

Product Summary (@ T_A = +25°C)

V _{RRM} (V)	I _o (A)	V _F (V)	I _R (μA)	t _{RR} (ns)
600	30	2.4	100	45

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)**
- **The DTH3006DQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

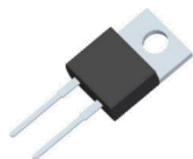
<https://www.diodes.com/quality/product-definitions/>

Description and Applications

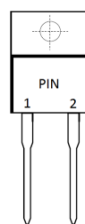
Suitable for switching power supplies and power switching circuit applications.

Mechanical Data

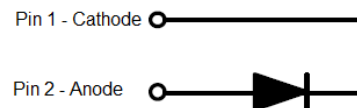
- Package: TO220AC
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208 ⁽³⁾
- Polarity: See Diagram
- Weight: 1.894 grams (Approximate)

TO220AC (Type WX)


Top View



Top View Pin-Out

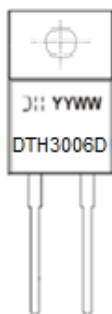

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DTH3006DQ	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
 JYYWW = Manufacturer's Code 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°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage DC Blocking Voltage	V _{RRM} V _R	600	V
Average Rectified Output Current, @ T _C = +110°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 = 15mH	E _{AS}	20	mJ
ESD Rating	Human Body Model	HBM	4
	Charged-Device Model	CDM	1

Thermal Characteristics

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

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V _{(BR)R}	600	—	—	V	I _R = 100μA
Forward Voltage (Note 8)	V _F	—	—	2.4 2.1	V	I _F = 30A, T _J = +25°C I _F = 30A, T _J = +125°C
Reverse Leakage Current (Note 7)	I _R	—	—	100 1	μA mA	V _R = 600V, T _J = +25°C V _R = 600V, T _J = +125°C
Typical Total Capacitance	C _T	—	160	—	pF	(Note 9)
Reverse Recovery Time, T _J = +25°C	t _{RR}	—	—	45	ns	I _F = 0.5A, I _R = 1.0A, I _{RR} = 0.25A
Reverse Recovery Current, T _J = +125°C	I _{RM}	—	9.1	—	A	V _R = 400V, I _F = 30A, dI _F /dt = 200A/μs
Reverse Recovery Charge, T _J = +125°C	Q _{RR}	—	426.5	—	nC	V _R = 400V, I _F = 30A, dI _F /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.

