

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

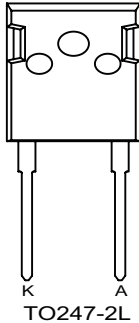
4. Quick reference data

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	δ = 0.5 ; square-wave pulse; T _{mb} ≤ 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	 TO247-2L	 001aaa020
2	K	cathode		
mb	K	mounting base; connected to cathode		

6. Ordering information

Table 3. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
WND45P16W	TO247-2L	WND45P16WQ	Tube	30	TO247L-2L	28-Aug-2018

7. Marking

Table 4. Marking codes

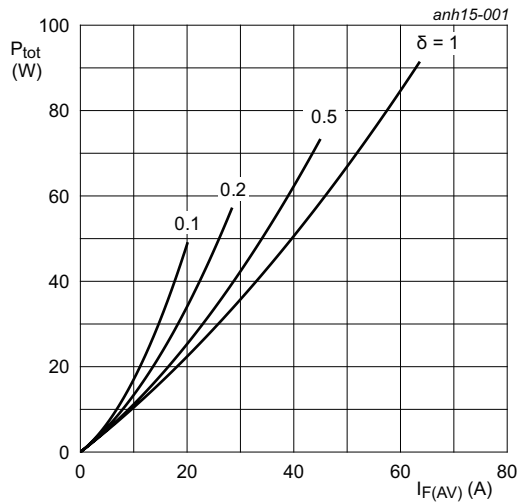
Type number	Marking codes
WND45P16W	D45P16

8. Limiting values

Table 5. Limiting values

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

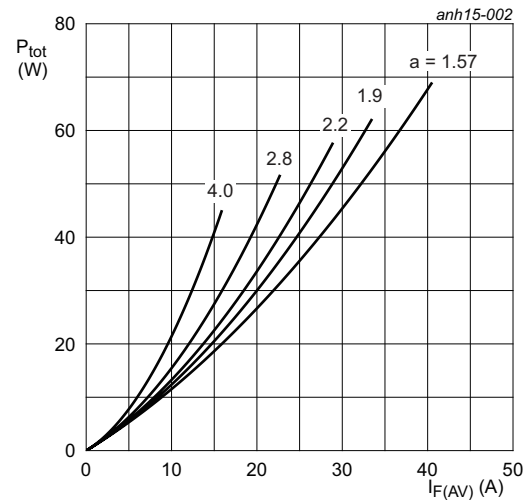
Symbol	Parameter	Conditions	Values	Unit
V_{RRM}	repetitive peak reverse voltage		1600	V
V_{RWM}	crest working reverse voltage		1600	V
V_R	reverse voltage	DC	1600	V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 113\text{ }^{\circ}\text{C}$; Fig. 1 ; Fig. 2 ; Fig. 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	$^{\circ}\text{C}$



$$I_{F(AV)} = I_{F(RMS)} \times \sqrt{\delta}$$

$$V_o = 0.973\text{ V}; R_s = 0.0073\text{ }\Omega$$

Fig. 1. Forward power dissipation as a function of average forward current; square waveform; maximum values



$$a = \text{form factor} = I_{F(RMS)} / I_{F(AV)}$$

$$V_o = 0.973\text{ V}; R_s = 0.0073\text{ }\Omega$$

Fig. 2. Forward power dissipation as a function of average forward current; sinusoidal waveform; maximum values

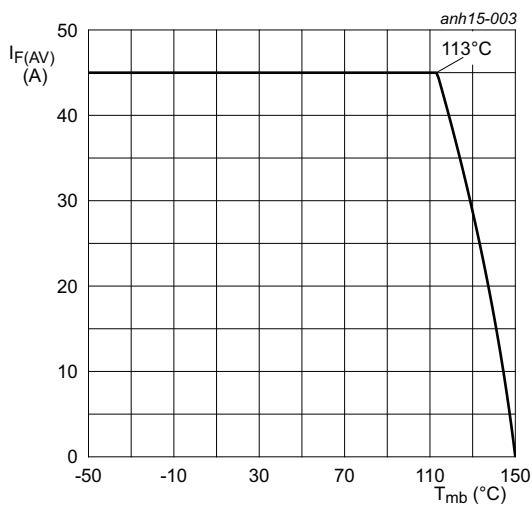


Fig. 3. Forward current as a function of mounting base temperature; maximum values

