

## Product Summary (@ T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (µA)	t <sub>RR</sub> (ns)
600	8	2.9	30	25

## Features and Benefits

- Soft, Hyper-Fast Switching Capability
- Glass Passivated Die Construction
- 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 DTH8E06DQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

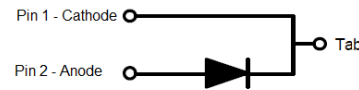
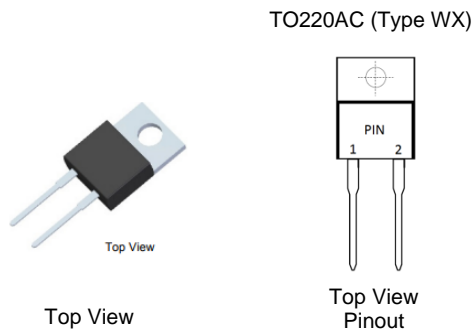
<https://www.diodes.com/quality/product-definitions/>

## Description and Applications

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

## Mechanical Data

- Package: TO220AC
- Package 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 (E3)
- Polarity: See Diagram
- Weight: 2.24 grams (Approximate)



Note: the tab is electrically connected to Cathode

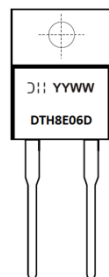
## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DTH8E06DQ	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)



DTH8E06D = Product Type Marking Code  
 DII = Manufacturer's Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 24 for 2024)  
 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
Peak Forward Surge Current, $t_p = 1\text{ms}$ , Single Half Sine Wave	$I_{FSM}$	250	A
Peak Forward Surge Current, $t_p = 10\text{ms}$ , Single Half Sine Wave		125	
ESD Rating	Human Body Model	4	kV
	Charged Device Model	1	

**Thermal Characteristics**

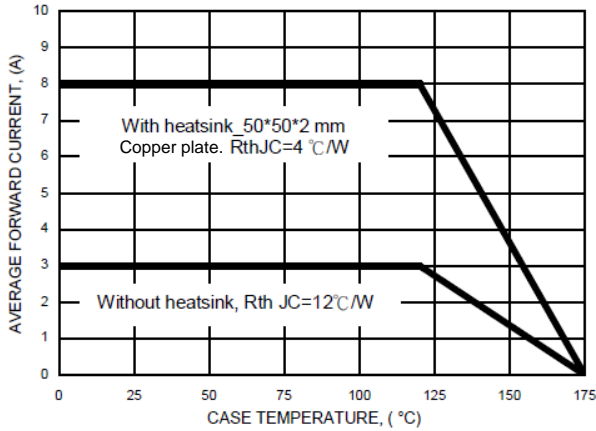
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	16	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Case (Notes 5, 6)	$R_{\theta JC}$	4	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Lead (Notes 5, 6)	$R_{\theta JL}$	6.5	$^\circ\text{C}/\text{W}$
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.)

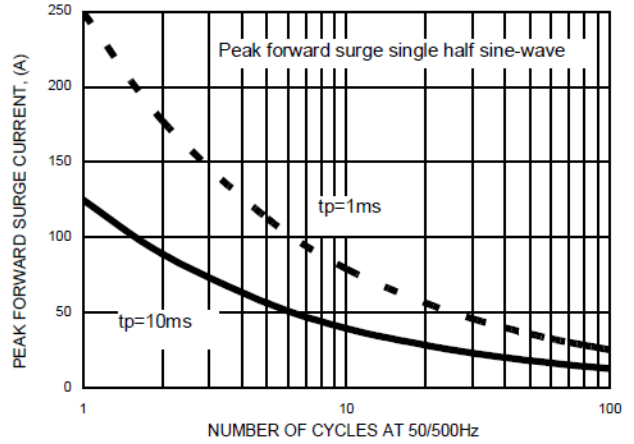
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	600	—	—	V	$I_R = 30\mu\text{A}$
Forward Voltage (Note 8)	$V_F$	—	—	2.9	V	$I_F = 8\text{A}, T_J = +25^\circ\text{C}$ $I_F = 8\text{A}, T_J = +125^\circ\text{C}$
Reverse Leakage Current (Note 7)	$I_R$	—	—	30	$\mu\text{A}$	$V_R = 600\text{V}, T_J = +25^\circ\text{C}$ $V_R = 600\text{V}, T_J = +125^\circ\text{C}$
Reverse-Recovery Time (Note 9)	$t_{RR}$	—	—	25	ns	$I_F = 0.5\text{A}, I_{RR} = 0.25\text{A}, I_R = 1\text{A}$ $I_F = 1\text{A}, dI_F/dt = -50\text{A}/\mu\text{s}, V_R = 30\text{V}$
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 $\mu\text{s}$  pulse width, 2% duty cycle.
  - Guaranteed by design.

