WND35P16

Standard power diode

Rev.01 - 18 December 2023 Product data sheet

1. General description

Standard reverse recovery power diode in a 2-lead TO220 package.

2. Features and benefits

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

3. Applications

- Oring diode
- Bypass diode
- Input rectifier for bridge configurations

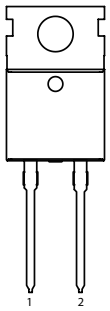
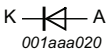
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Notes	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; $T_{mb} \leq 97$ °C; Fig. 1; Fig. 2; Fig. 3		35			A
I_{FSM}	non-repetitive peak forward current	t_p = 10 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse; Fig. 4		400			A
		t_p = 8.3 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse		435			A
Symbol	**Parameter**	**Conditions**	**Notes**	**Min**	**Typ**	**Max**	**Unit**
Static characteristics							
V_F	forward voltage	I_F = 35 A; T_j = 25 °C; Fig. 6		-	1.18	1.40	V
I_R	reverse current	V_R = 1600 V; T_j = 25 °C		-	-	50	µA

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode		
2	A	anode		
mb	mb	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
WND35P16	TO220-2L	WND35P16Q	Tube	50	TO220d-2L	13-Oct-2022

7. Marking

Table 4. Marking codes

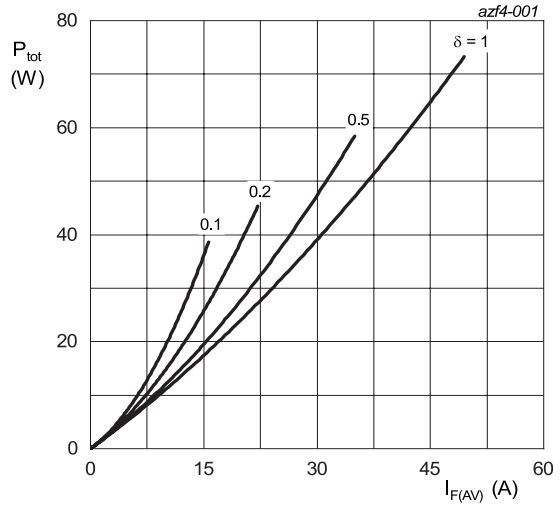
Type number	Marking codes
WND35P16	WND35P16

8. Limiting values

Table 5. Limiting values

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

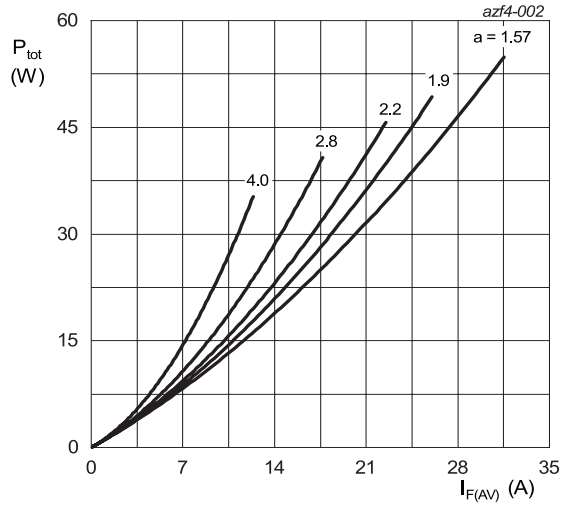
Symbol	Parameter	Conditions	Notes	Values	Unit
V_{RRM}	repetitive peak reverse voltage			1600	V
V_{RWM}	crest working reverse voltage			1600	V
V_R	reverse voltage	DC		1600	V
$I_{F(AV)}$	average forward current	δ = 0.5 ; square-wave pulse; $T_{mb} \leq 97$ °C; Fig. 1; Fig. 2; Fig. 3		35	A
I_{FSM}	non-repetitive peak forward current	t_p = 10 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse; Fig. 4		400	A
		t_p = 8.3 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse		435	A
I^2t	I^2t for fusing	t_p = 10 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse;		800	A^2s
T_{stg}	storage temperature			-40 to 150	°C
T_j	junction temperature			-40 to 150	°C



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

V_o = 1.025 V; R_s = 0.0092 Ω

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



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

V_o = 1.025 V; R_s = 0.0092 Ω

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

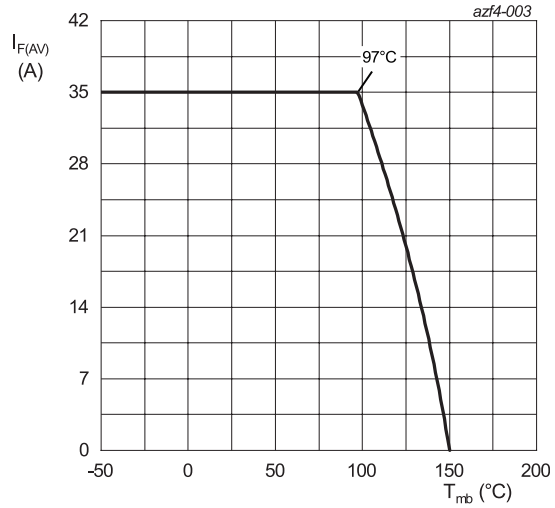


Fig. 3. Forward current as a function of mounting base temperature; maximum values

