30A SUPER-FAST EPITAXIAL RECTIFIER

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
- 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/**

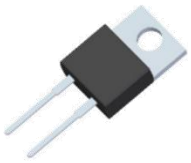
Description and Applications

Suitable for switching power supplies and power switching circuit applications.

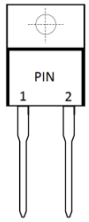
Mechanical Data

- 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 e3
- Polarity: See Diagram
- Weight: 1.894 grams (Approximate)

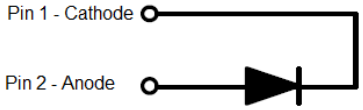
TO220AC (Type WX)



Top View



Top View
Pin-Out



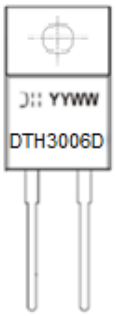
Ordering Information (Note 4)

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
= 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°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

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Notes 5 & 6)	$R_{\theta JC}$	1	°C/W
Typical Thermal Resistance Junction to Lead (Notes 5 & 6)	$R_{\theta JL}$	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	— —	— 0.1	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:
5. Thermal resistance test performed in accordance with JESD-51.
6. The unit mounted on Al heatsink (100mm*100mm*5mm) + negative pin contact aluminum plate (15mm*12mm*1.6mm).
7. Short duration pulse test used to minimize self-heating effect.
8. 300μs pulse width, 2% duty cycle.
9. Measured at 1.0MHz and applied voltage of 4.0V DC.

