

**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	15	2.9	45	30

**Features and Benefits**

- Glass Passivated Die Construction
- Soft, Hyper Fast Switching Capability  
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)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, 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**

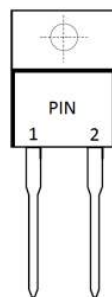
Use in high frequency rectifier of switching mode, power supplies, inverters, freewheeling diodes, DC/DC converters.

**Mechanical Data**

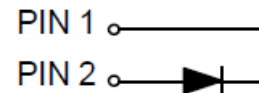
- Package: TO220AC
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish—Matte Tin Annealed over Copper Lead-Frame. Solderable per MIL-STD-202, Method 208 ③
- Polarity: See Diagram
- Weight: 1.894 grams (Approximate)

**TO220AC (Type WX)**


Top View



Top View Pin-Out

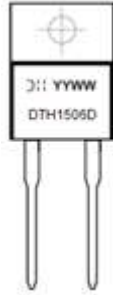

**Ordering Information** (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DTH1506D	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)



DTH1506D = Product Type Marking Code  
 DTH = Manufacturer's Marking Code  
 YYWW = Date Marking Code  
 YY = Last Two Digits of Year (ex: 23 for 2023)  
 WW = Week Code (01 to 53)

## Maximum Ratings (@T<sub>A</sub> = +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 <sub>RRM</sub>	600	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
Average Rectified Output Current @ T <sub>C</sub> = +125°C	I <sub>O</sub>	15	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

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Notes 5, 6)	R <sub>θJC</sub>	2	°C/W
Typical Thermal Resistance Junction to Lead (Notes 5, 6)	R <sub>θJL</sub>	2	°C/W
Operating and Storage Temperature Range (Note 6)	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 7)	V <sub>(BR)R</sub>	600	—	—	V	I <sub>R</sub> = 45μA
Forward Voltage (Note 8)	V <sub>F</sub>	—	2.1	2.9	V	I <sub>F</sub> = 15A, T <sub>J</sub> = +25°C
		—	1.5	—	V	I <sub>F</sub> = 15A, T <sub>J</sub> = +125°C
Reverse Leakage Current (Note 7)	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
Reverse Recovery Current, T <sub>J</sub> = +125°C	I <sub>RM</sub>	—	8	—	A	I <sub>F</sub> = 15A, V <sub>R</sub> = 400V, dI <sub>F</sub> /dt = 200A/μs
Reverse Recovery Current, T <sub>J</sub> = +125°C	Q <sub>RR</sub>	—	400	—	nC	I <sub>F</sub> = 15A, V <sub>R</sub> = 400V, dI <sub>F</sub> /dt = 200A/μs

Notes: 5. Thermal resistance test performed in accordance with JESD-51. R<sub>θJL</sub> is measured at the PIN 2, R<sub>θJC</sub> is measured at the top center of body.  
 6. The heat generated must be less than the thermal conductivity from junction to case: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJC</sub> or junction to ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJA</sub>.  
 7. Short duration pulse test used to minimize self-heating effect.  
 8. 300μs pulse width, 2% duty cycle.