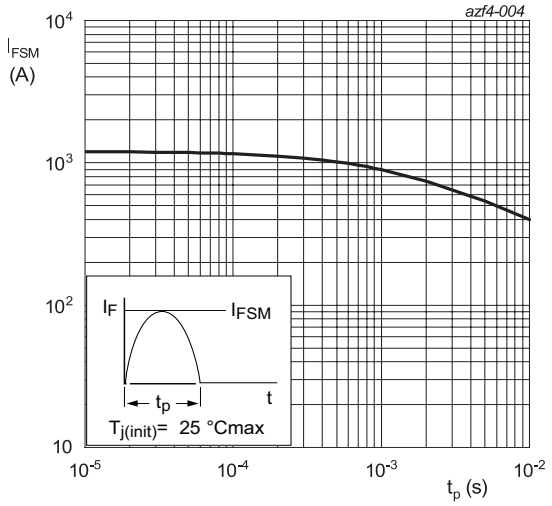


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

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		-	-	0.9	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air		-	60	-	K/W

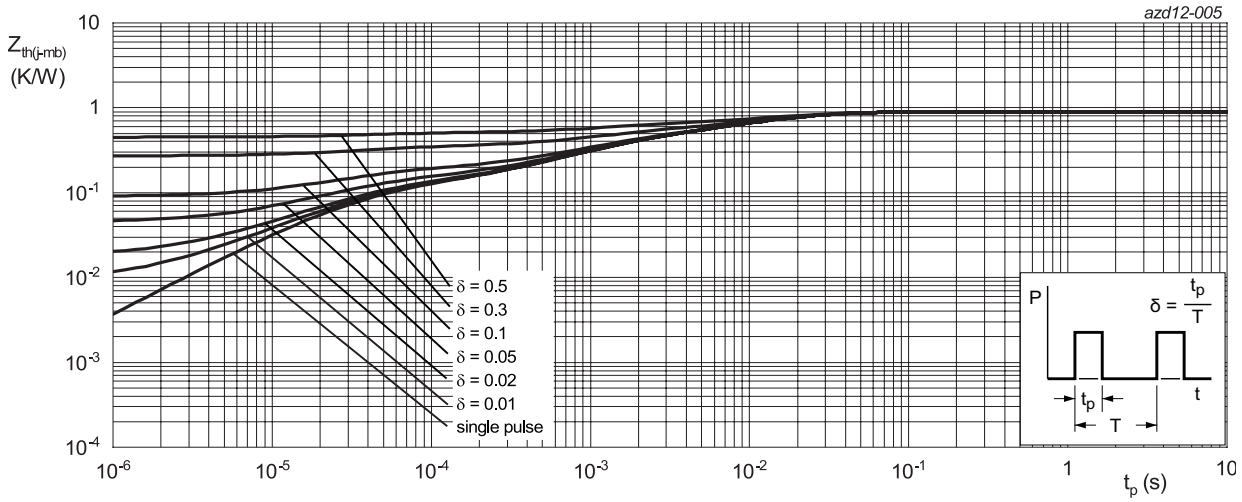
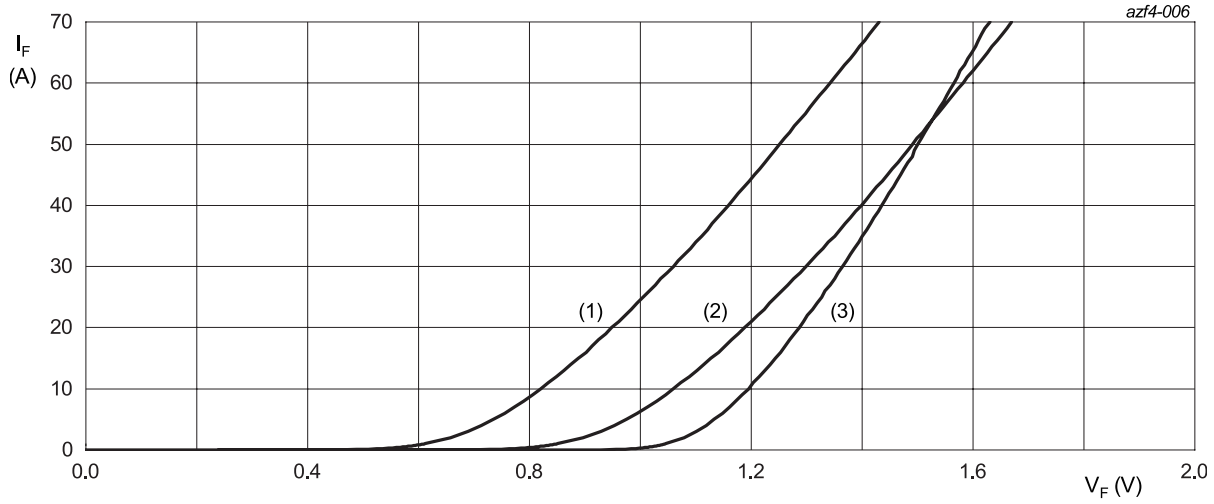


Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Static characteristics							
V_F	forward current	I_F = 35 A; T_j = 25 °C; Fig. 6		-	1.18	1.40	V
		I_F = 35 A; T_j = 150 °C; Fig. 6		-	1.15	1.35	V
I_R	reverse current	V_R = 1600 V; T_j = 25 °C		-	-	50	µA
		V_R = 1600 V; T_j = 150 °C		-	-	1	mA

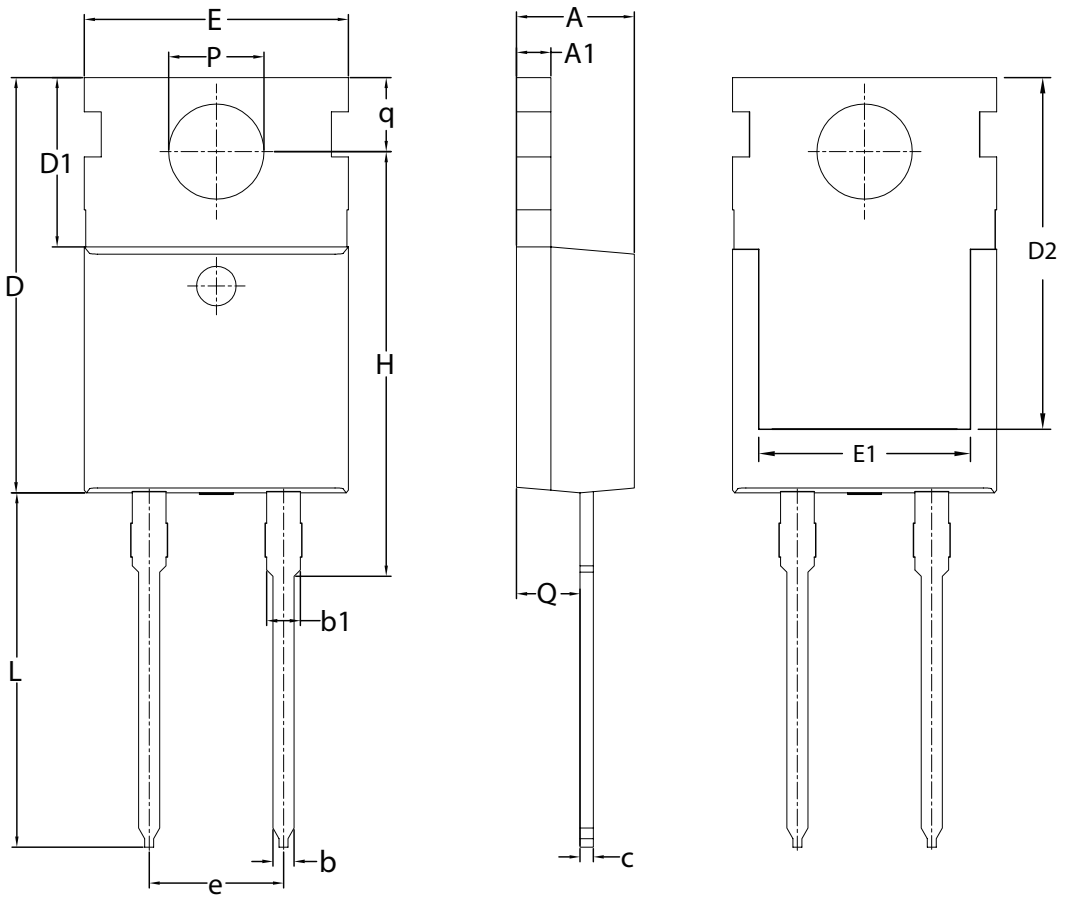


V_o = 1.025 V; R_s = 0.0092 Ω
(1) T_j = 150 °C; typical values
(2) T_j = 150 °C; maximum values
(3) T_j = 25 °C; maximum values

Fig. 6. Forward current as a function of forward voltage

11. Package outline

Plastic single-ended package; heatsink mounted;1 mounting hole; 2 leads TO-220 TO220-2L



Unit		A	A1	b	b1	c	D	D1	D2	E	E1	e	H	L	P	Q	q
MM	min	4.30	1.15	0.70	1.20	0.45	15.50	6.20	13.00	9.65	7.80	4.95	15.70	12.60	3.65	2.20	2.70
	max	4.70	1.40	0.95	1.70	0.65	16.20	6.80	13.70	10.30	8.20	5.18	16.25	13.80	3.80	2.60	2.90

Note:

1. All dimensions don't include mold flash and metal protrusion.

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.
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Date of release: 18 December 2023