

Product Summary (@ T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _F (V)	I _R (μA)	t _{RR} (ns)
1000	8	2.0	5	85

Description and Applications

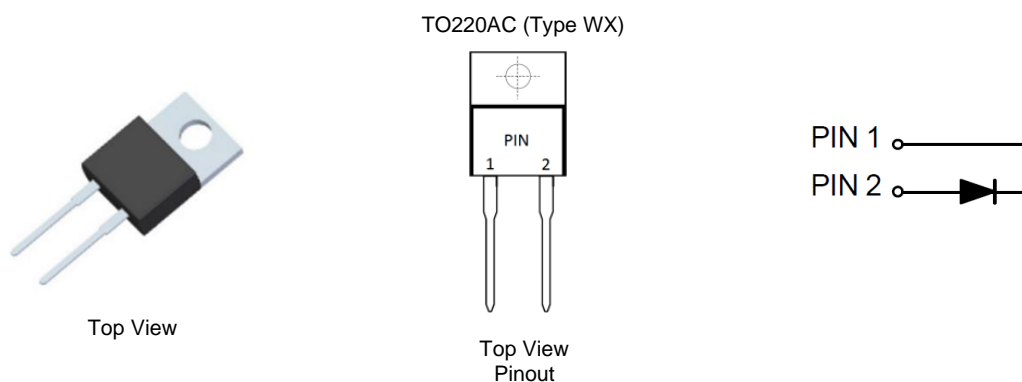
Suitable for rectification and freewheeling for SMPS, LED lighting, adapters, battery chargers, home appliances, office equipment, and telecommunication applications.

Features and Benefits

- Soft, Hyper-Fast Switching Capability
- Glass Passivated Die Construction
- Specially Suited for Critical Mode Power Factor Correction
- High Reliability and Efficiency
- Low-Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An automotive-compliant part is available under separate datasheet ([DTH810DQ](#))**

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
- Polarity: See Diagram
- Weight: 2.24 grams (Approximate)



Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DTH810D	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



DTH810D = Product Type Marking Code
 = Manufacturers' Code Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 25 for 2025)
 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 DC Blocking Voltage	V_{RRM} V_R	1000	V
Average Rectified Output Current @ $T_C = +120^\circ\text{C}$	I_O	8	A
Non-Repetitive Peak Forward Surge Current 10ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	80	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5 & 6)	$R_{\theta JC}$	2	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Lead (Note 5 & 6)	$R_{\theta JL}$	3	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	1000	—	—	V	$I_R = 5\mu\text{A}$
Forward Voltage (Note 7 & 8)	V_F	—	— 1.32	2.0 1.8	V	$I_F = 8\text{A}, T_J = +25^\circ\text{C}$ $I_F = 8\text{A}, T_J = +125^\circ\text{C}$
Reverse Leakage Current (Note 6)	I_R	—	— 20	5 —	μA	$V_R = 1000\text{V}, T_J = +25^\circ\text{C}$ $V_R = 1000\text{V}, T_J = +125^\circ\text{C}$
Reverse-Recovery Time	t_{RR}	—	65 48	85 65	ns	$V_R=30\text{V}, I_F=1\text{A}, dI_F/dt=-50\text{A}/\mu\text{s}$ $V_R=30\text{V}, I_F=1\text{A}, dI_F/dt=-100\text{A}/\mu\text{s}$
Reverse-Recovery Current	I_{RM}	—	13	—	A	$V_R=400\text{V}, I_F=8\text{A}, dI_F/dt=-200\text{A}/\mu\text{s}$
Total Capacitance	C_J	—	40	—	pF	$V_R = 4V_{DC}, f = 1\text{MHz}$

- Notes:
5. Thermal resistance test performed in accordance with JESD-51.
 6. The $R_{\theta JL}$ is measured at PIN 2; $R_{\theta JC}$ is measured at the top center of the body.
 7. Short duration pulse test used to minimize self-heating effect.
 8. 300 μs pulse width, 2% duty cycle.

