Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (Typ)}$ (µA) @ +25°C
650	6	1.5	0.5

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

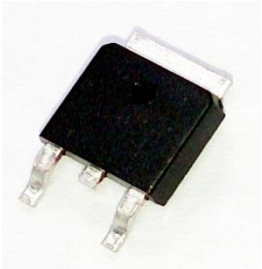
Packaged in the robust industry-standard TO252 (Type WX) package, the DIODES™ DSC06A065D1 provides excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode, or blocking diode in:

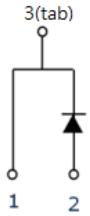
- Power factor correction
- Industrial motor drivers
- Power inverters
- SMPS
- UPS

Mechanical Data

- Package: 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 e3
- Weight: 0.310 grams (Approximate)

TO252 (Type WX)





Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DSC06A065D1-13	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/.

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Marking Information



= Manufacturer's Marking
DSC06A065 = 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°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	6	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)	$R_{\theta JC}$	4	°C/W
Typical Thermal Resistance, Junction to Lead (Notes 5, 6, 7)	$R_{\theta JL}$	2	°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 aluminum fin type heatsink (40mm x 25mm x 13mm).
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 1.69	1.5 2.25	V	I_F = 6A, T_J = +25°C I_F = 6A, T_J = +175°C
Leakage Current	I_R	— —	0.5 107	200 —	µA	V_R = 650V, T_J = +25°C V_R = 650V, T_J = +175°C
Total Capacitive Charge	Q_C	—	16	—	nC	I_F = 6A, dI/dt = 200A/µs, V_R = 400V, T_J = +25°C
Total Capacitance	C_T	— — —	278 222 56	— — —	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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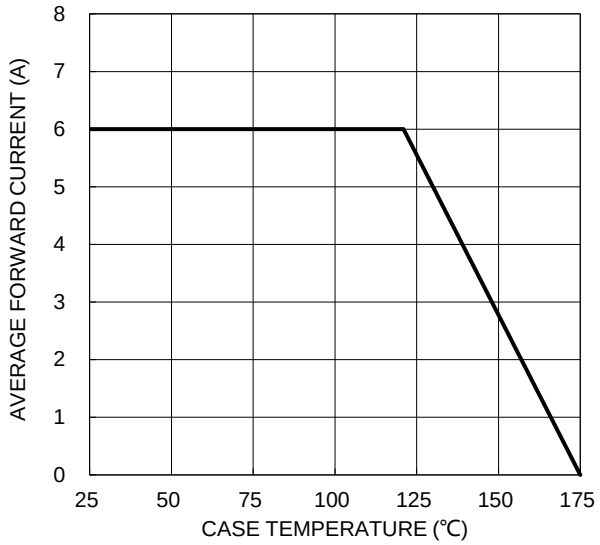


