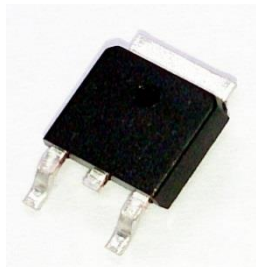
## Features and Benefits

- 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>Ⓔ</sup>
- Weight: 0.310 grams (Approximate)

TO252 (Type WX)

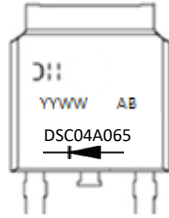


## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DSC04A065D1-13	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  
 DSC04A065 = 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<sub>C</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	650	V
DC Blocking Voltage	V <sub>DC</sub>		
Average Rectified Output Current	I <sub>O</sub>	4	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>	7	°C/W
Typical Thermal Resistance, Junction to Lead (Notes 5, 6, 7)	R <sub>θJL</sub>	5	°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. The unit mounted on copper heatsink (40mm x 40mm x 1.9mm).  
 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:  $dP_D / dT_J < 1/R_{\theta JC}$  or junction to ambient:  $dP_D / dT_J < 1/R_{\theta JA}$ .

## 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> = 0.10mA
Forward Voltage Drop	V <sub>F</sub>	—	1.32 1.66	1.5 2.25	V	I <sub>F</sub> = 4A, T <sub>J</sub> = +25°C I <sub>F</sub> = 4A, T <sub>J</sub> = +175°C
Leakage Current	I <sub>R</sub>	—	1.6 124	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>	—	12	—	nC	I <sub>F</sub> = 4A, dI/dt = 200A/μs, V <sub>R</sub> = 400V, T <sub>J</sub> = +25°C
Total Capacitance	C <sub>T</sub>	—	184 125 37	— — —	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

