

**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	30	2.4	100	45

**Description and Applications**

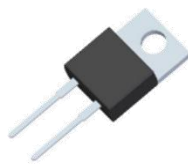
Suitable for switching power supplies and power switching circuit applications.

**Features and Benefits**

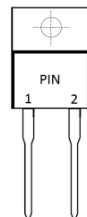
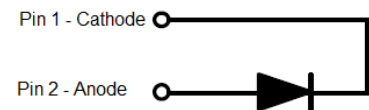
- Soft, Super-Fast Switching Capability
- Glass Passivated Die Construction
- Especially Suited for Continuous Conduction Mode Power Factor Corrections.
- Rating to 600V Peak Reverse Voltage
- High Reliability
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen 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/>**

**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 <sup>③</sup>
- Polarity: See Diagram
- Weight: 1.894 grams (Approximate)



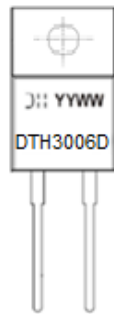
Top View

**TO220AC (Type WX)**

 Top View  
Pin-Out

**Ordering Information** (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
DTH3006D	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)**

DTH3006D = Product Type Marking Code  
 J:: = Manufacturer's Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 22 for 2022)  
 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	V <sub>RRM</sub>	600	V
DC Blocking Voltage	V <sub>R</sub>		
Average Rectified Output Current, @ T <sub>C</sub> = +110°C	I <sub>O</sub>	30	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	350	A
Avalanche Energy, L = 15mH	E <sub>AS</sub>	20	mJ

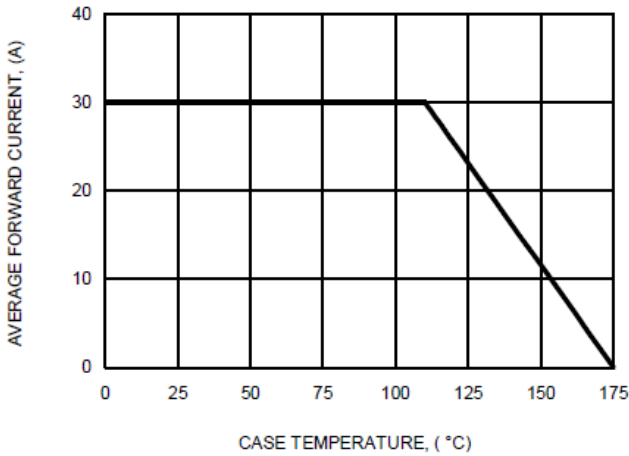
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Notes 5 & 6)	R <sub>θJC</sub>	1	°C/W
Typical Thermal Resistance Junction to Lead (Notes 5 & 6)	R <sub>θJL</sub>	1	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

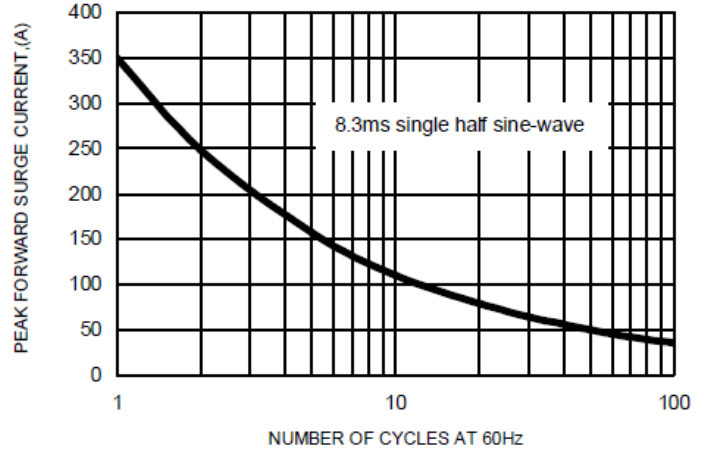
## Electrical Characteristics (@ T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	600	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage (Note 8)	V <sub>F</sub>	—	—	2.4 2.1	V	I <sub>F</sub> = 30A, T <sub>J</sub> = +25°C I <sub>F</sub> = 30A, T <sub>J</sub> = +125°C
Reverse Leakage Current (Note 7)	I <sub>R</sub>	—	—	100 1	μA mA	V <sub>R</sub> = 600V, T <sub>J</sub> = +25°C V <sub>R</sub> = 600V, T <sub>J</sub> = +125°C
Typical Total Capacitance	C <sub>T</sub>	—	160	—	pF	(Note 9)
Reverse Recovery Time, T <sub>J</sub> = +25°C	t <sub>RR</sub>	—	—	45	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>	—	9.1	—	A	V <sub>R</sub> = 400V, I <sub>F</sub> = 30A, dI <sub>F</sub> /dt = 200A/μs
Reverse Recovery Charge, T <sub>J</sub> = +125°C	Q <sub>RR</sub>	—	426.5	—	nC	V <sub>R</sub> = 400V, I <sub>F</sub> = 30A, dI <sub>F</sub> /dt = 200A/μs

