

**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

**Features and Benefits**

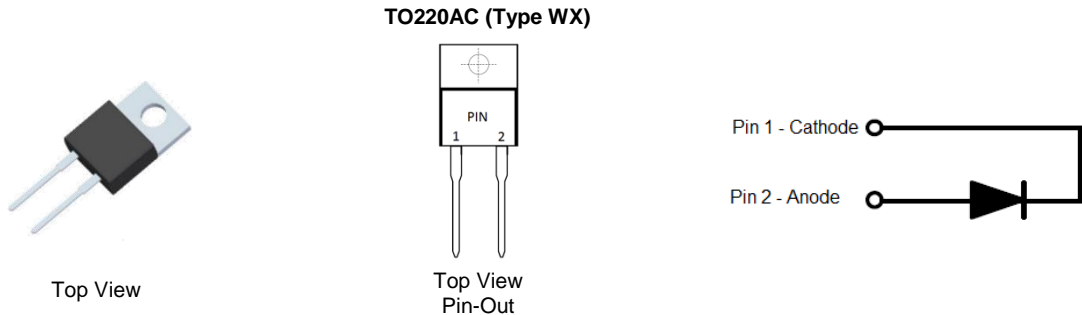
- Soft, Super-Fast Switching Capability
- Glass Passivated Die Construction
- Rating to 600V Peak Reverse Voltage
- High Reliability
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, 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**

Suitable for switching power supplies and power switching circuit applications.

**Mechanical Data**

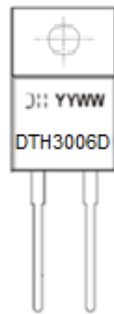
- Case: TO220AC
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads Solderable per MIL-STD-202, Method 208 <sup>(e3)</sup>
- Polarity: See Diagram
- Weight: 1.894 grams (Approximate)


**Ordering Information** (Note 4)

Part Number	Qualification	Case	Packaging
DTH3006D	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)**

DTH3006D = Product Type Marking Code  
 J:: = Manufacturers' Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 21 for 2021)  
 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
DC Blocking Voltage	$V_R$		
Average Rectified Output Current, @ $T_C = +110^\circ\text{C}$	$I_O$	30	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	350	A
Avalanche Energy, $L = 15\text{mH}$	$E_{AS}$	20	mJ

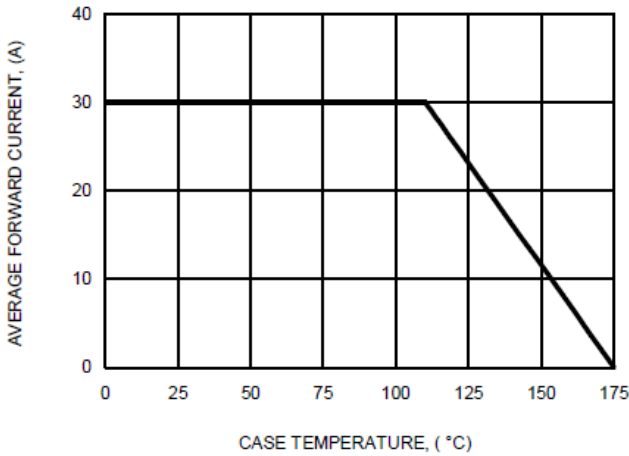
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Notes 5 & 6)	$R_{\theta JC}$	1	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Lead (Notes 5 & 6)	$R_{\theta JL}$	1	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$

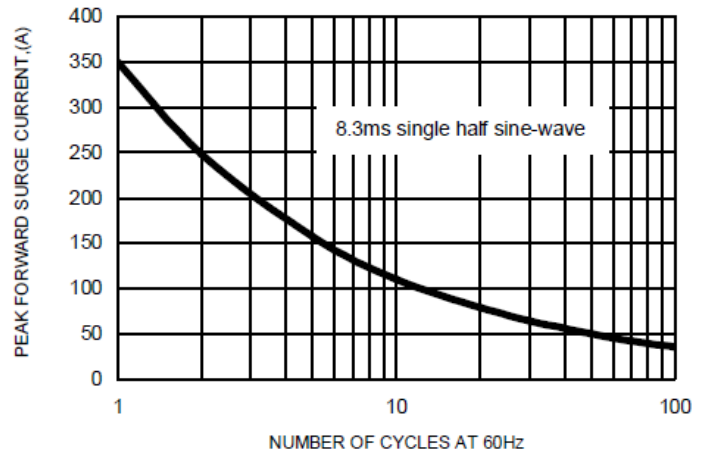
## Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	600	—	—	V	$I_R = 100\mu\text{A}$
Forward Voltage (Note 8)	$V_F$	—	—	2.4 2.1	V	$I_F = 30\text{A}, T_J = +25^\circ\text{C}$ $I_F = 30\text{A}, T_J = +125^\circ\text{C}$
Reverse Leakage Current (Note 7)	$I_R$	—	—	100 1	$\mu\text{A}$ mA	$V_R = 600\text{V}, T_J = +25^\circ\text{C}$ $V_R = 600\text{V}, T_J = +125^\circ\text{C}$
Typical Total Capacitance	$C_T$	—	160	—	pF	(Note 9)
Reverse Recovery Time, $T_J = +25^\circ\text{C}$	$t_{RR}$	—	—	45	ns	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{RR} = 0.25\text{A}$
Reverse Recovery Current, $T_J = +125^\circ\text{C}$	$I_{RM}$	—	9.1	—	A	$V_R = 400\text{V}, I_F = 30\text{A}, dI_F/dt = 200\text{A}/\mu\text{s}$
Reverse Recovery Charge, $T_J = +125^\circ\text{C}$	$Q_{RR}$	—	426.5	—	nC	$V_R = 400\text{V}, I_F = 30\text{A}, dI_F/dt = 200\text{A}/\mu\text{s}$