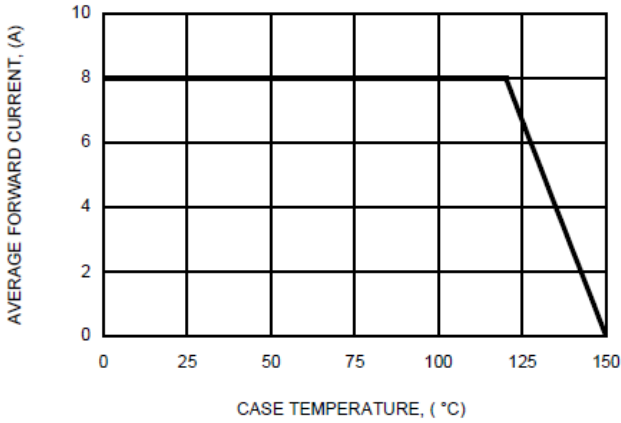


Fig. 1 FORWARD CURRENT DERATING CURVE

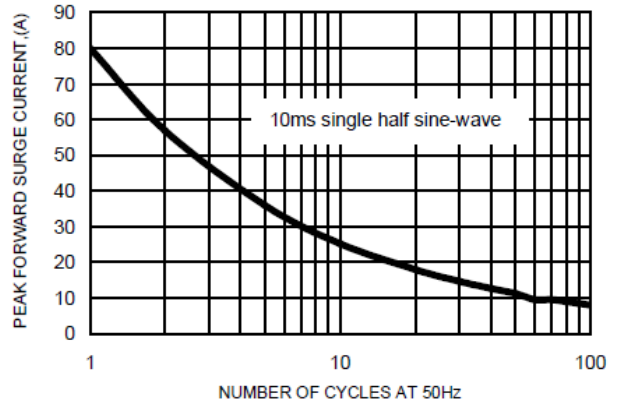


Fig. 2 MAXIMUM NON-REPETITIVE SURGE CURRENT

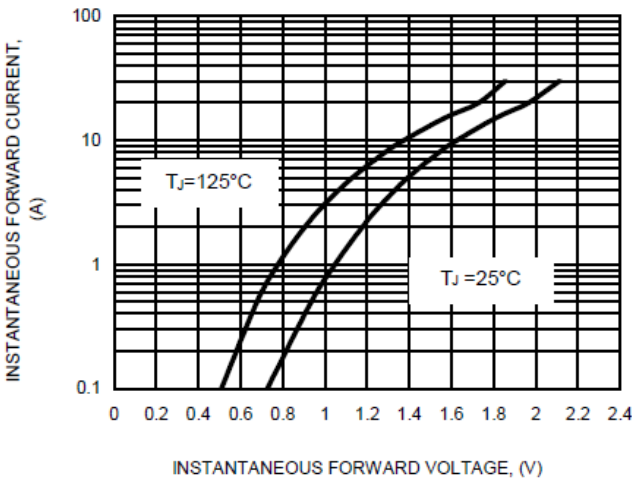


Fig. 3 TYPICAL FORWARD CHARACTERISTICS

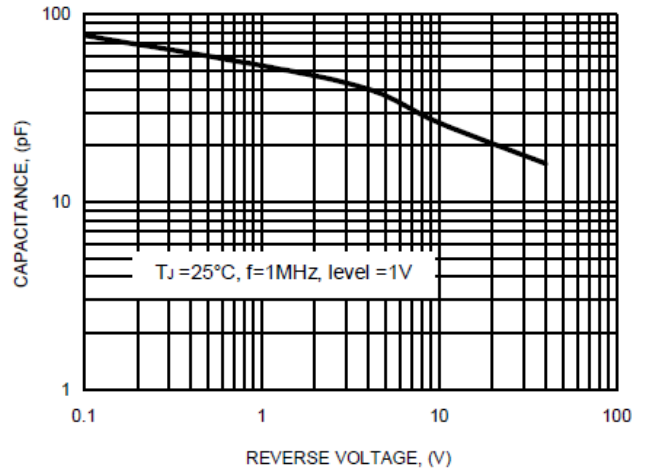


