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DTH8R06D1

8A HYPER-FAST EPITAXIAL RECTIFIER

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
- Specially Suited for Continuous Conduction Mode Power Factor Correction Circuit
- High Reliability and Efficiency
- **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-Q100/101/200, 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

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.

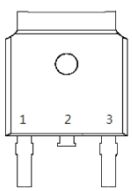
Mechanical Data

- Case: TO252
- Case 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 e3
- Polarity: See Diagram
- Weight: 0.32 grams (Approximate)

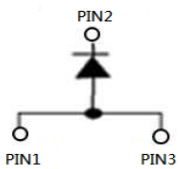


Top View

TO252 (WX)



Top View
Pin-Out



Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
DTH8R06D1-13	Commercial	TO252 (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 (WX)



DTH8R06D1 = Product Type Marking Code
= Manufacturers' Marking
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 21 for 2021)
WW = Week Code (01 to 53)

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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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	600	V
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}	80	A
Non-Repetitive Avalanche Energy @L = 15mH	E_{AS}	21.7	mJ

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	4	°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	— —	— 1.6	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 0.4	μA mA	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}	—	4.7	7.2	A	I_F = 8A, dI_F/dt = -200A/μs,
Reverse Recovery Charges, T_J +125°C	Q_{RR}	—	137	500	nC	V_R = 400V

Notes: 5. The unit mounted on fin type heatsink (50.1mm × 50.2mm × 22mm).
6. Short duration pulse test used to minimize self-heating effect.
7. 300μs pulse width, 2% duty cycle.

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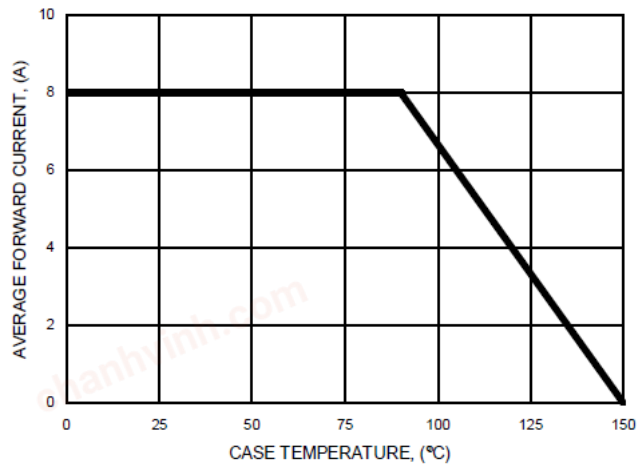