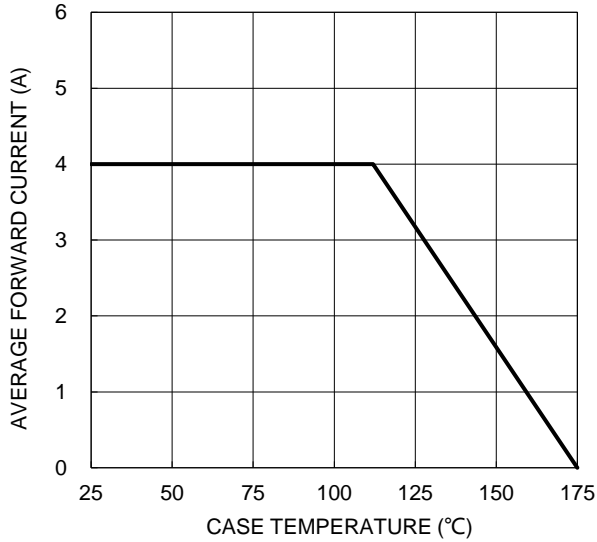


Figure 1. Forward Current Derating Curve

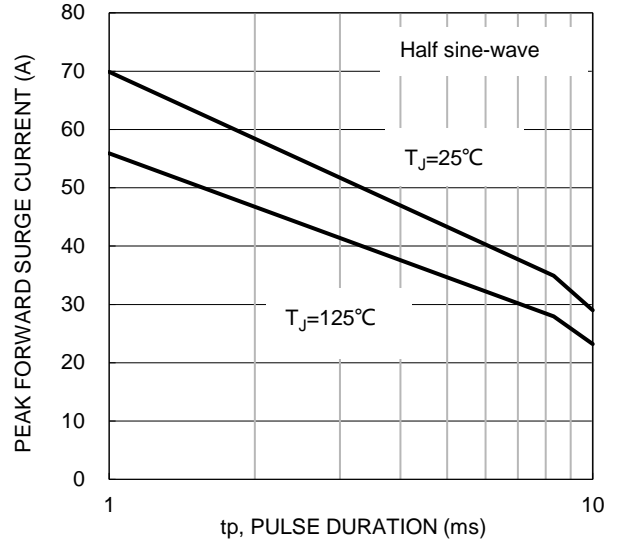


Figure 2. Non-Repetitive Peak Surge Forward Current

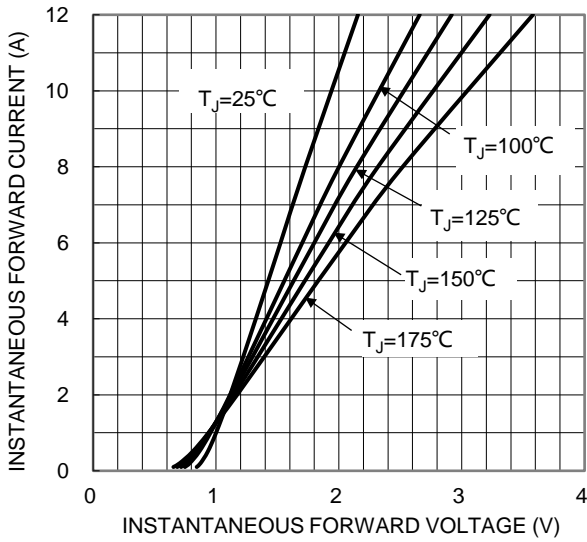


Figure 3. Typical Forward Characteristics

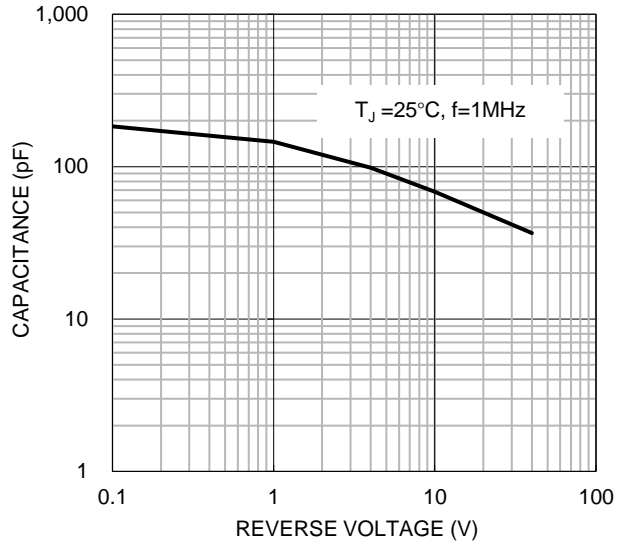


Figure 4. Typical Junction Capacitance

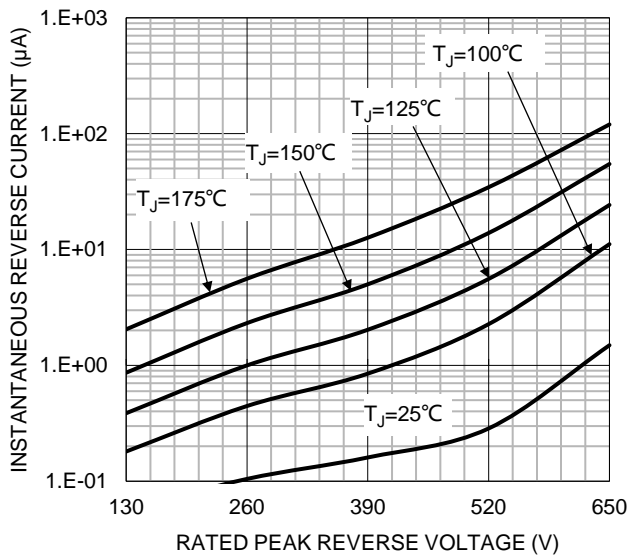


Figure 5. Typical Reverse Characteristics

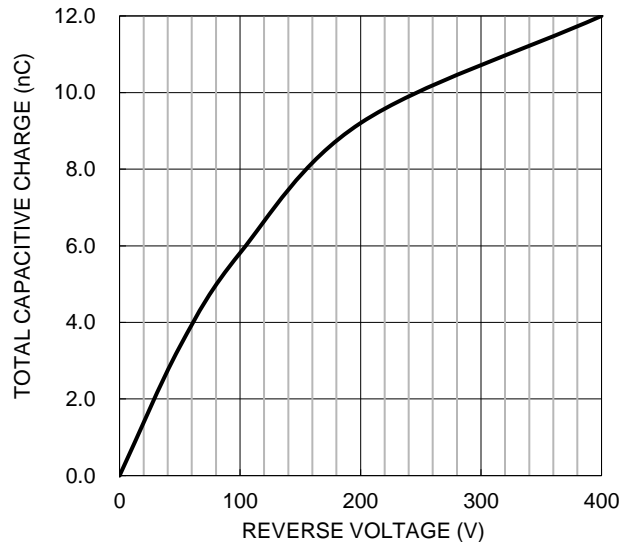
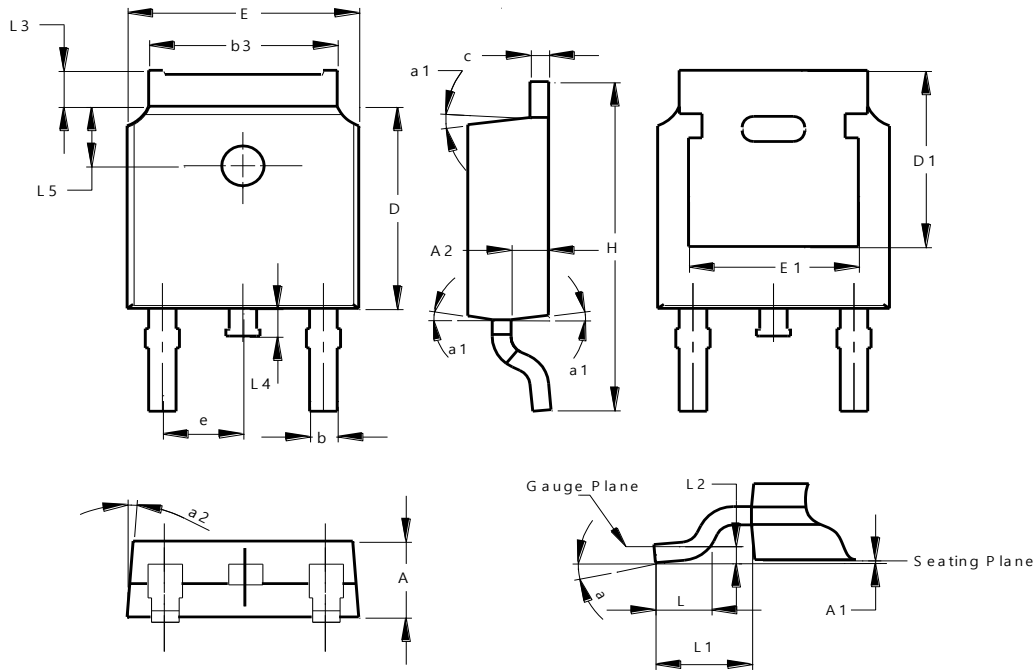


Figure 6. Typical Capacitive Charges

**Package Outline Dimensions**

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