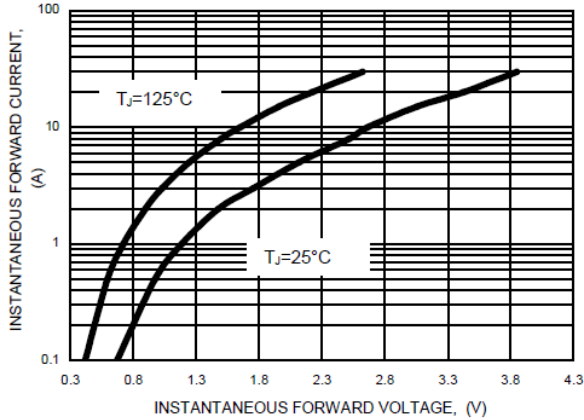
**FIG.1- FORWARD CURRENT DERATING CURVE**



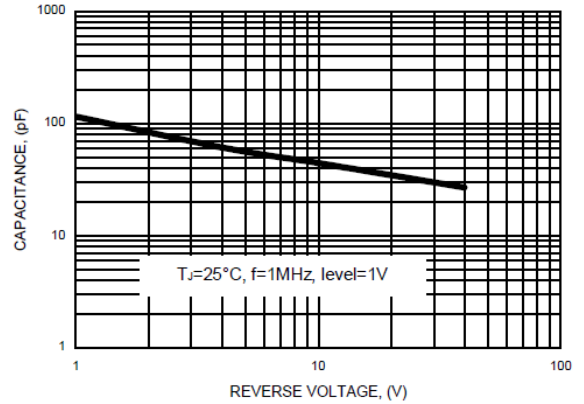
**FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT**



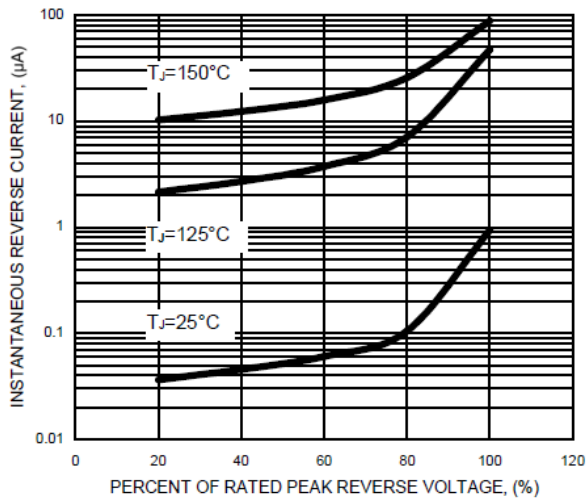
**FIG.3- TYPICAL FORWARD CHARACTERISTICS**



**FIG.4- TYPICAL TOTAL CAPACITANCE**



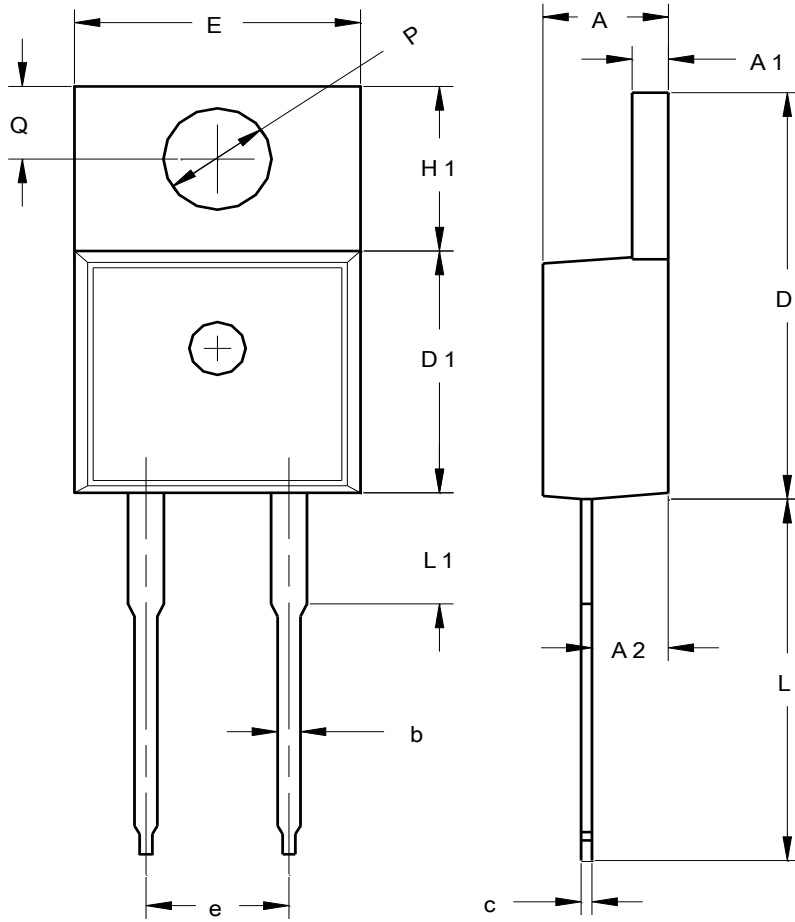
**FIG.5- TYPICAL REVERSE CHARACTERISTICS**



**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		

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