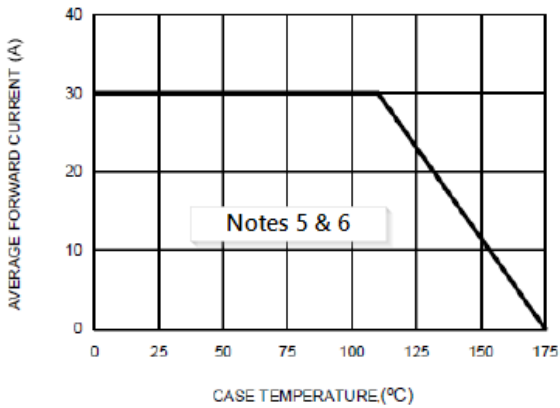


FIG.1-FORWARD CURRENT DERATING CURVE

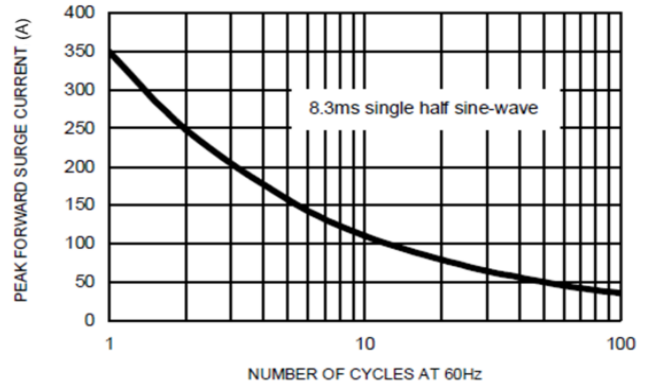


FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT

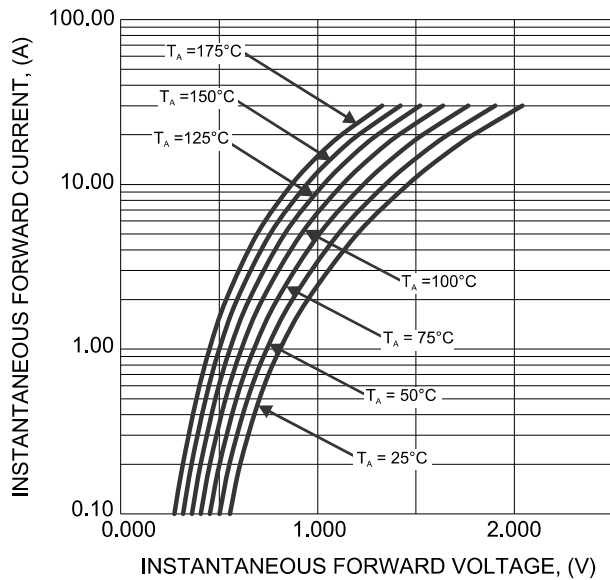


FIG.3-TYPICAL FORWARD CHARACTERISTICS

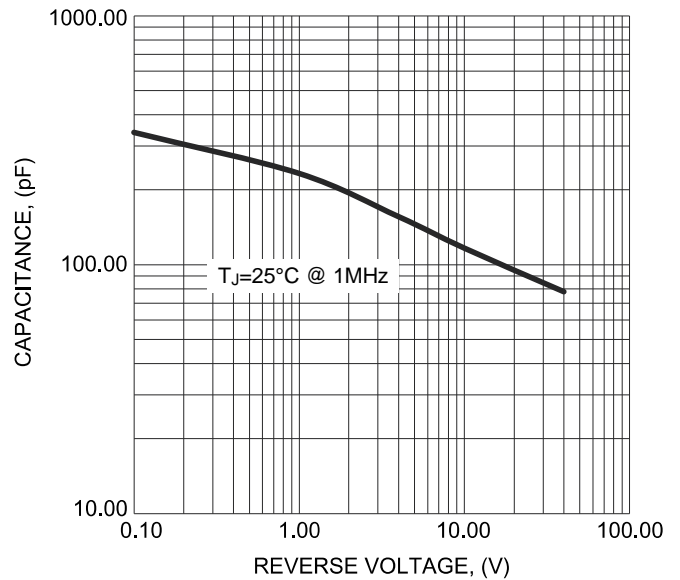


FIG.4-TYPICAL JUNCTION CAPACITANCE

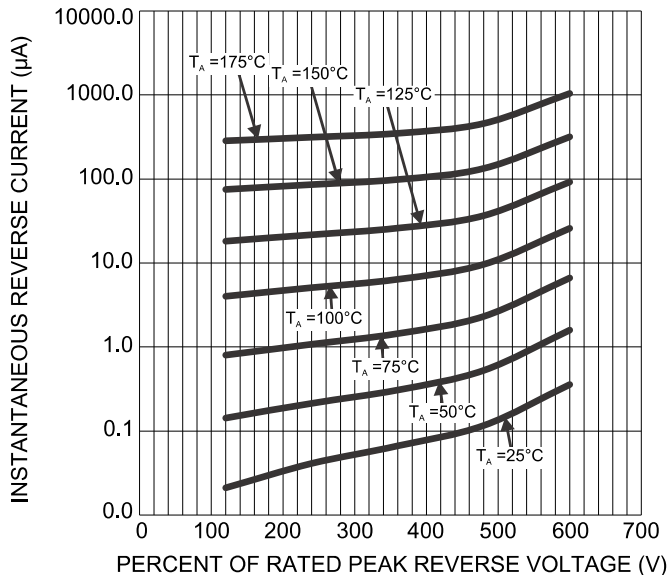
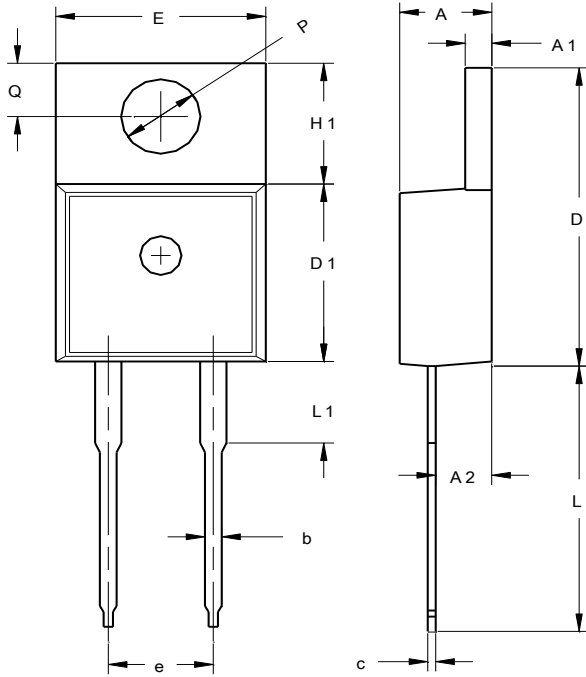


FIG.5-TYPICAL REVERSE CHARACTERISTICS

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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