Figure 1. Forward Current Derating Curve

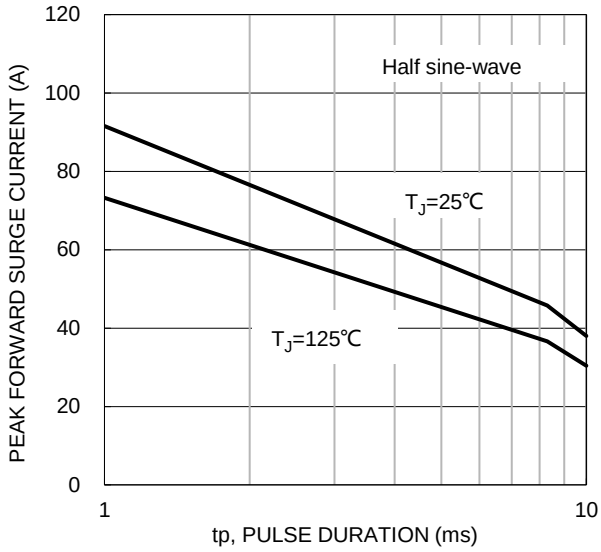


Figure 2. Non-Repetitive Peak Surge Forward Current

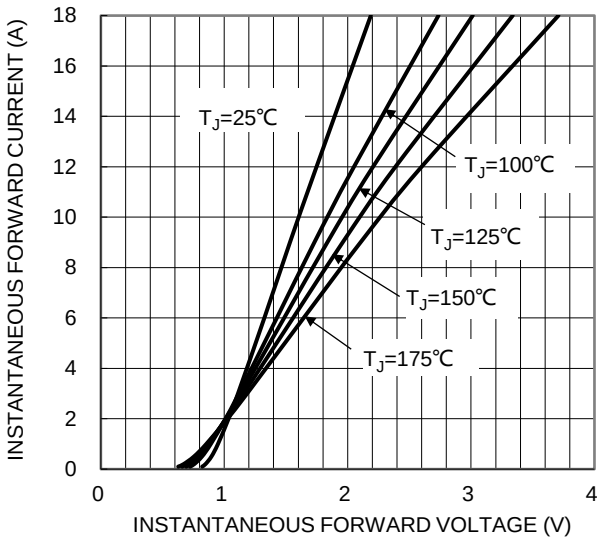


Figure 3. Typical Forward Characteristics

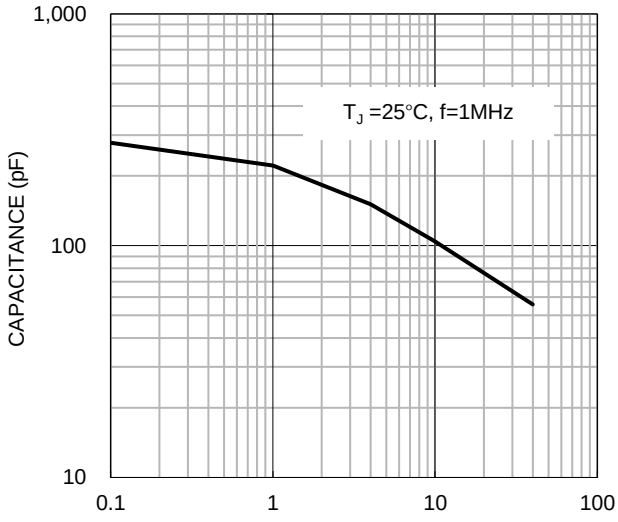


Figure 4. Typical Junction Capacitance

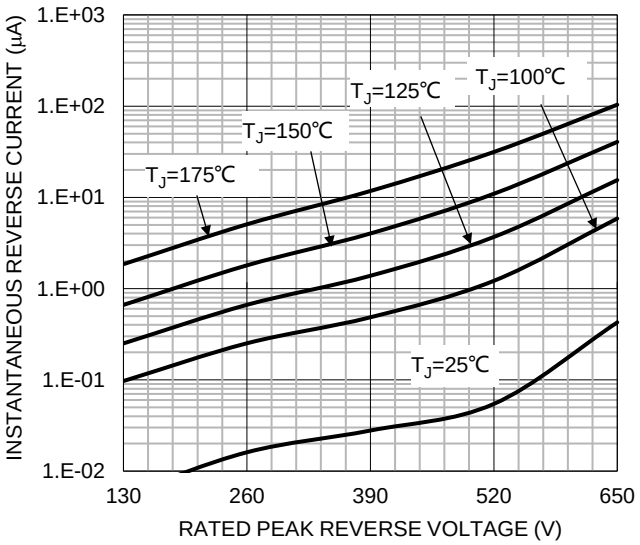


Figure 5. Typical Reverse Characteristics

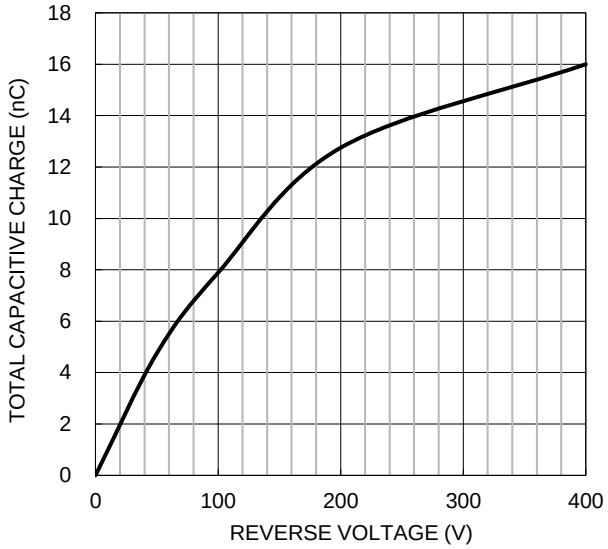


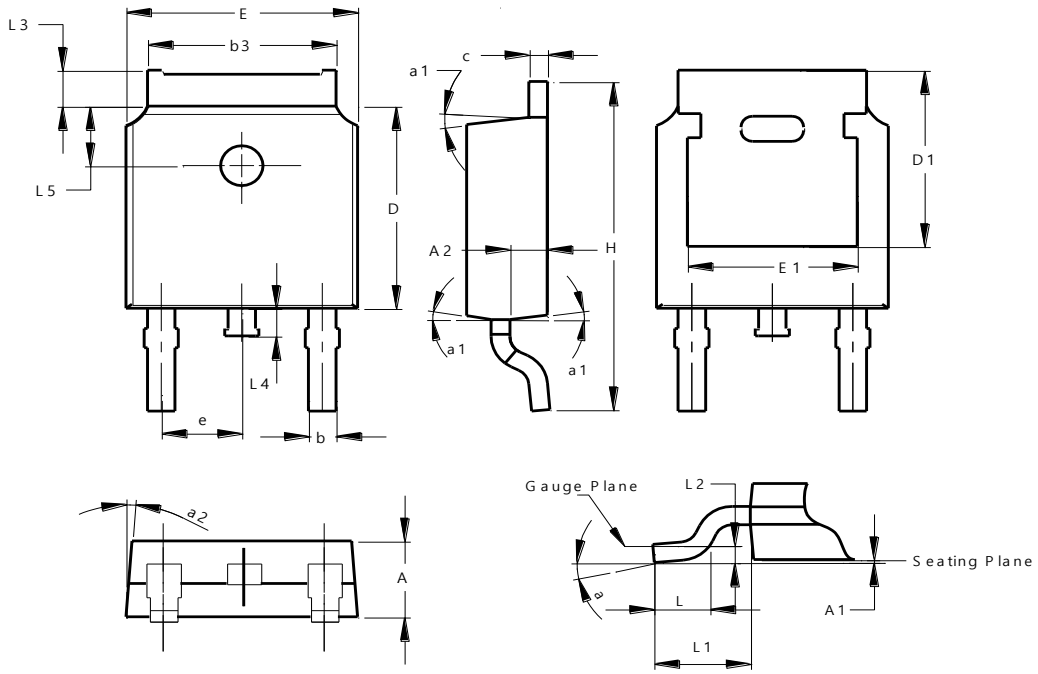
Figure 6. Typical Capacitive Charges

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Package Outline Dimensions

