DTHP30R07D

30A HYPER-FAST PLANAR RECTIFIER

Product Summary (@T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F (V)	I_R (µA)	t_{RR} (ns)
650	30	2.1	10	35

Features and Benefits

- Soft, Hyper-Fast Switching Capability
- Specifically Suited for Continuous-Conduction Mode Power Factor Correction
- High Reliability and Efficiency
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An automotive-compliant part is available under a separate datasheet (DTHP30R07DQ)**

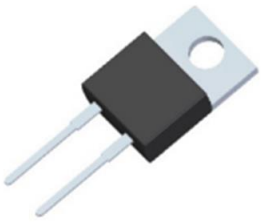
Description and Applications

Suitable for switching power supplies and power switching circuit applications and also in EV OBC, PFC diodes site & DC to DC, high power PSU, server power, PV inverter applications.

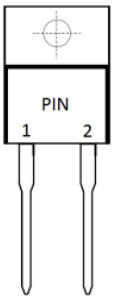
Mechanical Data

- Package: TO220AC
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish — Matte Tin Annealed over Copper Lead-Frame. Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Weight: 1.894 grams (Approximate)

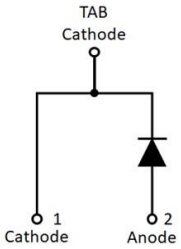
TO220AC (Type WX)



Top View



Top View Pinout



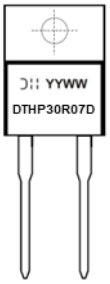
Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
DTHP30R07D	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)



DTHP30R07D = Product Type Marking Code
= Manufacturer's Marking Code
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°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	650	V
Average Rectified Output Current @ T_C = +125°C	I_O	30	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	320	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Notes 5, 6)	$R_{\theta JC}$	0.9	°C/W
Typical Thermal Resistance Junction to Lead (Notes 5, 6)	$R_{\theta JL}$	0.8	°C/W
Operating and Storage Temperature Range (Note 6)	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)	$V_{(BR)R}$	650	725	—	V	I_R = 100μA
Forward Voltage (Note 8)	V_F	— —	1.8 1.5	2.1 —	V V	I_F = 30A, T_J = +25°C I_F = 30A, T_J = +125°C
Reverse Leakage Current (Note 7)	I_R	— —	— 20	10 200	μA μA	V_R = 650V, T_J = +25°C V_R = 650V, T_J = +125°C
Reverse-Recovery Time	t_{RR}	—	27	35	ns	I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A
Reverse-Recovery Current, T_J = +125°C	I_{RM}	—	8.5	—	A	I_F = 30A, V_R = 400V, dI_F/dt = 200A/μs
Reverse-Recovery Charge, T_J = +125°C	Q_{RR}	—	450	—	nC	I_F = 30A, V_R = 400V, dI_F/dt = 200A/μs

Notes:
5. Thermal resistance test performed in accordance with JESD-51. The unit mounted on Al heatsink (42mm*100mm*26.9mm).
6. The heat generated must be less than the thermal conductivity from junction to case: $dP_D/dT_J < 1/R_{\theta JC}$ or junction to ambient: $dP_D/dT_J < 1/R_{\theta JA}$.
7. Short duration pulse test used to minimize self-heating effect.
8. 300μs pulse width, 2% duty cycle.