**TO252 (Type WX)**

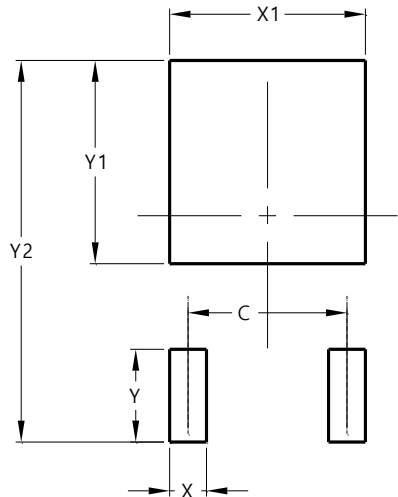


TO252 (Type WX)			
Dim	Min	Max	Typ
A	2.20	2.40	2.30
A1	0.00	0.15	--
A2	0.97	1.17	1.07
b	0.68	0.90	0.78
b3	5.20	5.50	5.33
c	0.43	0.63	0.53
D	5.98	6.22	6.10
D1	5.30 REF		
e	2.286 REF		
E	6.40	6.80	6.60
E1	4.63	5.03	4.83
H	9.40	10.50	10.10
L	1.38	1.75	1.50
L1	2.90 REF		
L2	0.51 BSC		
L3	0.88	1.28	--
L4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

**Suggested Pad Layout**

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

**TO252 (Type WX)**



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

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