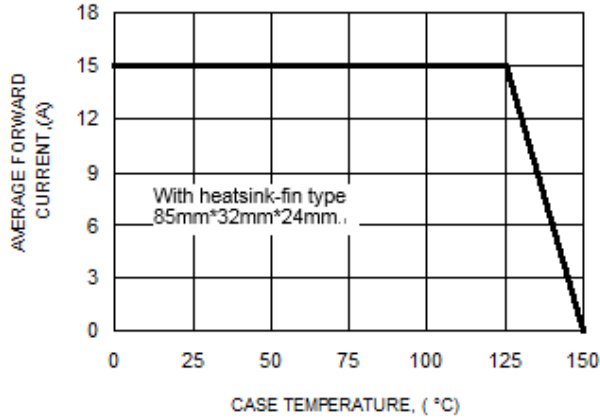


FIG.1- FORWARD CURRENT DERATING CURVE

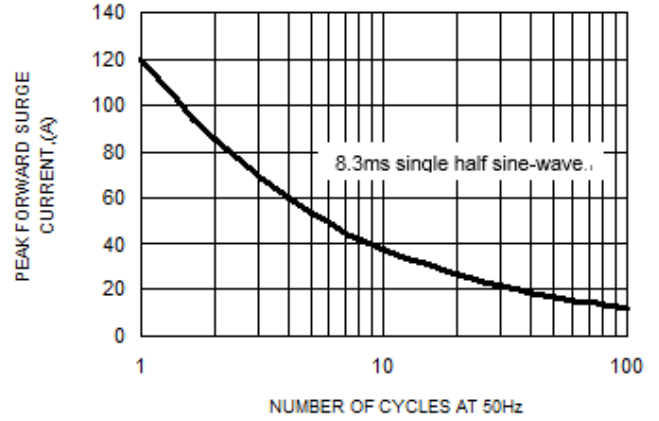


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

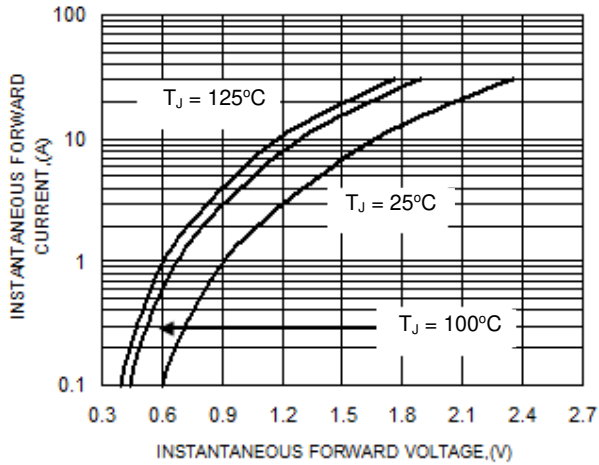


FIG.3- TYPICAL FORWARD CHARACTERISTICS

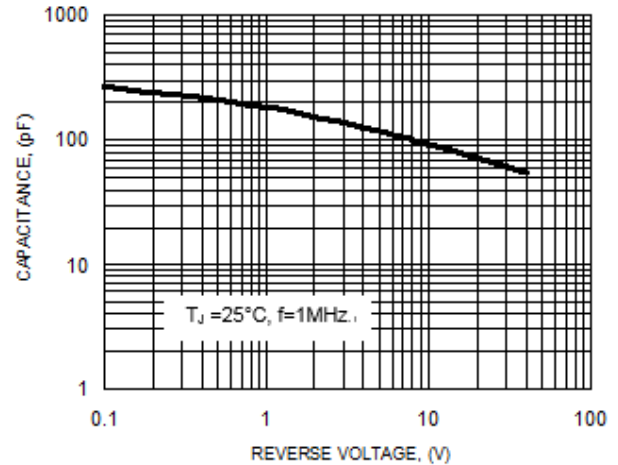


FIG.4- TYPICAL JUNCTION CAPACITANCE

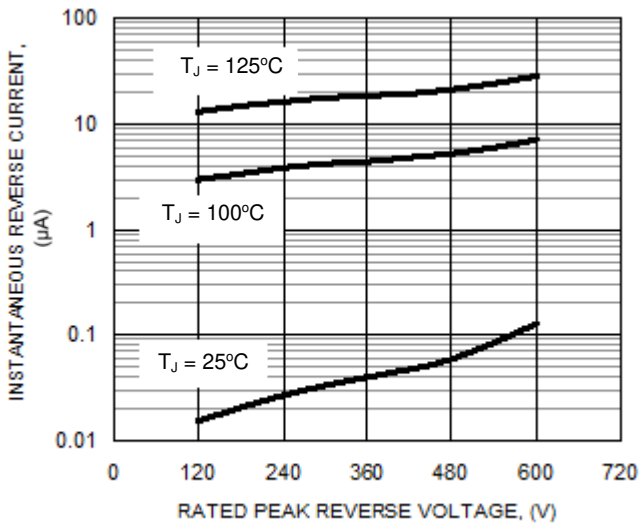
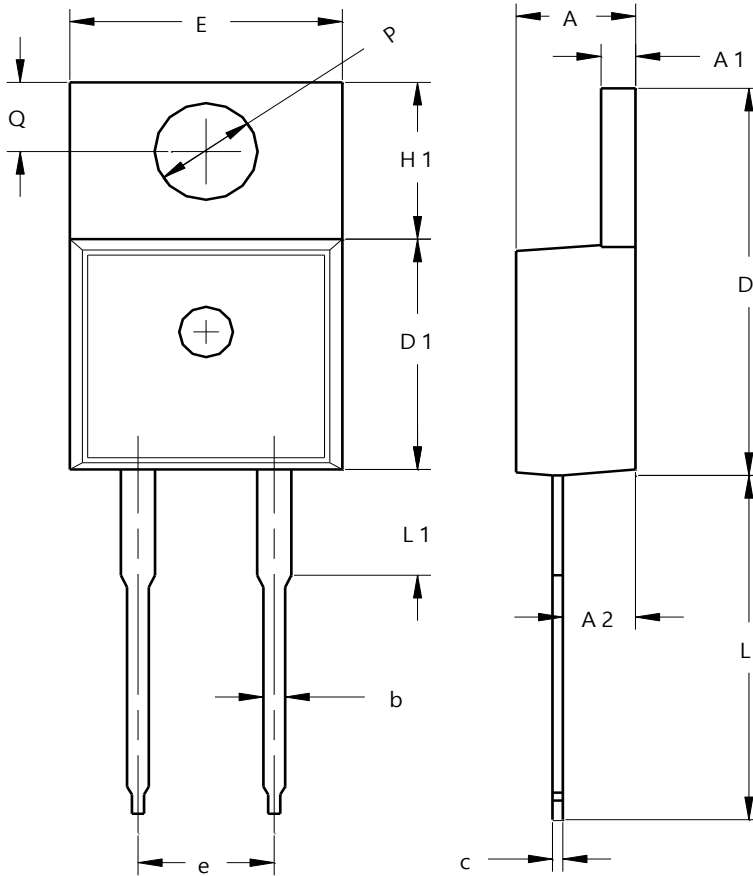


FIG.5- TYPICAL REVERSE CHARACTERISTICS

**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
PØ	3.53	4.09
Q	2.54	3.43
All Dimensions in mm		

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