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

TO252 (Type WX)

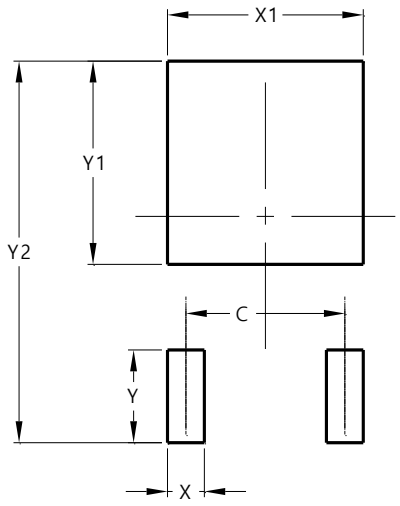


TO252 (Type WX)			
Dim	**Min**	**Max**	**Typ**
A	2.20	2.40	2.30
A1	0.00	0.15	--
A2	0.97	1.17	1.07
b	0.68	0.90	0.78
b3	5.20	5.50	5.33
c	0.43	0.63	0.53
D	5.98	6.22	6.10
D1	5.30 REF		
e	2.286 REF		
E	6.40	6.80	6.60
E1	4.63	5.03	4.83
H	9.40	10.50	10.10
L	1.38	1.75	1.50
L1	2,90 REF		
L2	0.51 BSC		
L3	0.88	1.28	--
L4	--	1.00	--
L5	1.65	1.95	1.80
a	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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