

## 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	12	2.9	45	30

## Features and Benefits

- Soft, Hyper-Fast Switching Capability
- Glass Passivated Die Construction
- Especially Suited for Continuous-Conduction Mode Power Factor Corrections
- High Reliability and Efficiency
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DTH1206DQ is suitable for automotive applications requiring specific change control. The part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

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

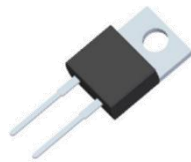
## Description and Applications

Suitable for industrial power supplies, motor controls, and similar mission-critical systems; snubber, bootstrap, and demagnetization applications.

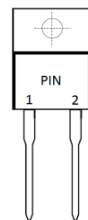
## Mechanical Data

- 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 ③
- Polarity: See Diagram
- Weight: 1.894 grams (Approximate)

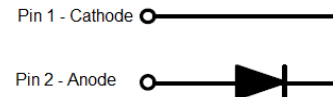
TO220AC (Type WX)



Top View



Top View  
Pin-Out



Note: The tab is electrically connected to the Cathode

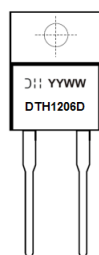
## Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DTH1206DQ	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)



DTH1206D = Product Type Marking Code  
 )!| = Manufacturers' Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 24 for 2024)  
 WW = Week Code (01 to 53)

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>R</sub>	600	V
Average Rectified Output Current	I <sub>O</sub>	12	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I <sub>FSM</sub>	120	A
Non-Repetitive Avalanche Energy @ L = 15mH	E <sub>AS</sub>	21.7	mJ
ESD Rating	Human Body Model	HBM	1
	Charged Device Model	CDM	1

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	4	°C/W
Typical Thermal Resistance Junction to Lead (Note 5)	R <sub>θJL</sub>	6	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V <sub>(BR)R</sub>	600	—	—	V	I <sub>R</sub> = 45μA
Forward Voltage (Note 7)	V <sub>F</sub>	—	2.4	2.9	V	I <sub>F</sub> = 12A, T <sub>J</sub> = +25°C
Reverse Leakage Current (Note 6)	I <sub>R</sub>	—	0.2	45	μA	V <sub>R</sub> = 600V, T <sub>J</sub> = +25°C
		—	30	600	μA	V <sub>R</sub> = 600V, T <sub>J</sub> = +125°C
Reverse-Recovery Time	t <sub>RR</sub>	—	—	30	ns	I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1.0A, I <sub>RR</sub> = 0.25A

Notes: 5. Thermal resistance test performed in accordance with JESD-51. The R<sub>θJL</sub> is measured at pin 2; R<sub>θJC</sub> is measured at the top center of the body.  
6. Short duration pulse test used to minimize self-heating effect.  
7. 300μs pulse width, 2% duty cycle.

