

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _F (V)	I _R (μA)	t _{RR} (ns)
600	8	2.9	30	25

Features and Benefits

- Soft, Hyper-Fast Switching Capability
- Especially Suited for Continuous-Conduction Mode Power Factor Correction
- High Reliability and Efficiency
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DTH8R06D1Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

Description and Applications

Suitable for low-voltage, high-frequency inverters; monitor power, TV power, CCM (continuous-conduction mode) for notebook PC power controller circuits; PFC (power factor correction) circuits for LED street lighting.

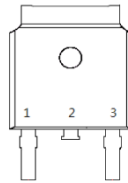
Mechanical Data

- Package: TO252
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 Ⓜ3
- Polarity: See Diagram
- Weight: 0.32 grams (Approximate)

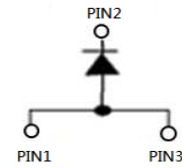
TO252 (Type WX)



Top View



Top View Pinout



Pins 1 & 3 must be electrically connected at the PCB

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DTH8R06D1Q-13	TO252 (Type WX)	2,500 Pieces	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

TO252 (Type WX)



DTH8R06D1 = Product Type Marking Code
 JII = Manufacturer's Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 24 for 2024)
 WW = Week Code (01 to 53)
 AB = Foundry and Assembly Code

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	600	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
Average Rectified Output Current	I _O	8	A
Non-Repetitive Peak Forward Surge Current 10ms Single Half Sine Wave Superimposed on Rated Load	I _{FSM}	90	A
Non-Repetitive Avalanche Energy @L = 15mH	E _{AS}	21.7	mJ
ESD Rating	Human Body Model	HBM	4
	Charged Device Model	CDM	1

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	R _{θJC}	3	°C/W
Typical Thermal Resistance Junction to Lead (Note 5)	R _{θJL}	2	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V _{(BR)R}	600	—	—	V	I _R = 30μA
Forward Voltage (Note 7)	V _F	—	—	2.9 1.8	V	I _F = 8A, T _J = +25°C I _F = 8A, T _J = +125°C
Reverse Leakage Current (Note 6)	I _R	—	—	30 400	μA	V _R = 600V, T _J = +25°C V _R = 600V, T _J = +125°C
Reverse-Recovery Time, T _J = +25°C	t _{RR}	—	—	25 45	ns	I _F = 0.5A, I _R = 1.0A, I _{RR} = 0.25A I _F = 1A, V _R = 30V, di/dt = 50A/μs
Reverse-Recovery Current, T _J = +125°C	I _{RM}	—	5.5	7.2	A	I _F = 8A, di/dt = -200A/μs,
Reverse-Recovery Charges, T _J = +125°C	Q _{RR}	—	200	500	nC	V _R = 400V

Notes: 5. Thermal resistance test is performed in accordance with JESD-51. The unit mounted on fin type heatsink (35.1mm × 24mm × 19.9mm).
6. Short duration pulse test used to minimize self-heating effect.
7. 300μs pulse width, 2% duty cycle.