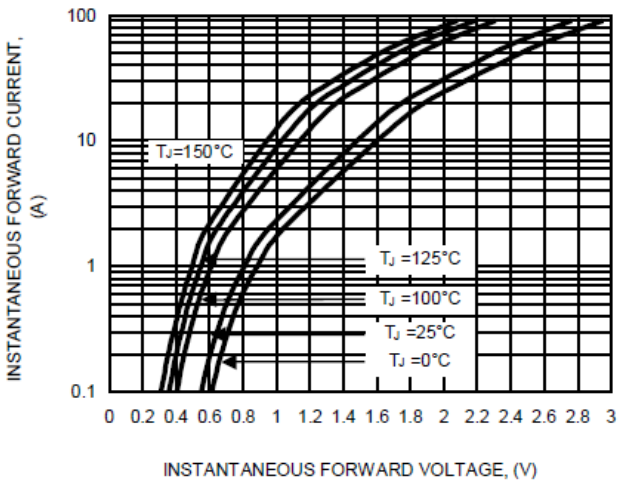
- Notes:
- Thermal resistance test performed in accordance with JESD-51.
  - The unit mounted on Al heatsink (100mm\*100mm\*5mm) + negative pin contact aluminum plate (15mm\*12mm\*1.6mm).
  - Short duration pulse test used to minimize self-heating effect.
  - 300 $\mu\text{s}$  pulse width, 2% duty cycle.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



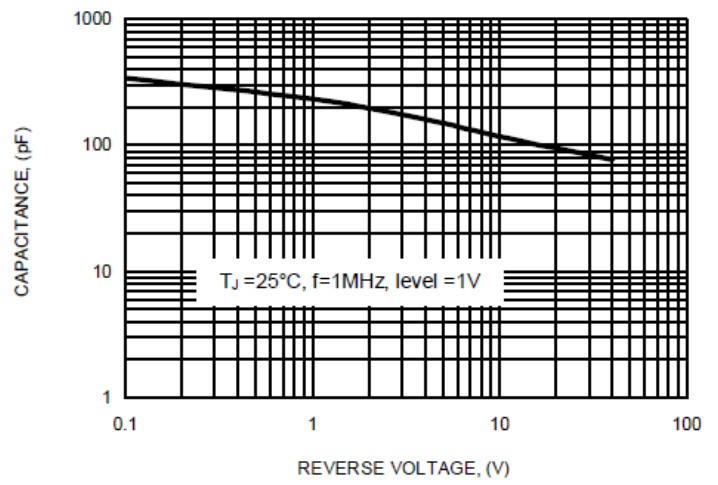
**FIG.1-FORWARD CURRENT DERATING CURVE**



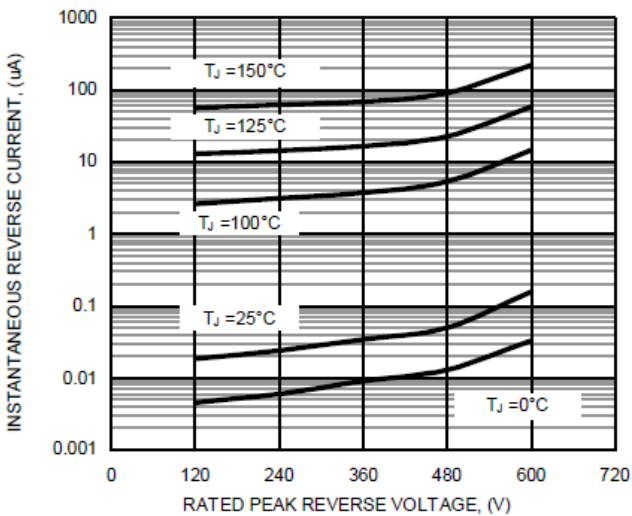
**FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT**



**FIG.3-TYPICAL FORWARD CHARACTERISTICS**



**FIG.4-TYPICAL JUNCTION CAPACITANCE**

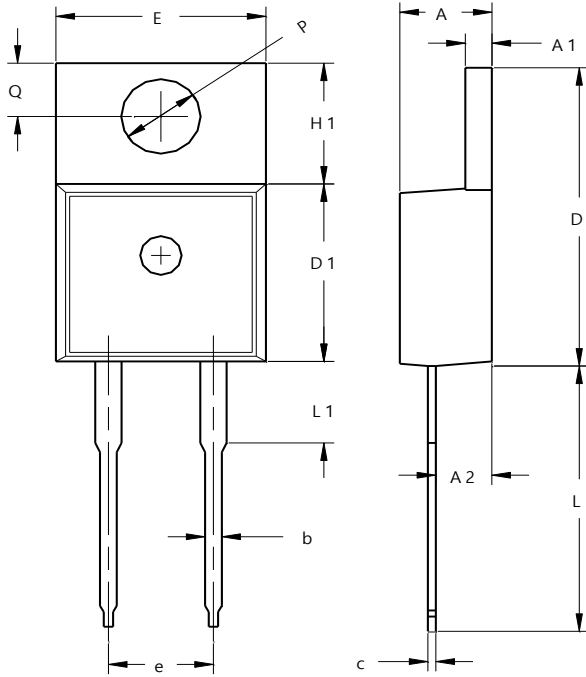


**FIG.5-TYPICAL REVERSE CHARACTERISTICS**

**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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