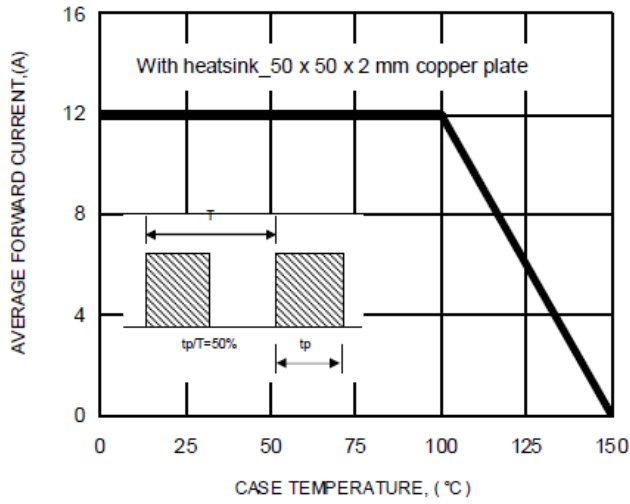


Figure 1. Forward Current Derating Curve

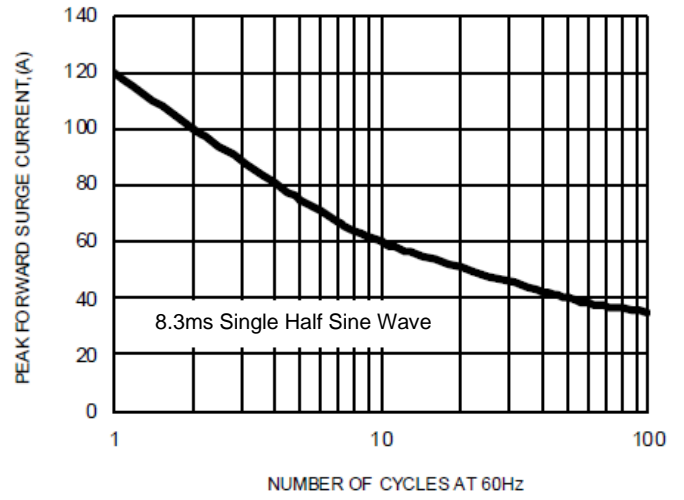


Figure 2. Maximum Non-Repetitive Surge Current

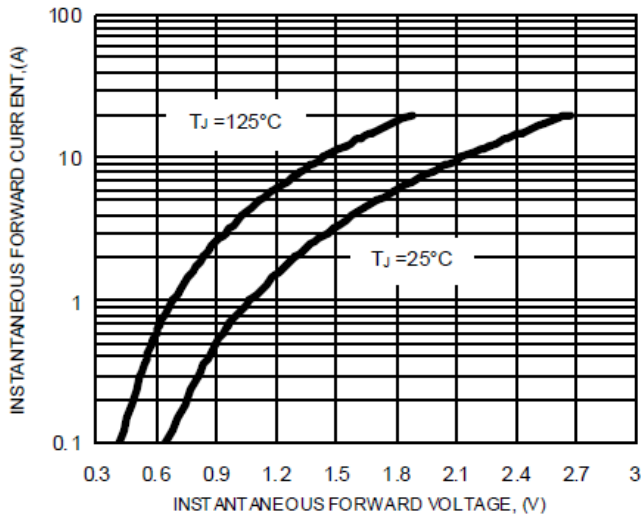


Figure 3. Typical Forward Characteristics

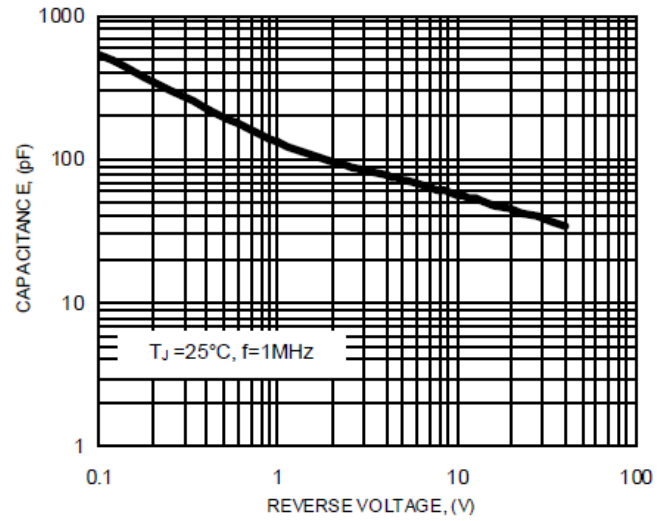


Figure 4. Typical Junction Capacitance

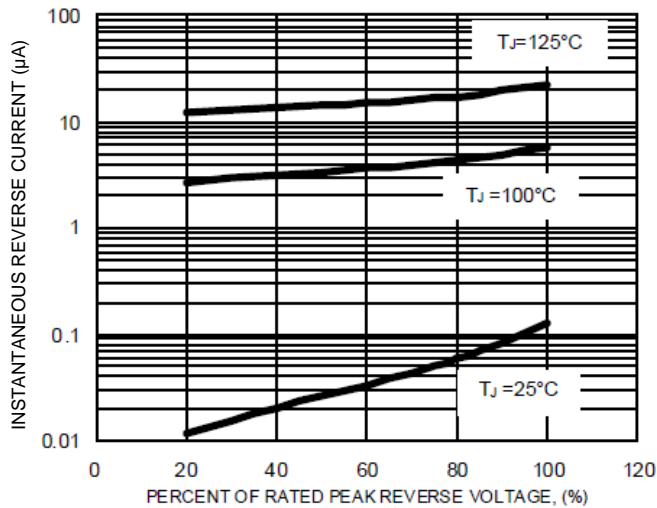
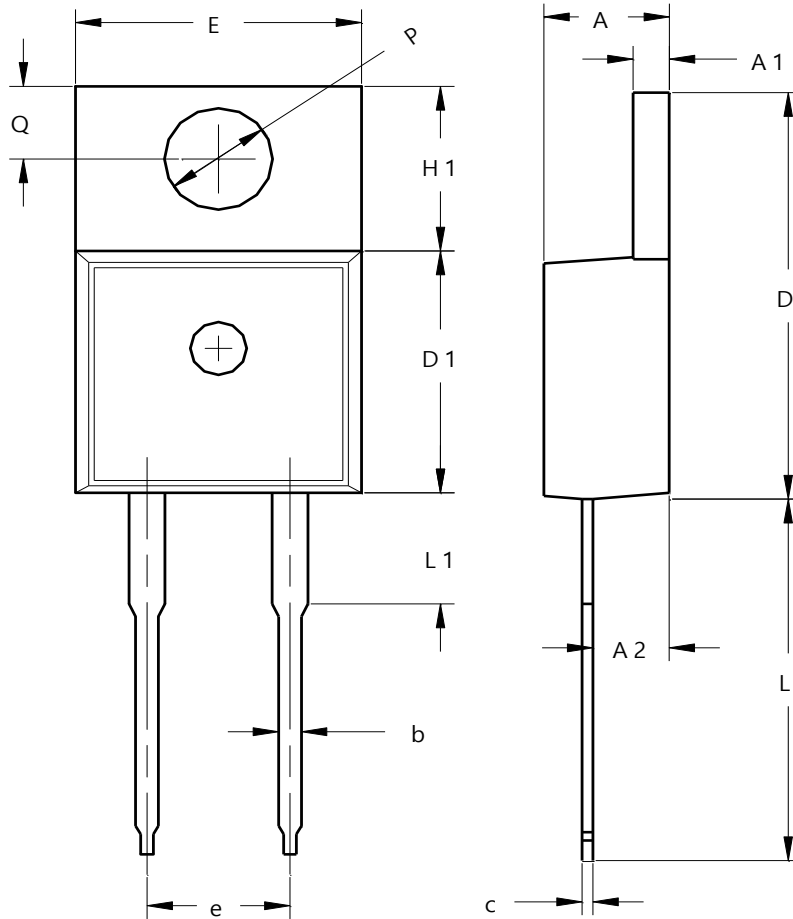


Figure 5. Typical Reverse Characteristic

**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
PØ	3.53	4.09
Q	2.54	3.43
<b>All Dimensions in mm</b>		

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