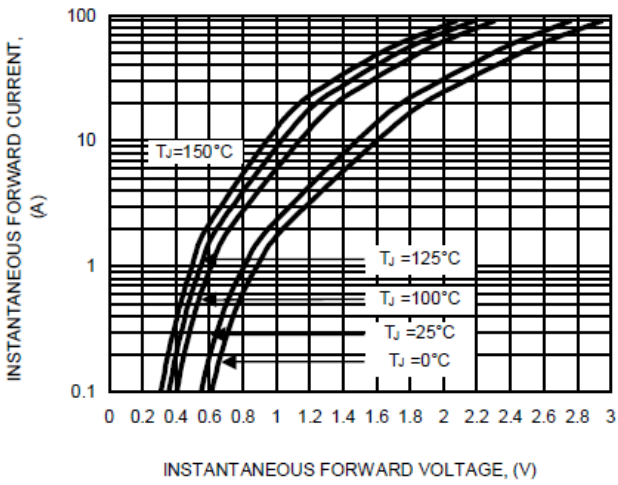
- Notes:
- Thermal resistance test performed in accordance with JESD-51.
  - The unit mounted on Al heatsink (100mm\*100mm\*5mm) + negative pin contact aluminum plate (15mm\*12mm\*1.6mm).
  - Short duration pulse test used to minimize self-heating effect.
  - 300μs pulse width, 2% duty cycle.
  - Measured at 1.0MHz and applied voltage of 4.0V DC.



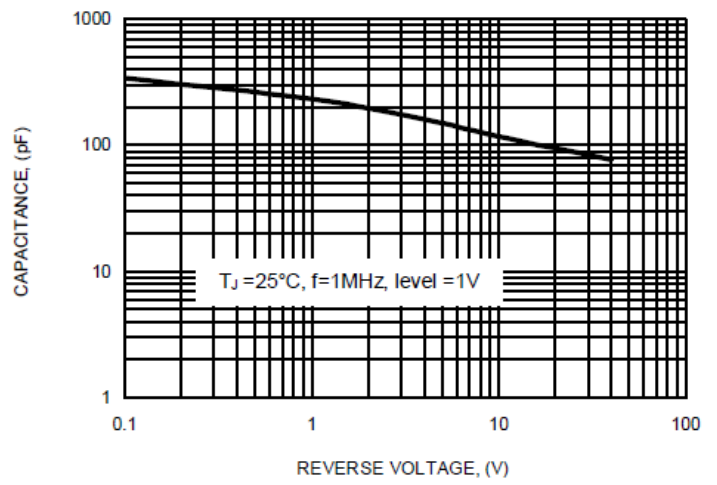
**FIG.1-FORWARD CURRENT DERATING CURVE**



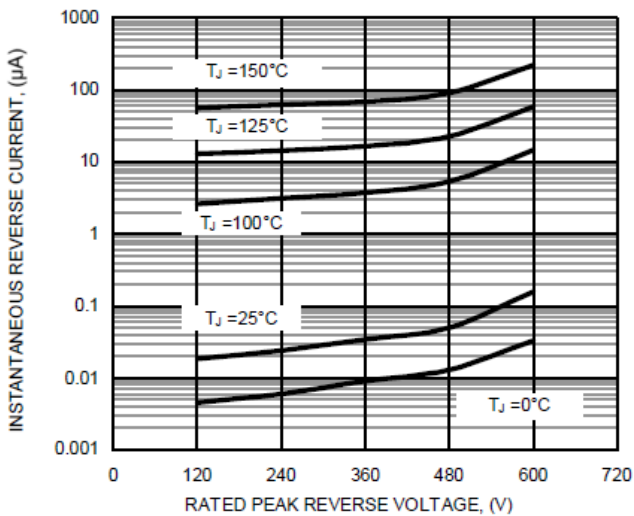
**FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT**



**FIG.3-TYPICAL FORWARD CHARACTERISTICS**



**FIG.4-TYPICAL JUNCTION CAPACITANCE**

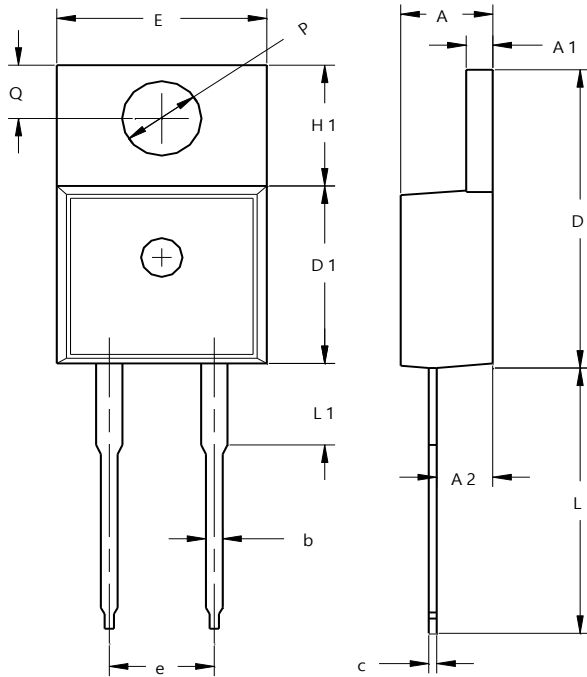


**FIG.5-TYPICAL REVERSE CHARACTERISTICS**

**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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