

1. General description

Standard reverse recovery power diode in a TO247-2L package.

2. Features and benefits

- Low forward voltage drop
- Low leakage current
- High voltage capability
- High inrush current capability

3. Applications

- Input rectifier
- Bypass diode

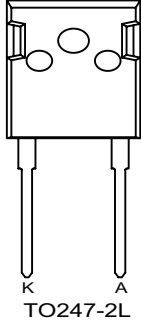

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Values			Unit
Absolute maximum rating						
V_{RRM}	repetitive peak reverse voltage		1600			V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 113$ °C; Fig. 1 ; Fig. 2 ; Fig. 3	45			A
I_{FSM}	non-repetitive peak forward current	$t_p = 10$ ms; $T_{j(init)} = 25$ °C; sine-wave pulse; Fig. 4	475			A
		$t_p = 8.3$ ms; $T_{j(init)} = 25$ °C; sine-wave pulse;	523			A
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V_F	forward voltage	$I_F = 45$ A; $T_j = 25$ °C; Fig. 6	-	1.2	1.4	V
		$I_F = 45$ A; $T_j = 150$ °C; Fig. 6	-	1.1	1.3	V

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode		
2	K	cathode		
mb	K	mounting base; connected to cathode		

6. Ordering information

Table 3. Ordering information

Type number	Package		Version
	Name	Description	
WND45P16W	TO247-2L	plastic single-ended surface-mounted package (DPAK); 3 leads (one lead cropped)	TO247L-2L

7. Marking

Table 4. Marking codes

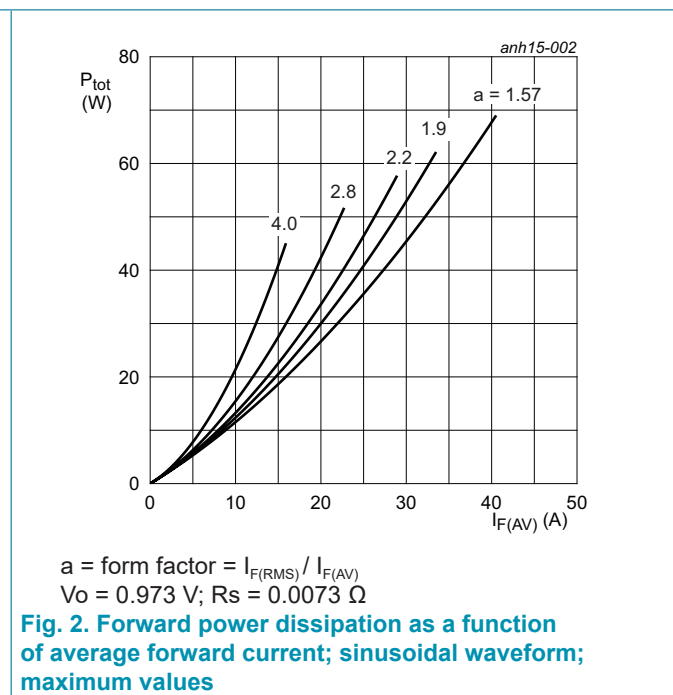
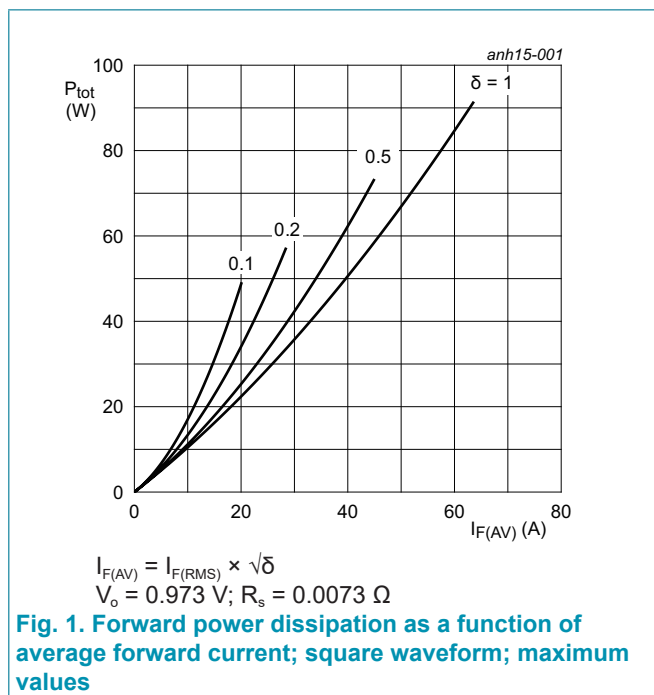
Type number	Marking codes
WND45P16W	D45P16