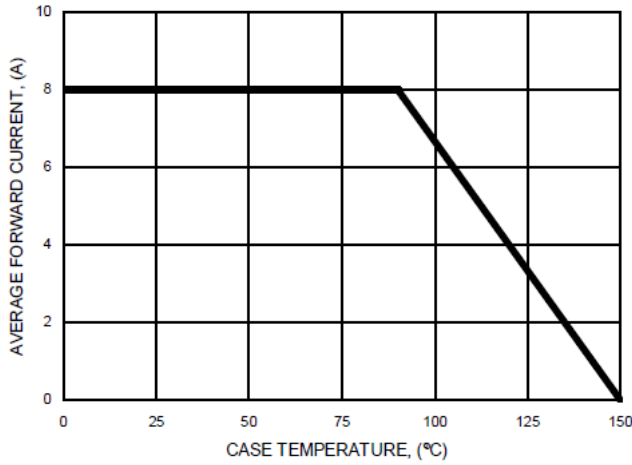


FIG.1- FORWARD CURRENT DERATING CURVE

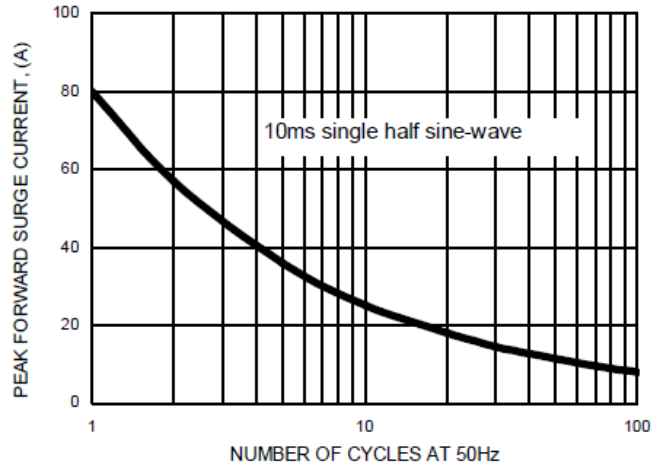


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

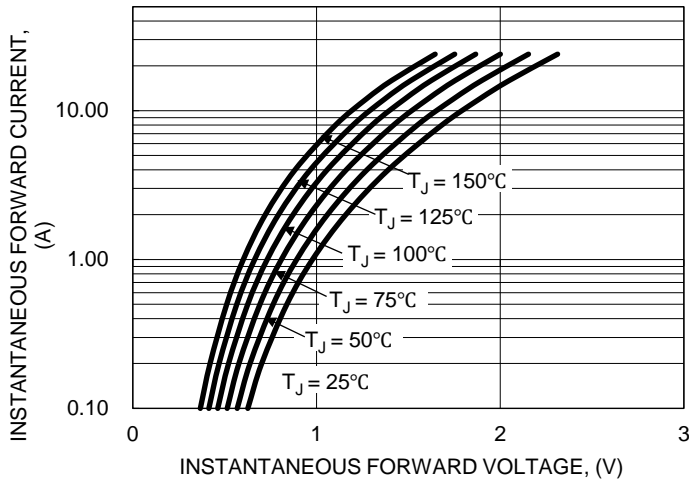


FIG.3- Typical Forward Characteristics

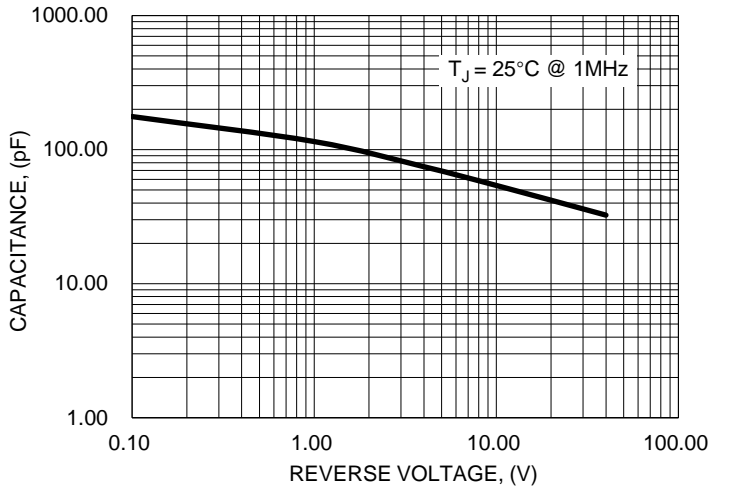


FIG.4- Typical Total Capacitance

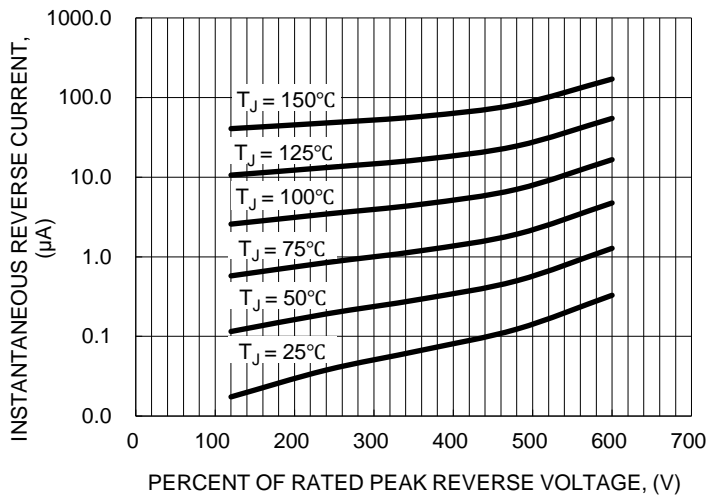
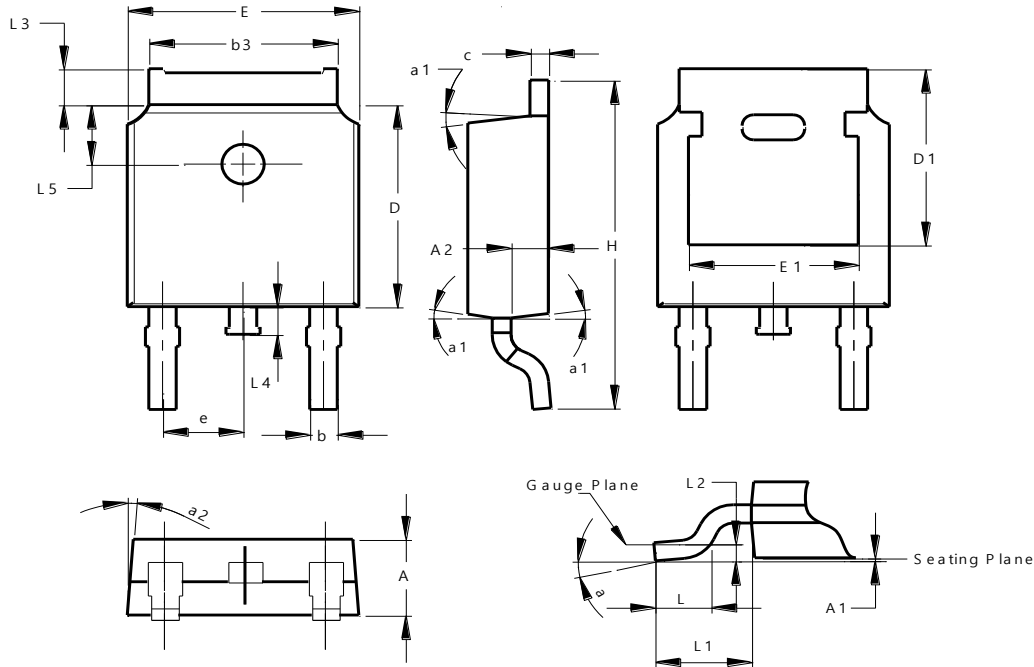


FIG.5- Typical Reverse Characteristics

Package Outline Dimensions

