

Product Summary (@ T_A = +25°C)

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

Features and Benefits

- Soft, Hyper Fast Switching Capability
- Glass Passivated Die Construction
- Especially Suited for Continuous Mode Power Factor Corrections
- 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](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Description and Applications

Suitable for rectification and freewheeling for SMPS, LED lighting, adapters, battery chargers, home appliances, office equipment, and telecommunication applications.

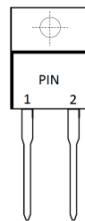
Mechanical Data

- Case: TO220AC
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads Solderable per MIL-STD-202, Method 208 ③
- Polarity: See Diagram
- Weight: 2.24 grams (Approximate)

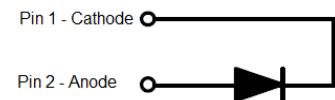


Top View

TO220AC (Type WX)



Top View Pin-Out



Note: the tab is electrically connected to Cathode

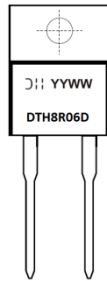
Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
DTH8R06D	Commercial	TO220AC (Type WX)	50 Pieces/Tube

- 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

TO220AC (Type WX)



DTH8R06D = Product Type Marking Code
 D = Manufacturers' Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 20 for 2020)
 WW = Week Code (01 to 53)

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	600	V
Average Rectified Output Current	I_O	8	A
Non-Repetitive Avalanche Energy, $L = 15\text{mH}$	E_{AS}	21.7	mJ
Non-Repetitive Peak Forward Surge Current, $t_p = 1\text{ms}$	I_{FSM}	160	A
Non-Repetitive Peak Forward Surge Current, $t_p = 10\text{ms}$		80	

Thermal Characteristics

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

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage (Note 8)	V_F	—	—	2.9 1.8	V	$I_F = 8\text{A}, T_J = +25^\circ\text{C}$ $I_F = 8\text{A}, T_J = +125^\circ\text{C}$
Reverse Leakage Current (Note 7)	I_R	—	—	30 400	μA	$V_R = 600\text{V}, T_J = +25^\circ\text{C}$ $V_R = 600\text{V}, T_J = +125^\circ\text{C}$
Reverse Recovery Time (Note 9)	t_{RR}	—	—	25 45	ns	$I_F = 0.5\text{A}, I_{RR} = 0.25\text{A}, I_R = 1\text{A}$ $I_F = 1\text{A}, dI_F/dt = -50\text{A}/\mu\text{s}, V_R = 30\text{V}$ $I_F = 1\text{A}, dI_F/dt = -200\text{A}/\mu\text{s}, V_R = 30\text{V}$
Reverse Recovery Current, @ $T_J = +125^\circ\text{C}$ (Note 9)	I_{RM}	—	5.5	7.2	A	$I_F = 8\text{A}, dI_F/dt = -200\text{A}/\mu\text{s}, V_R = 400\text{V}$
Reverse Recovery Charge, @ $T_J = +125^\circ\text{C}$ (Note 9)	Q_{RR}	—	150	—	nC	$I_F = 8\text{A}, dI_F/dt = -200\text{A}/\mu\text{s}, V_R = 400\text{V}$

- Notes:
- Thermal resistance test performed in accordance with JESD-51.
 - The $R_{\theta JL}$ is measured at PIN 2; $R_{\theta JC}$ is measured at the top center of the body.
 - Short duration pulse test used to minimize self-heating effect.
 - 300 μs pulse width, 2% duty cycle.
 - Guaranteed by design.