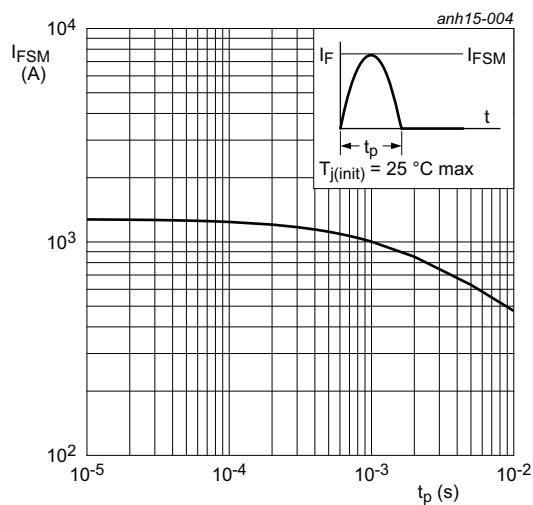


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

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

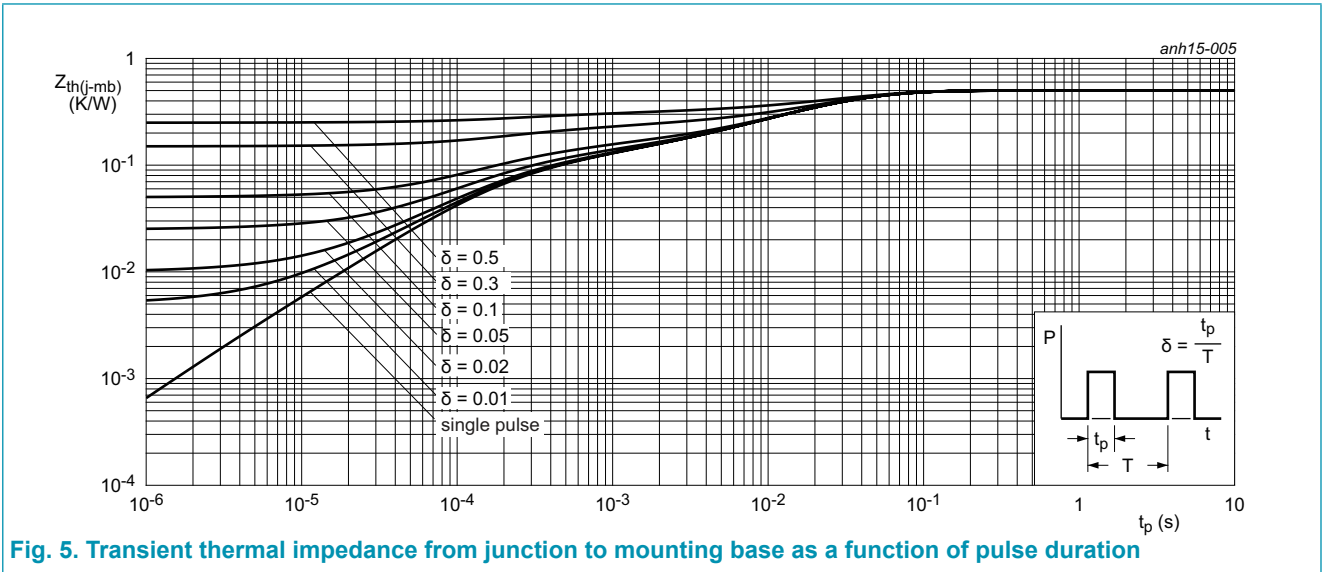
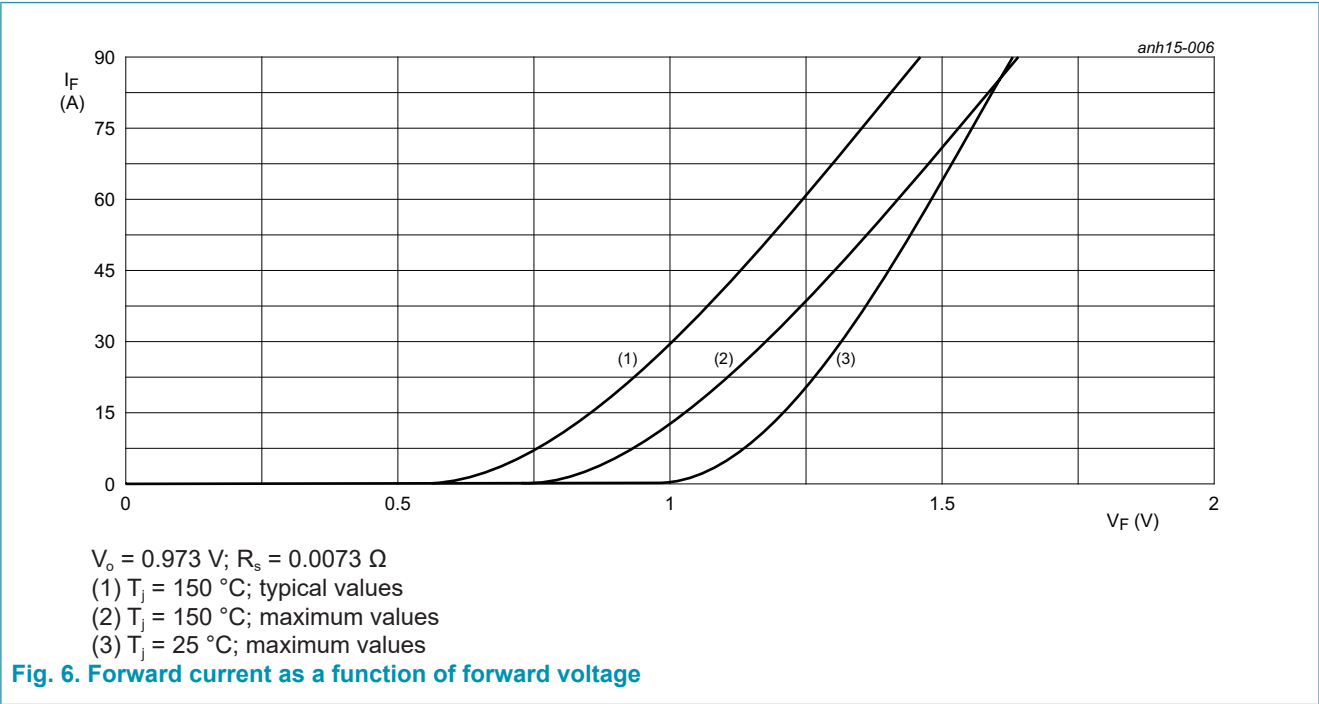


Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration

10. Characteristics

Table 7. Characteristics

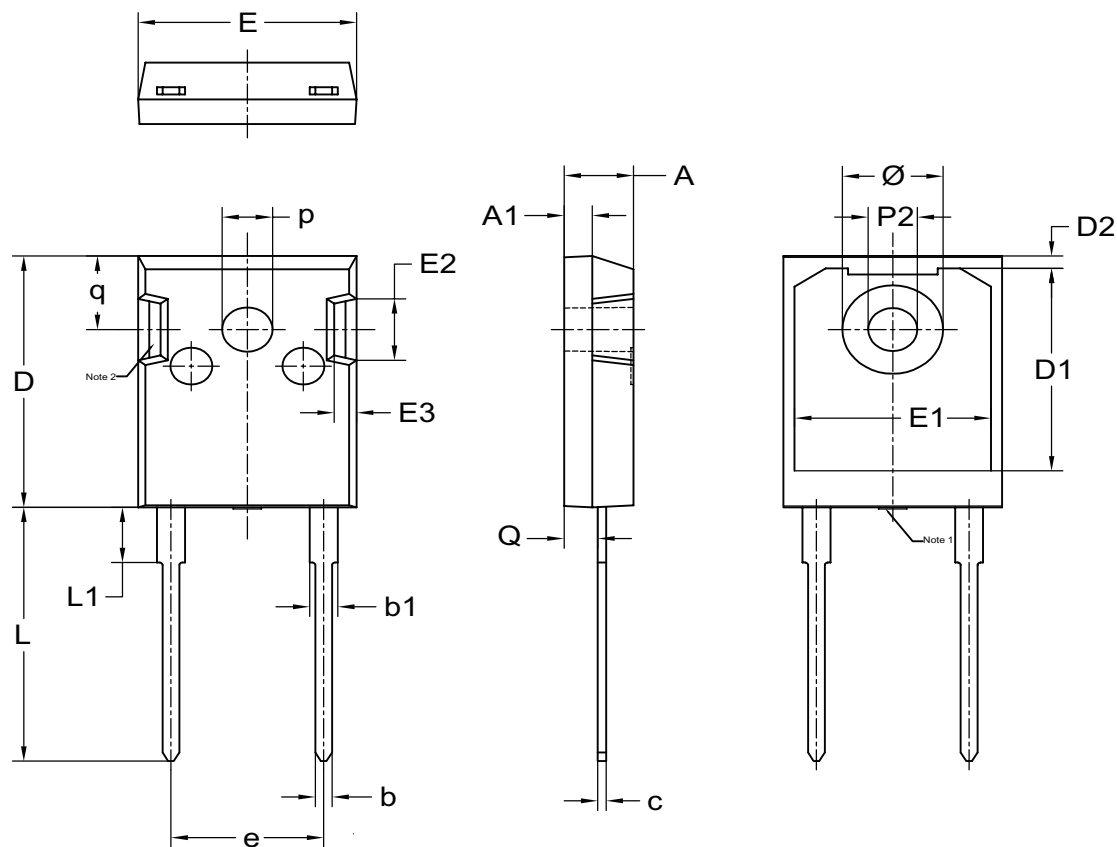
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Static characteristics							
V _F	forward current	I _F = 45 A; T _j = 25 °C; Fig. 6		-	1.2	1.4	V
		I _F = 45 A; T _j = 150 °C; Fig. 6		-	1.1	1.3	V
I _R	reverse current	V _R = 1600 V; T _j = 25 °C		-	-	10	μA
		V _R = 1600 V; T _j = 150 °C		-	-	1.5	mA



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 4.70	2.10 1.90	1.40 1.00	2.20 1.80	0.70 0.50	20.60 20.30	17.78 17.28	1.20 0.80	15.75 15.45	14.22 13.82	5.20 4.80	1.80 1.40	10.90 BSC	20.72 20.22	4.75 4.25	3.60 3.40	3.70 3.50	2.60 2.20	6.18 5.78	7.30 7.10

Note:

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

12. Legal information

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Document status [1][2]	Product status [3]	Definition
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.
Product [short] data sheet	Production	This document contains the product specification.

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- [2] The term 'short data sheet' is explained in section "Definitions".
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