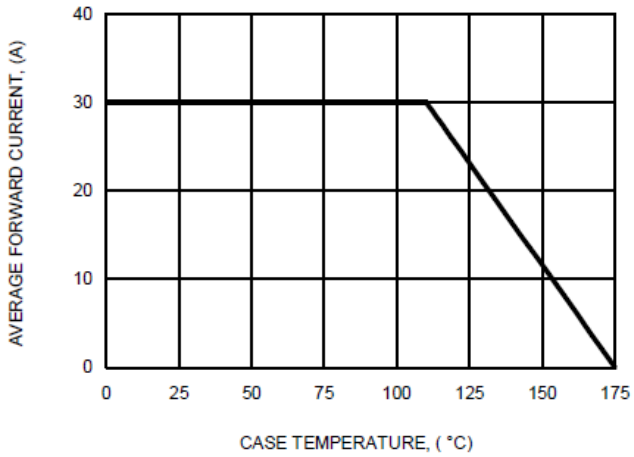


FIG.1-FORWARD CURRENT DERATING CURVE

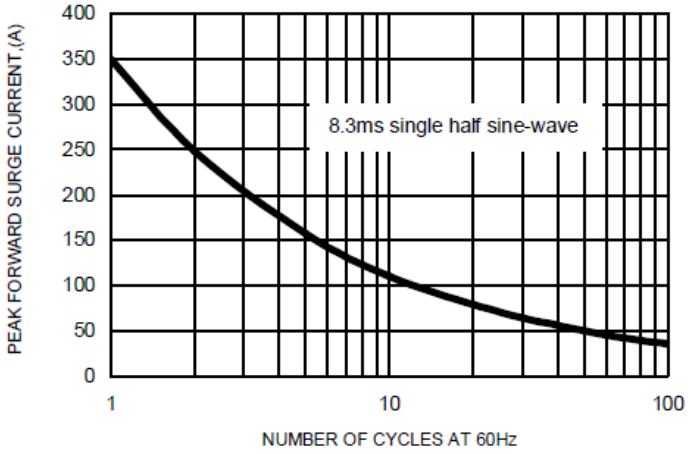


FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT

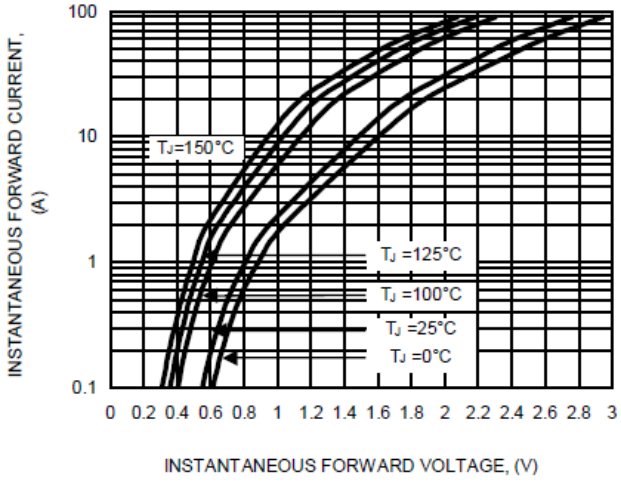


FIG.3-TYPICAL FORWARD CHARACTERISTICS

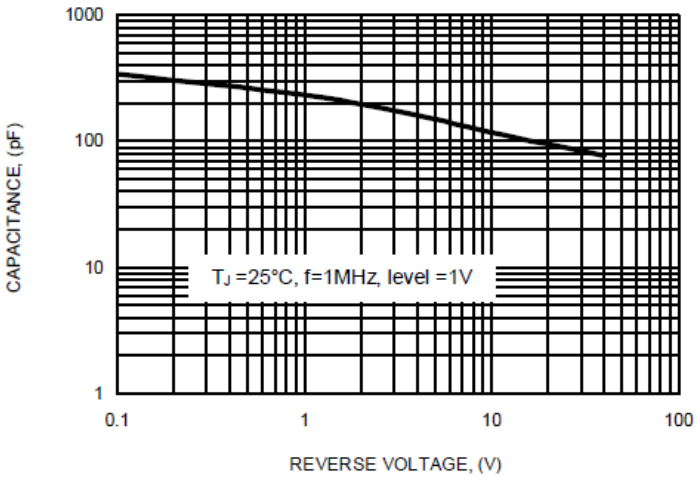


FIG.4-TYPICAL JUNCTION CAPACITANCE

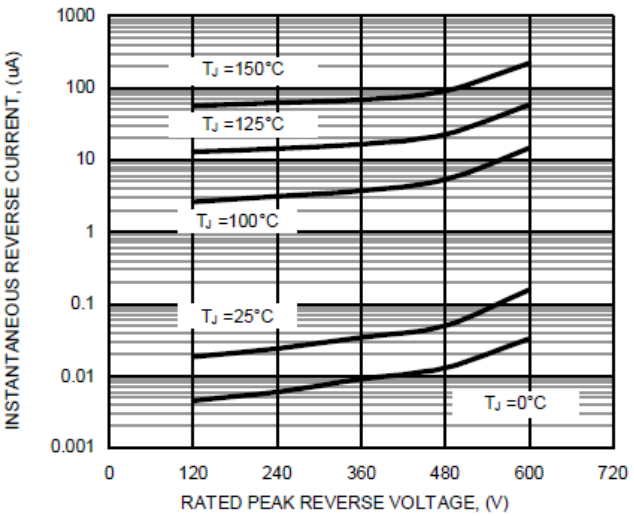
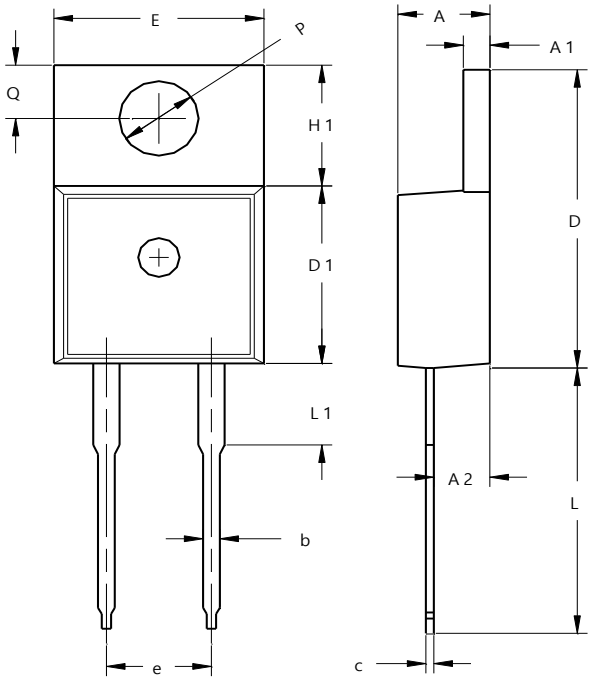


FIG.5-TYPICAL REVERSE CHARACTERISTICS

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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