FIG.1- FORWARD CURRENT DERATING CURVE

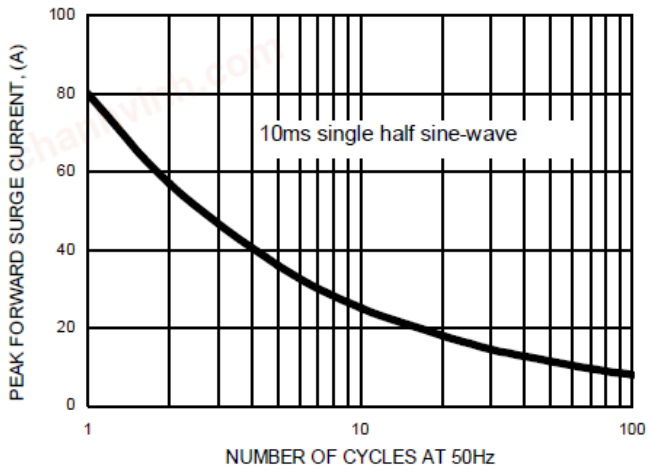


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

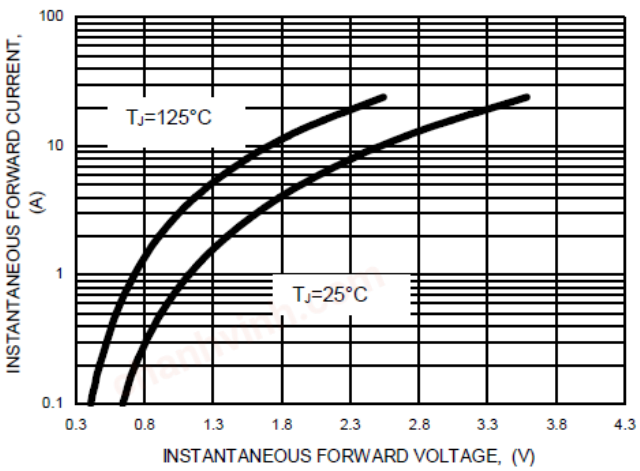


FIG.3- TYPICAL FORWARD CHARACTERISTICS

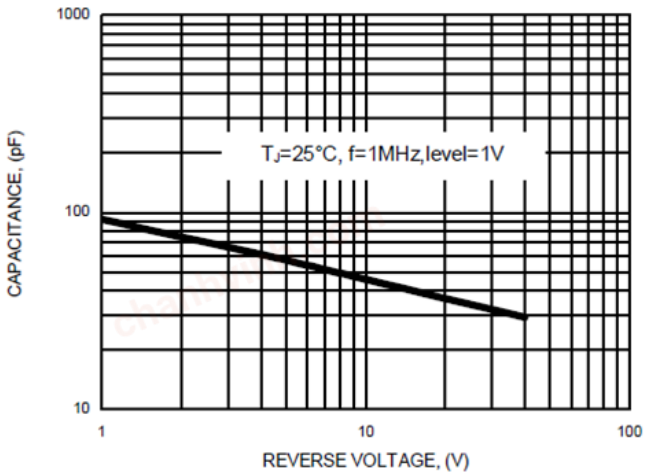


FIG.4- TYPICAL TOTAL CAPACITANCE

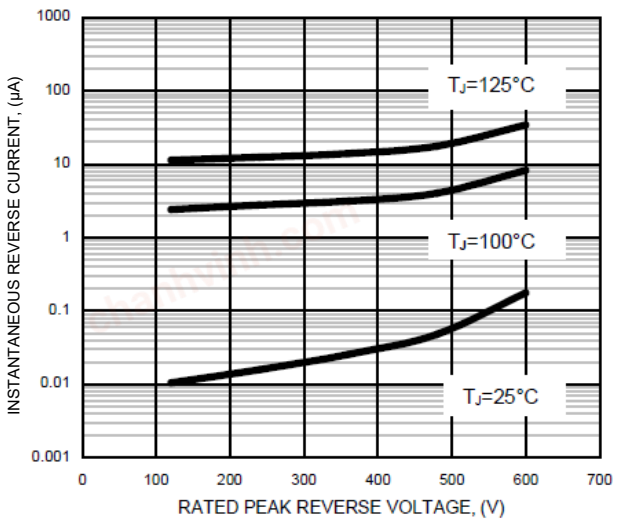


FIG.5- TYPICAL REVERSE CHARACTERISTICS

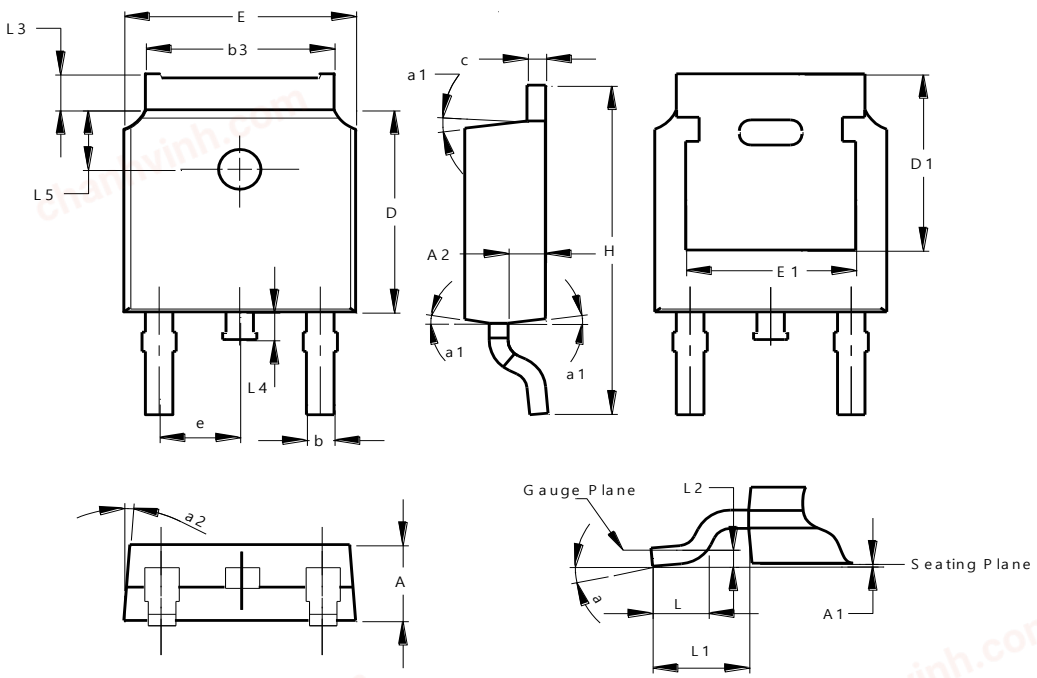
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Package Outline Dimensions

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

TO252 (Type WX)

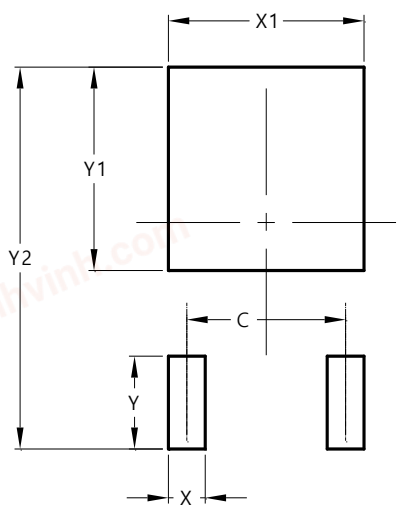


TO252 (Type WX)			
Dim	**Min**	**Max**	**Typ**
A	2.20	2.38	2.30
A1	0.00	0.10	--
A2	0.97	1.17	1.07
b	0.72	0.85	0.78
b3	5.23	5.46	5.33
c	0.43	0.58	0.53
D	6.00	6.20	6.10
D1	5.30 REF		
e	2.286 REF		
E	6.50	6.70	6.60
E1	4.70	4.92	4.83
H	9.90	10.30	10.10
L	1.40	1.70	1.50
L1	2,90 REF		
L2	0.51 BSC		
L3	0.90	1.25	--
L4	0.60	1.00	0.80
L5	1.70	1.90	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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