

**Product Summary** (@ T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)
600	30	2.4	100

**Features and Benefits**

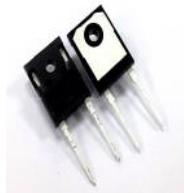
- Soft, Super-Fast Switching Capability
- Glass Passivated Die Construction
- Rating to 600V Peak Reverse Voltage
- High-Reliability
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications 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](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

**Description and Applications**

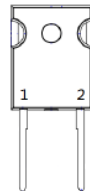
Suitable for switching power supplies and power switching circuit applications.

**Mechanical Data**

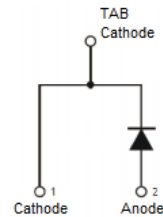
- Package: TO247-2L
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: See Diagram
- Weight: 5.9 grams (Approximate)

**TO247-2L (Type HE)**


Top View



Top View Pin-Out

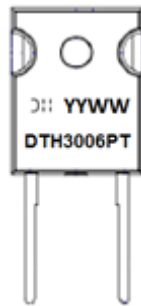

**Ordering Information** (Note 4)

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  
 DTH = 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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>R</sub>	600	V
Average Rectified Output Current, @ T <sub>C</sub> = +120°C	I <sub>O</sub>	30	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	350	A
Avalanche Energy, L = 15mH	E <sub>AS</sub>	20	mJ

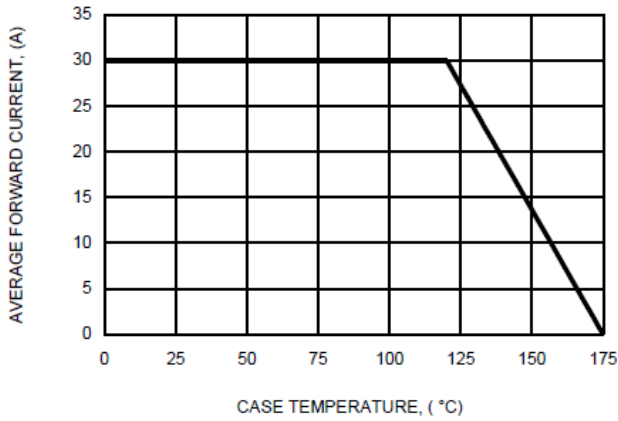
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Notes 5 & 6)	R <sub>θJC</sub>	1	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

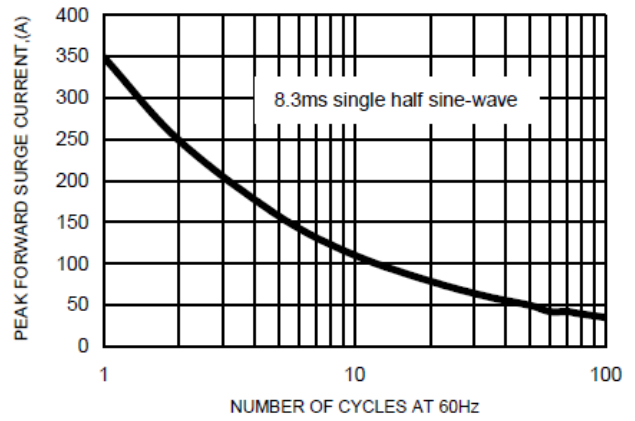
## Electrical Characteristics (@ T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	600	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage (Note 8)	V <sub>F</sub>	—	1.53	2.4 2.1	V	I <sub>F</sub> = 30A, T <sub>J</sub> = +25°C I <sub>F</sub> = 30A, T <sub>J</sub> = +125°C
Reverse Leakage Current (Note 7)	I <sub>R</sub>	—	0.09	100 1	μA mA	V <sub>R</sub> = 600V, T <sub>J</sub> = +25°C V <sub>R</sub> = 600V, T <sub>J</sub> = +125°C
Typical Total Capacitance	C <sub>T</sub>	—	155	—	pF	(Note 9)
Reverse Recovery Time, T <sub>J</sub> = +25°C	t <sub>RR</sub>	—	27.8	— 45	ns	I <sub>F</sub> = 1A, dI <sub>F</sub> /dt = 100A/μs, V <sub>R</sub> = 30V I <sub>F</sub> = 30A, dI <sub>F</sub> /dt = 100A/μs, V <sub>R</sub> = 30V
Reverse Recovery Current T <sub>J</sub> = +25°C T <sub>J</sub> = +125°C	I <sub>RM</sub>	—	3.57 9.23	—	A	I <sub>F</sub> = 30A, dI <sub>F</sub> /dt = 200A/μs, V <sub>R</sub> = 400V
Reverse Recovery Charge T <sub>J</sub> = +25°C T <sub>J</sub> = +125°C	Q <sub>RR</sub>	—	95.8 441.0	—	nC	V <sub>R</sub> = 400V

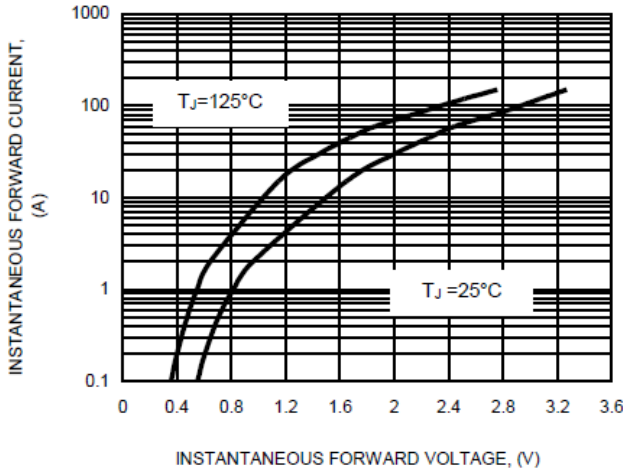
- Notes:
- Thermal resistance test performed in accordance with JESD-51.
  - The unit mounted on fin-type heatsink 100mm x 100mm x 5mm.
  - Short duration pulse test used to minimize self-heating effect.
  - 300μs pulse width, 2% duty cycle.
  - Measured at 1.0MHz and applied voltage of 4.0V DC.