8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Values	Unit
V_{RRM}	repetitive peak reverse voltage		1600	V
V_{RWM}	crest working reverse voltage		1600	V
V_R	reverse voltage	DC	1600	V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 113\text{ }^\circ\text{C}$; Fig. 1 ; Fig. 2 ; Fig. 3	45	A
I_{FSM}	non-repetitive peak forward current	$t_p = 10\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse; Fig. 4	475	A
		$t_p = 8.3\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse;	523	A
T_{stg}	storage temperature		-55 to 150	$^\circ\text{C}$
T_j	junction temperature		150	$^\circ\text{C}$



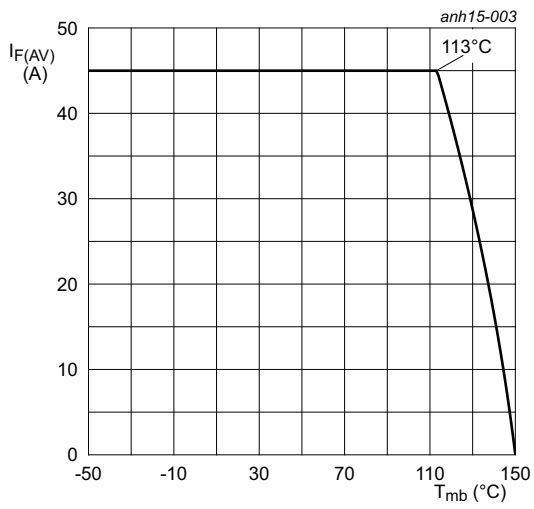


Fig. 3. Forward current as a function of mounting base temperature; maximum values

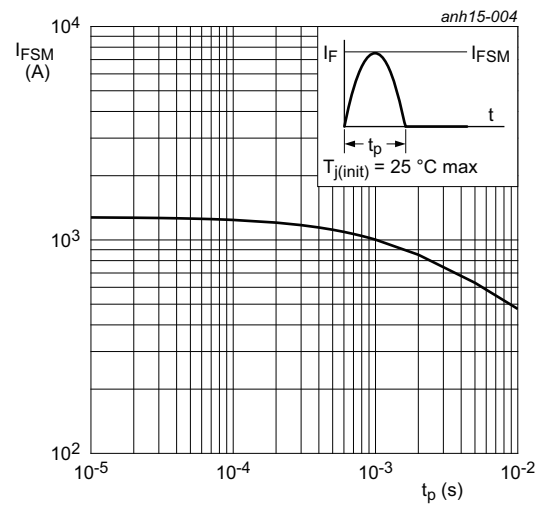


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-mb)}$	thermal resistance from junction to mounting base	Fig. 5	-	-	0.5	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air	-	40	-	K/W