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

TO252 (Type WX)

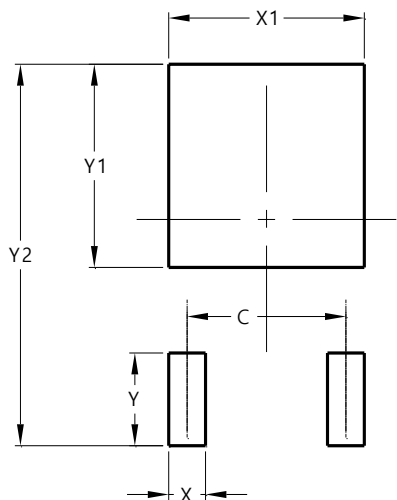


TO252 (Type WX)			
Dim	Min	Max	Typ
A	2.20	2.40	2.30
A1	0.00	0.15	--
A2	0.97	1.17	1.07
b	0.68	0.90	0.78
b3	5.20	5.50	5.33
c	0.43	0.63	0.53
D	5.98	6.22	6.10
D1	5.30 REF		
e	2.286 REF		
E	6.40	6.80	6.60
E1	4.63	5.03	4.83
H	9.40	10.50	10.10
L	1.38	1.75	1.50
L1	2.90 REF		
L2	0.51 BSC		
L3	0.88	1.28	--
L4	--	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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