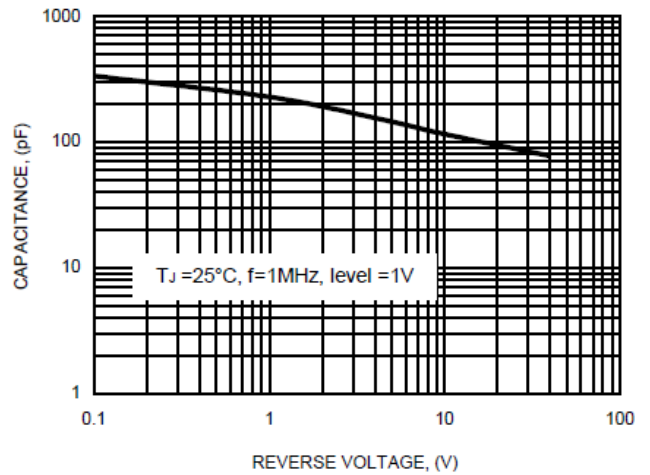
**FIG.1-FORWARD CURRENT DERATING CURVE**



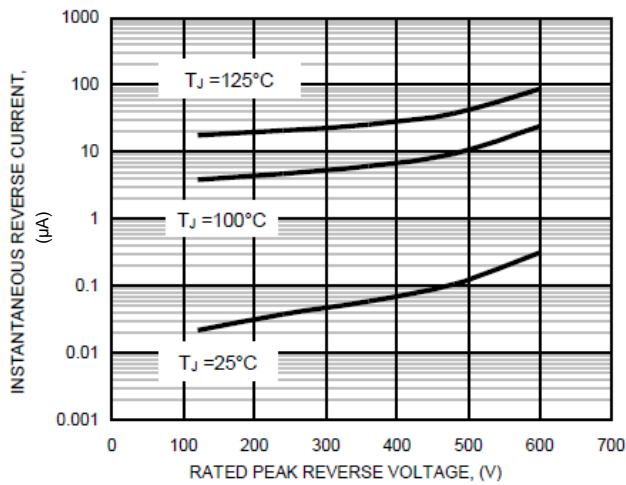
**FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT**



**FIG.3-TYPICAL FORWARD CHARACTERISTICS**



**FIG.4-TYPICAL TOTAL CAPACITANCE**

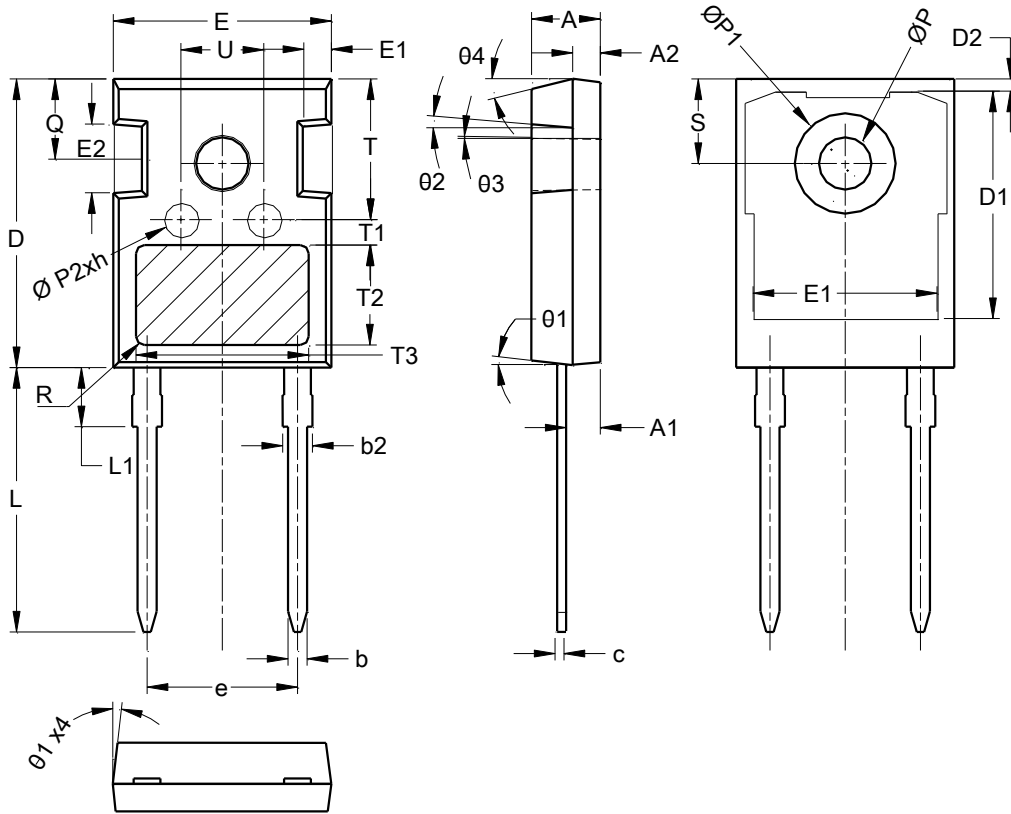


**FIG.5-TYPICAL REVERSE CHARACTERISTICS**

**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	--
Ø1	6°	8°	7°
Ø2	1°	6°	5°
Ø3	1°	1.5°	--
Ø4	14°	16°	15°
<b>All Dimensions in mm</b>			

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