Fig. 4 TYPICAL TOTAL CAPACITANCE

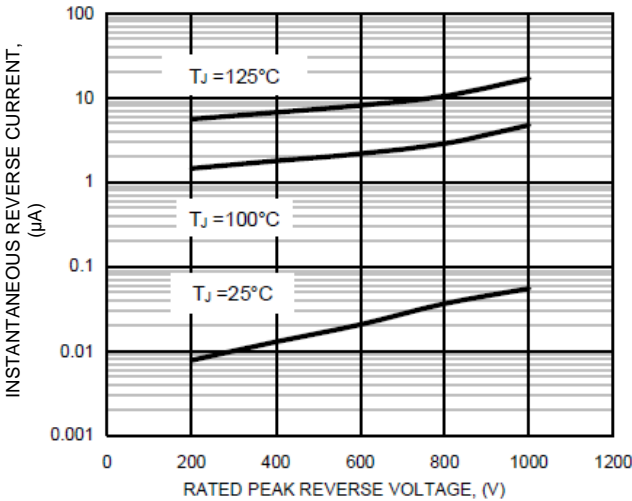
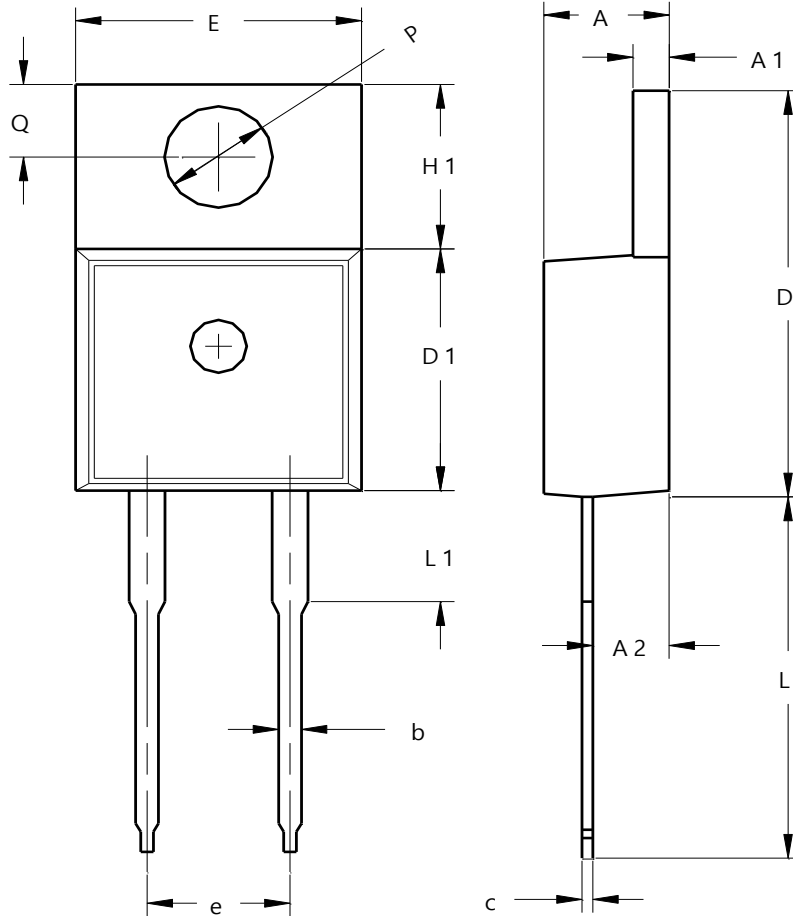


Fig. 5 TYPICAL REVERSE CHARACTERISTICS

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
P \varnothing	3.53	4.09
Q	2.54	3.43
All Dimensions in mm		

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