FIG.1- FORWARD CURRENT DERATING CURVE

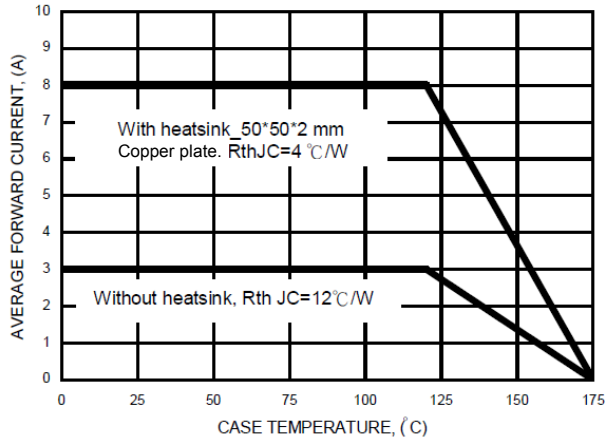


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

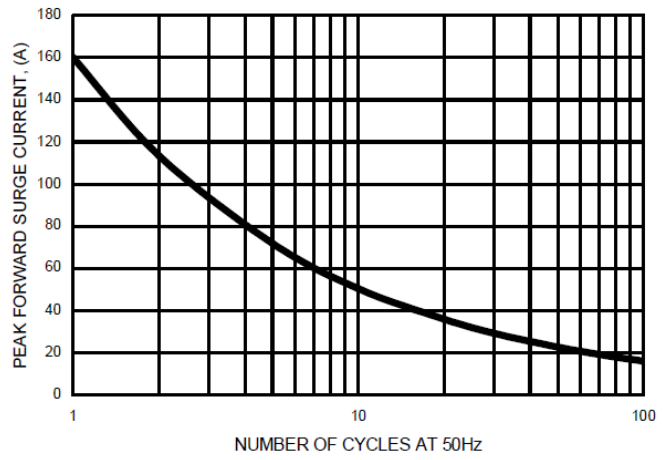


FIG.3- TYPICAL FORWARD CHARACTERISTICS

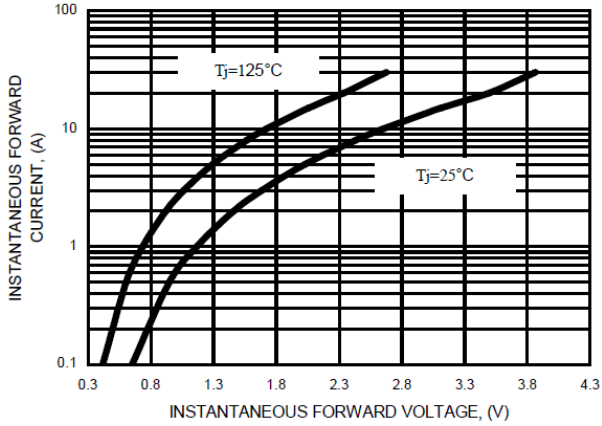


FIG.4 - TYPICAL TOTAL CAPACITANCE

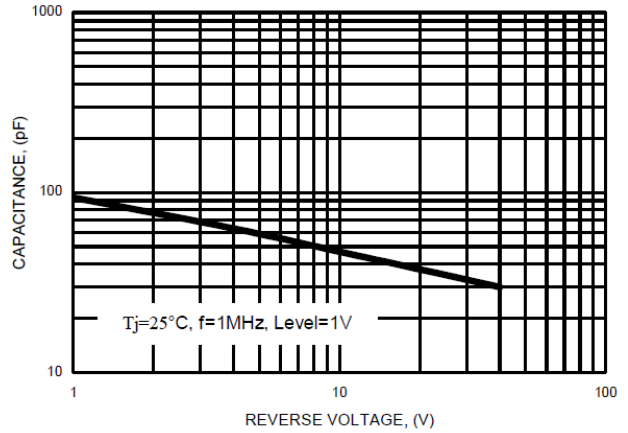
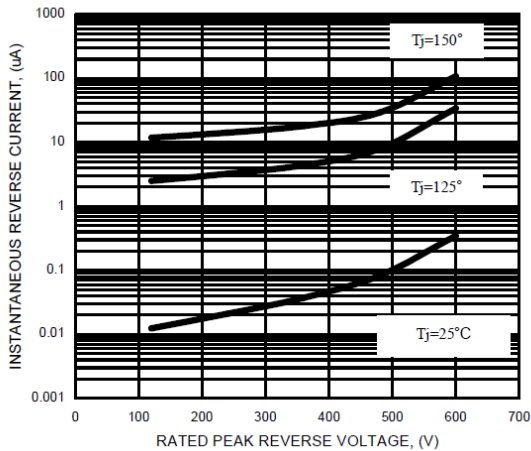


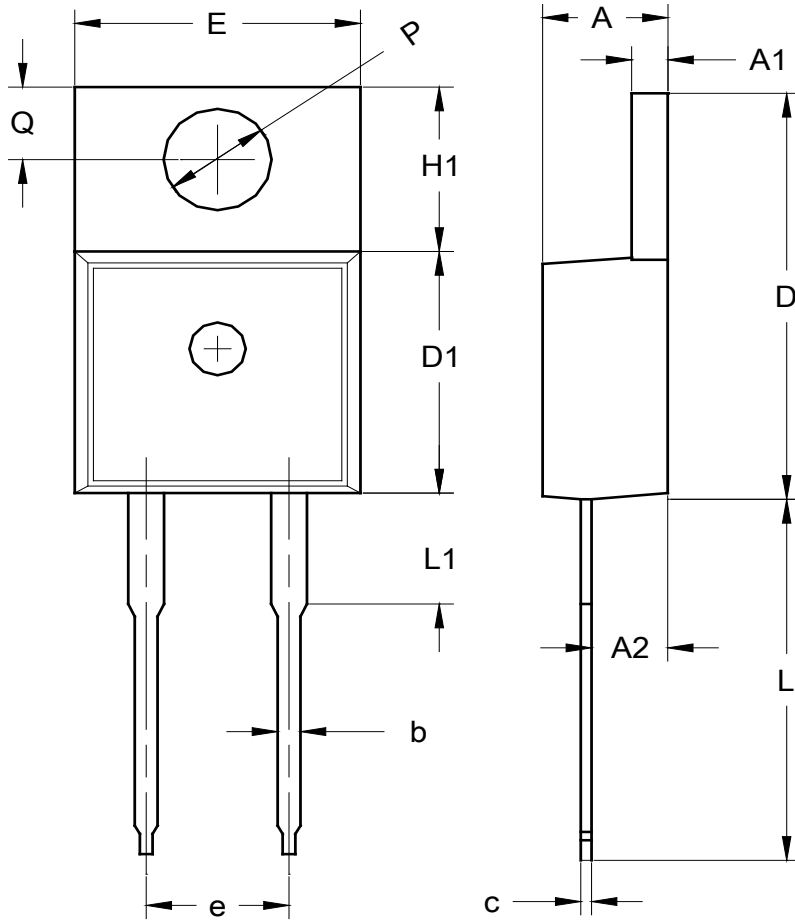
FIG.5- TYPICAL REVERSE CHARACTERISTICS



Package Outline Dimensions

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

TO220AC (Type WX)



TO220AC (Type WX)		
Dim	Min	Typ
A	3.56	4.83
A1	1.14	1.40
A2	2.03	2.92
b	0.51	1.14
c	0.30	0.64
D	14.40	15.20
D1	8.26	9.28
E	9.65	10.67
e	4.83	5.33
H1	5.84	6.86
L	12.70	14.73
L1	--	4.20
P \varnothing	3.53	4.09
Q	2.54	3.43
All Dimensions in mm		

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance.

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