30A SUPER-FAST EPITAXIAL RECTIFIER

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F (V)	I_R (µA)
600	30	2.4	100

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

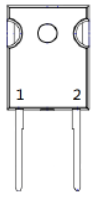
Suitable for switching power supplies and power switching circuit applications.

Mechanical Data

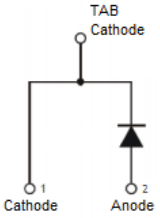
- Package: TO247-2L
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Weight: 5.9 grams (Approximate)

TO247-2L (Type HE)

Top View



Top View Pin-Out



Ordering Information (Note 4)

Part Number	Qualification	Package	Packing	
			Qty.	Carrier
DTH3006PT	Commercial	TO247-2L (Type HE)	30 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

TO247-2L (Type HE)

DTH3006PT = Product Type Marking Code
= Manufacturers' Marking
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 22 for 2022)
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 = +120°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
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	— —	— 1.53	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	— —	— 0.09	100 1	µA mA	V_R = 600V, T_J = +25°C V_R = 600V, T_J = +125°C
Typical Total Capacitance	C_T	—	155	—	pF	(Note 9)
Reverse Recovery Time, T_J = +25°C	t_{RR}	—	27.8	—	ns	I_F = 1A, dI_F/dt = 100A/µs, V_R = 30V
		—	—	45		I_F = 30A, dI_F/dt = 100A/µs, V_R = 30V
Reverse Recovery Current T_J = +25°C T_J = +125°C	I_{RM}	—	3.57 9.23	—	A	I_F = 30A, dI_F/dt = 200A/µs, V_R = 400V
Reverse Recovery Charge T_J = +25°C T_J = +125°C	Q_{RR}	—	95.8 441.0	—	nC	

Notes:
5. Thermal resistance test performed in accordance with JESD-51.
6. The unit mounted on fin-type heatsink 100mm x 100mm x 5mm.
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.