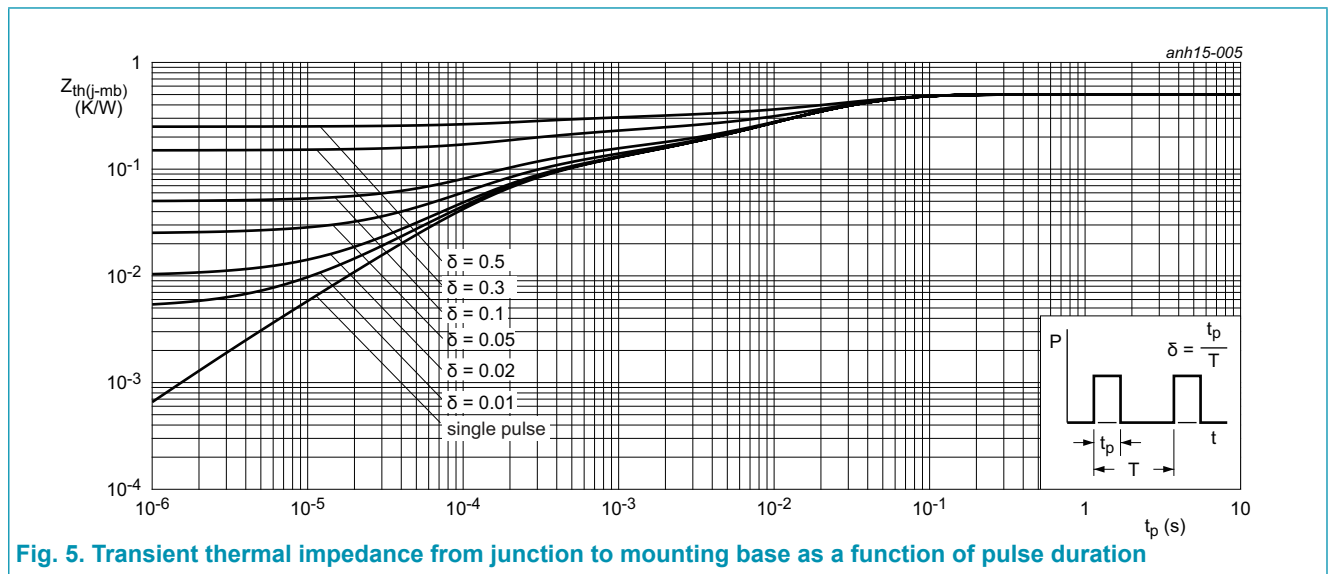
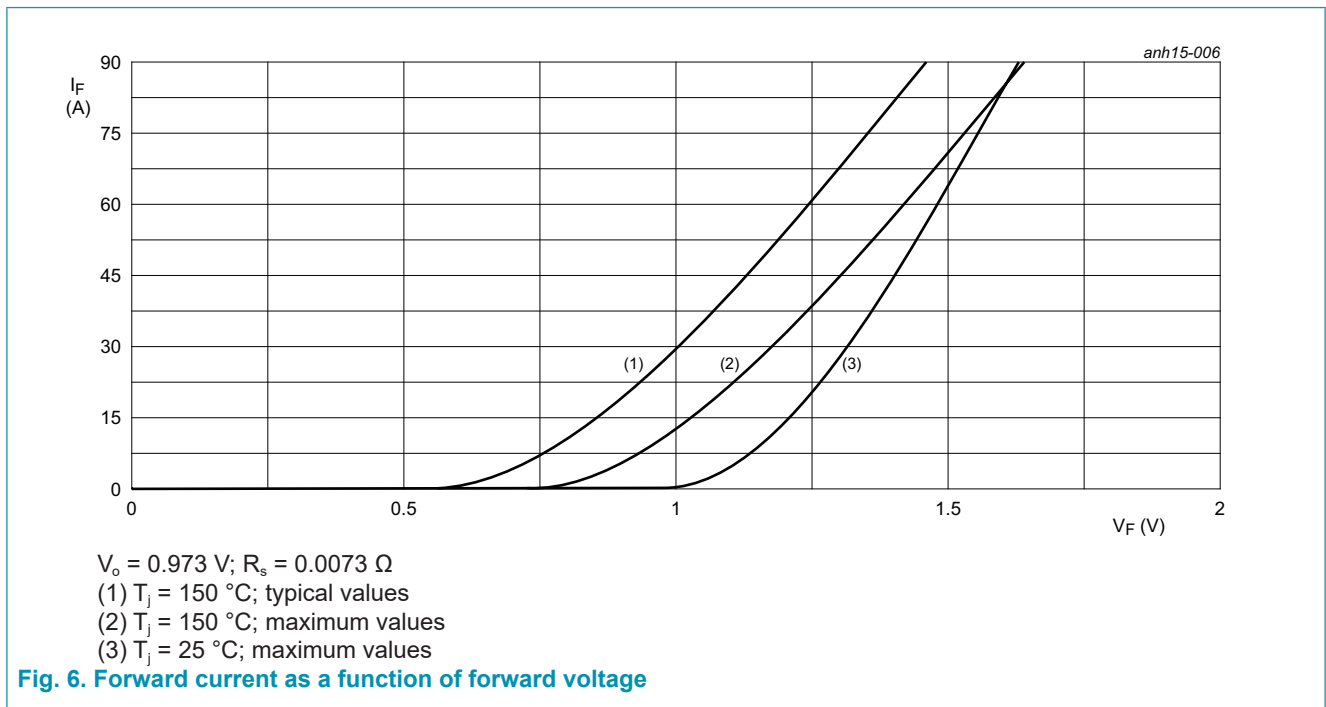


Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration

10. Characteristics

Table 7. Characteristics

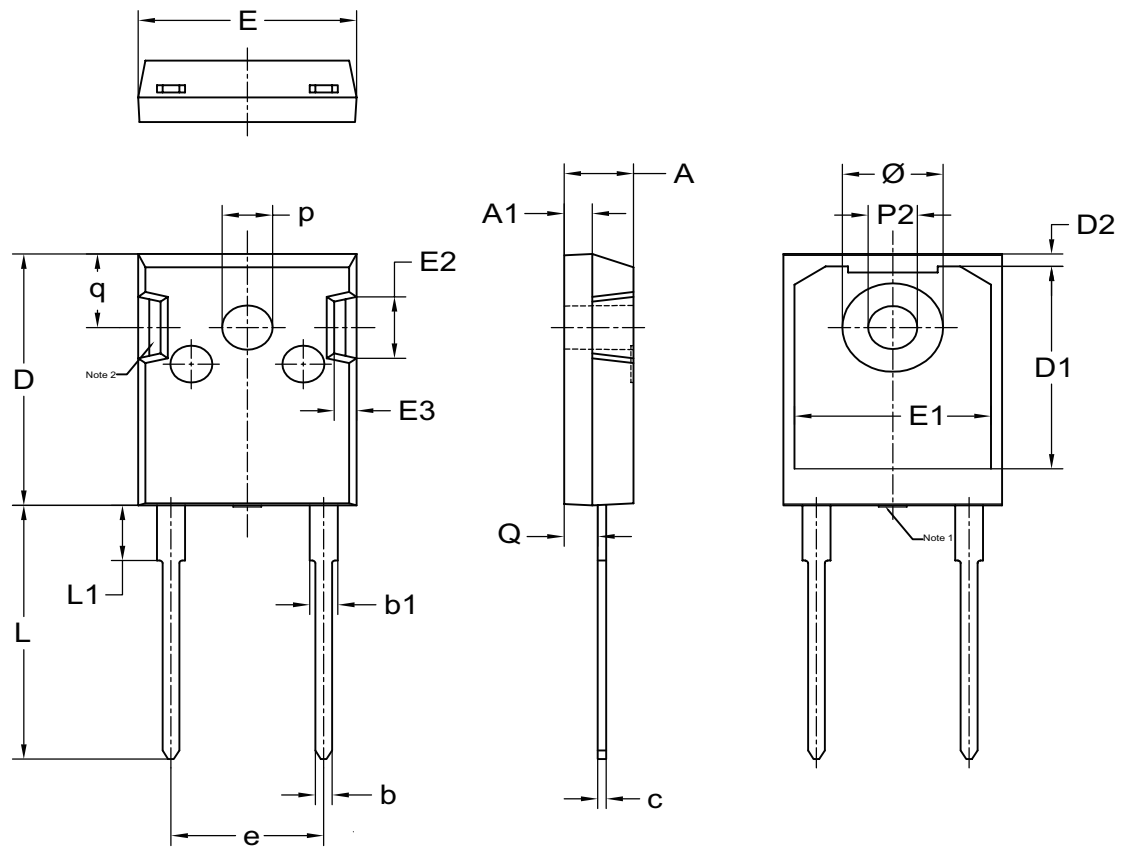
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V_F	forward current	$I_F = 45 \text{ A}; T_j = 25 \text{ }^\circ\text{C}; \text{ Fig. 6}$	-	1.2	1.4	V
		$I_F = 45 \text{ A}; T_j = 150 \text{ }^\circ\text{C}; \text{ Fig. 6}$	-	1.1	1.3	V
I_R	reverse current	$V_R = 1600 \text{ V}; T_j = 25 \text{ }^\circ\text{C}$	-	-	10	μA
		$V_R = 1600 \text{ V}; T_j = 150 \text{ }^\circ\text{C}$	-	-	1.5	mA



11. Package outline

Plastic single-ended through-hole package; heatsink mounted; 1 mounting hole; 2 leads TO-247

TO247-2L



UNIT	A	A ₁	b	b ₁	c	D	D ₁	D ₂	E	E ₁	E ₂	E ₃	e	L	L ₁	P ₂	p	Q	q	Ø
mm	5.20	2.10	1.40	2.20	0.70	20.60	17.78	1.20	15.75	14.22	5.20	1.80	10.90	20.72	4.75	3.60	3.70	2.60	6.18	7.30
	4.70	1.90	1.00	1.80	0.50	20.30	17.28	0.80	15.45	13.82	4.80	1.40	BSC	20.22	4.25	3.40	3.50	2.20	5.78	7.10

Note:

1. Mold resin protrusion max 0.127mm.
2. Metal exposed with Sn plating.

12. Legal information

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Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
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13. Contents

1. General description.....	1
2. Features and benefits	1
3. Applications	1
4. Quick reference data	1
5. Pinning information.....	2
6. Ordering information.....	2
7. Marking.....	2
8. Limiting values	3
9. Thermal characteristics	5
10. Characteristics.....	6
11. Package outline	7
12. Legal information	8
13. Contents	10

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Date of release: 21 September 2018

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