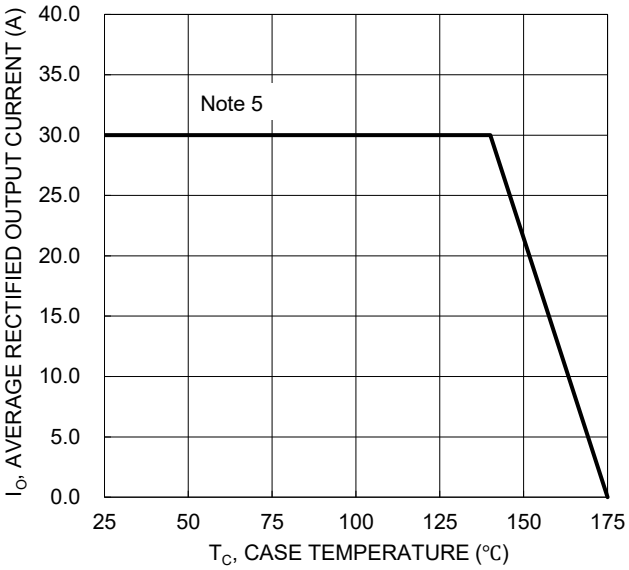


Figure 1. DC Forward Current Derating

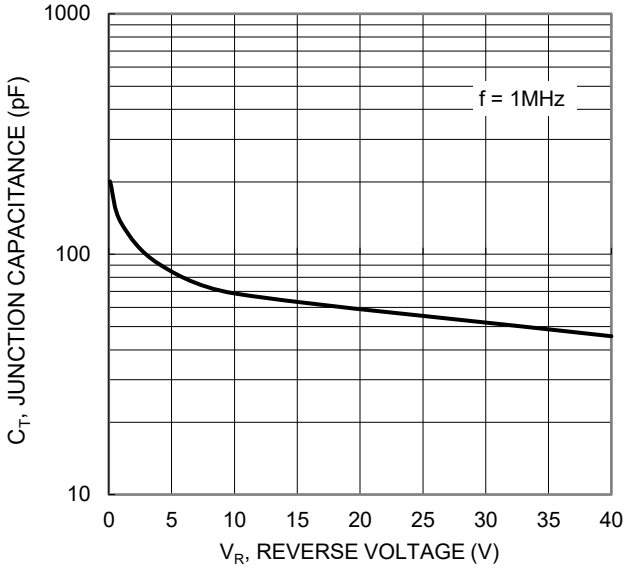


Figure 2. Typical Junction Capacitance

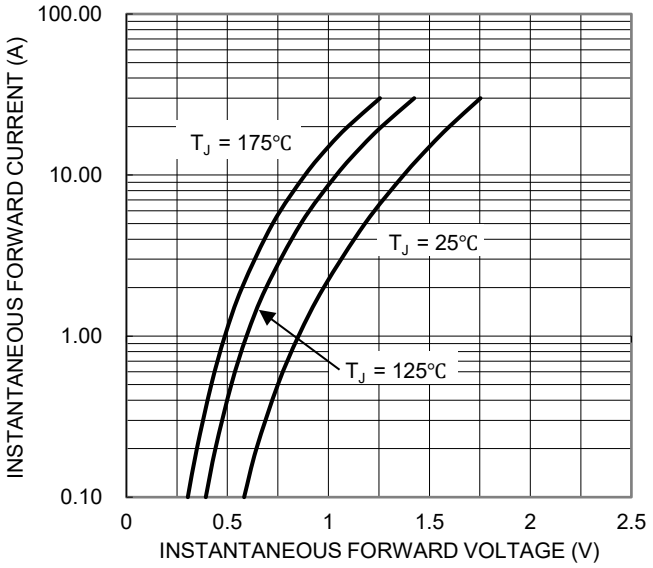


Figure 3. Typical Forward Characteristics

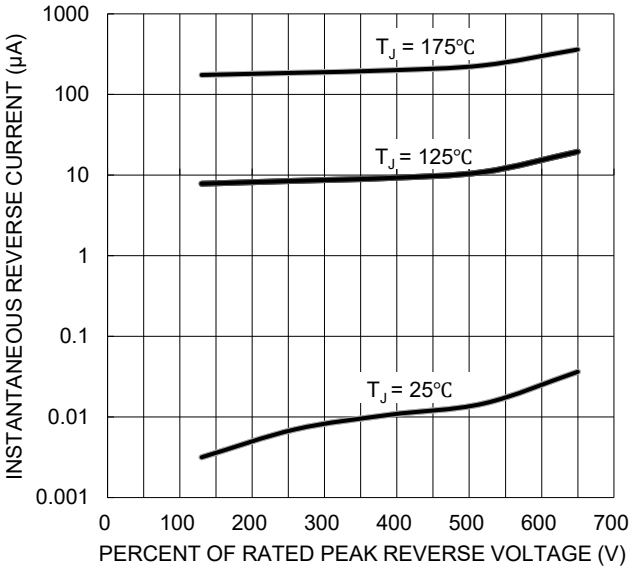
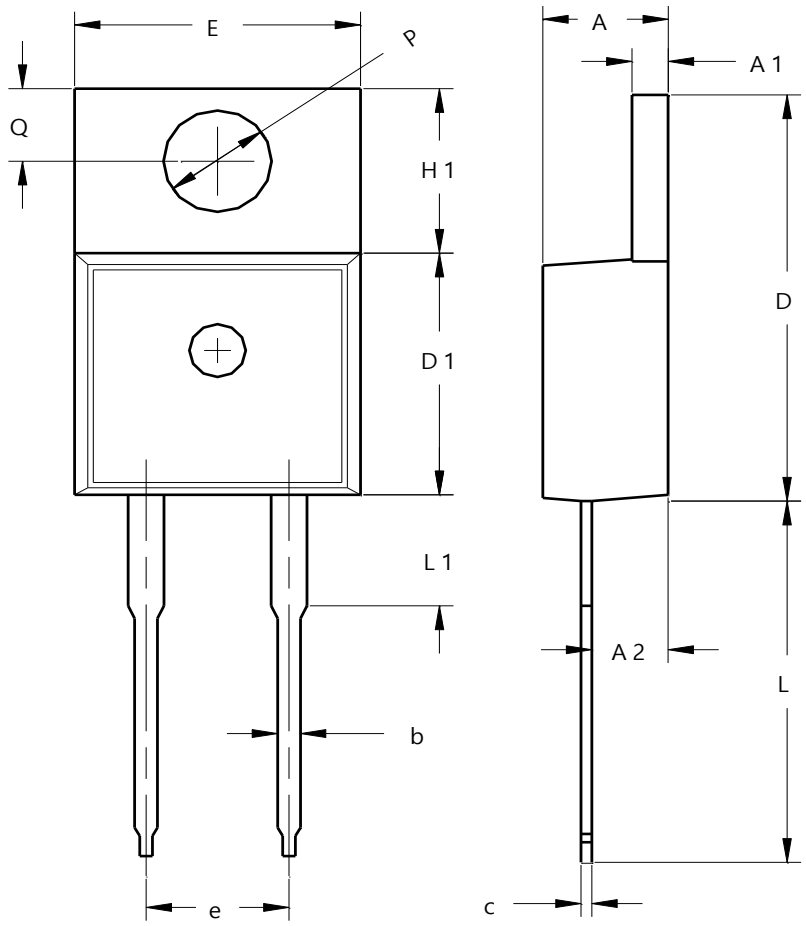


Figure 4. Typical Reverse Characteristics

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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