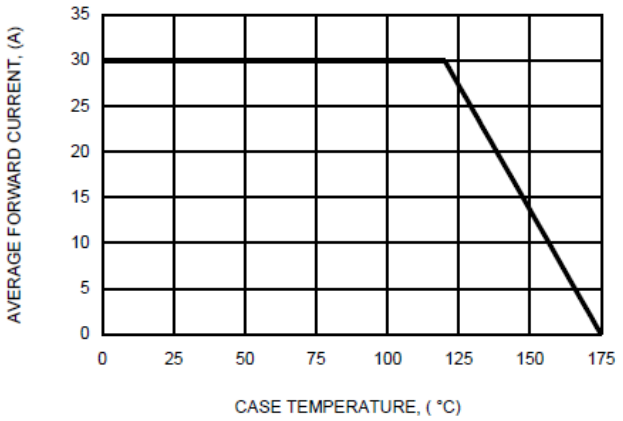


FIG.1-FORWARD CURRENT DERATING CURVE

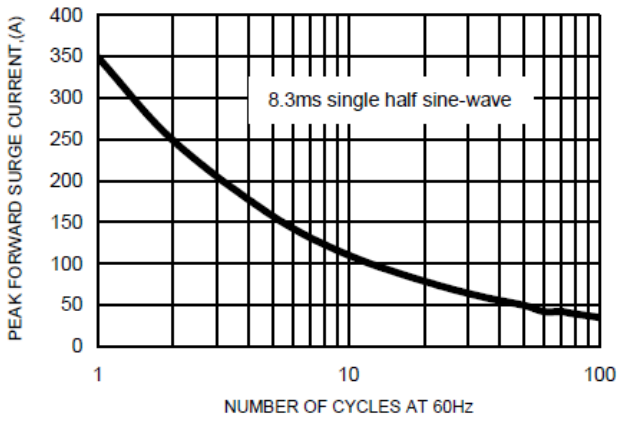


FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT

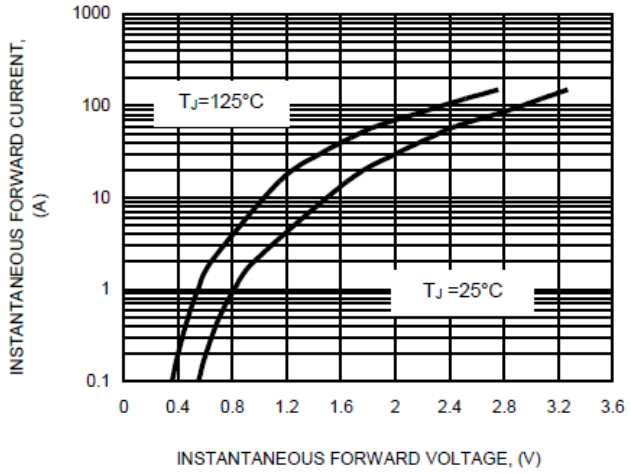


FIG.3-TYPICAL FORWARD CHARACTERISTICS

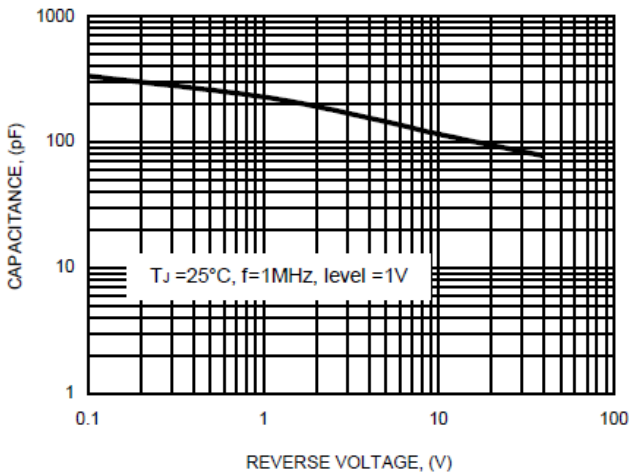


FIG.4-TYPICAL TOTAL CAPACITANCE

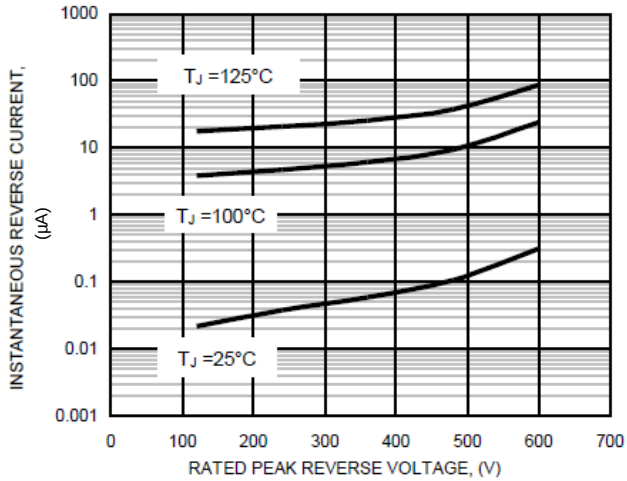
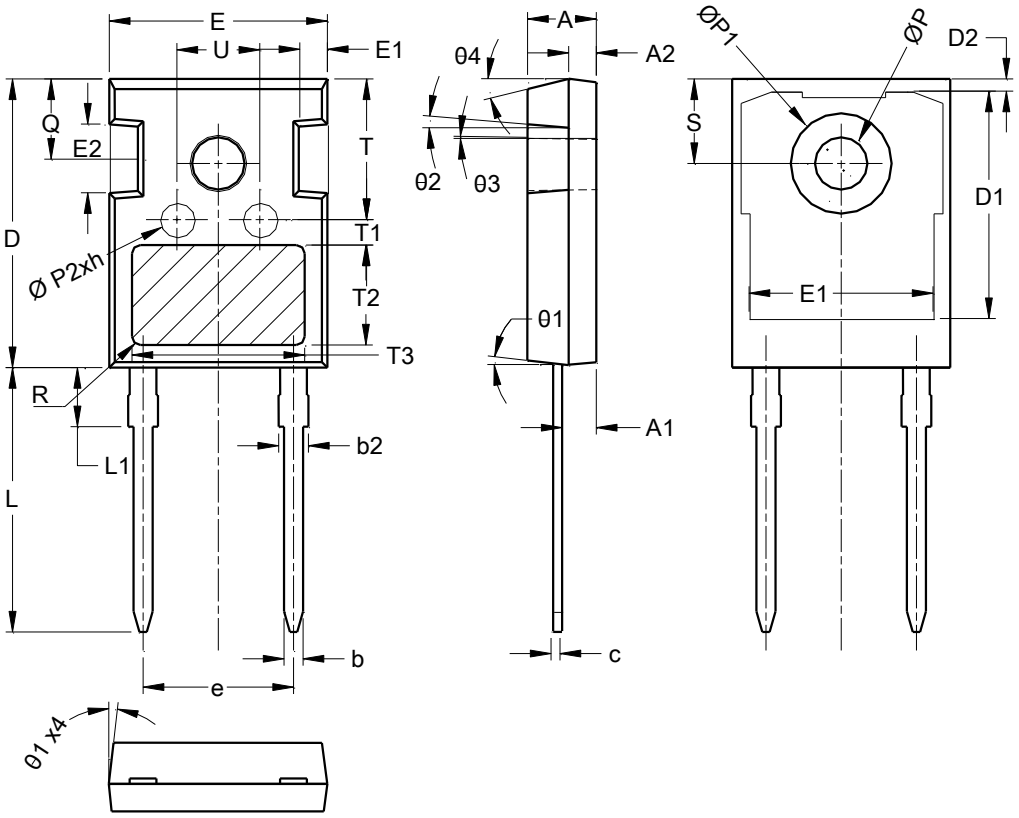


FIG.5-TYPICAL REVERSE CHARACTERISTICS

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

TO247-2L (Type HE)



TO247-2L (Type HE)			
Dim	**Min**	**Max**	**Typ**
A	4.90	5.10	5.00
A1	2.31	2.51	2.41
A2	1.90	2.10	2.00
b	1.16	1.26	1.21
b2	1.91	2.21	2.01
c	0.59	0.66	0.61
D	20.90	21.10	21.00
D1	16.25	16.85	16.55
D2	1.05	1.35	1.20
E	15.70	15.90	15.80
E1	13.10	13.50	13.30
E2	4.90	5.10	5.00
E3	2.40	2.60	2.50
e	10.88 BSC		
h	0.05	0.15	0.10
L	19.80	20.10	19.92
L1	--	--	4.30
ØP	3.50	3.70	3.60
ØP1	--	--	7.30
ØP2	2.40	2.60	2.50
Q	5.60	6.00	5.80
S	6.15 BSC		
R	0.50 REF		
T	9.80	10.20	--
T1	1.65 REF		
T2	8.00 REF		
T3	12.80 REF		
U	6.00	6.40	--
θ1	6°	8°	7°
θ2	1°	6°	5°
θ3	1°	1.5°	--
θ4	14°	16°	15°
All Dimensions in mm			

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