WND35P16B

Standard power diode

Rev.01 - 13 September 2024 Product data sheet

1. General description

Standard reverse recovery power diode in a TO263 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

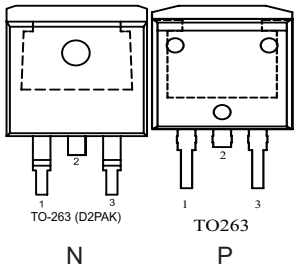
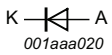
4. Quick reference data

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	A	anode	 N P	
2	K	cathode [1]		
3	A	anode		
mb	K	mounting base; connected to cathod		

[1] It is not possible to connect to pin 2 of the TO263 package.

6. Ordering information

Table 3. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
WND35P16B	TO263	WND35P16BJ	Reel	800	TO263N (N)	28-Sep-2016
					TO263P (P)	12-Jun-2023

7. Marking

Table 4. Marking codes

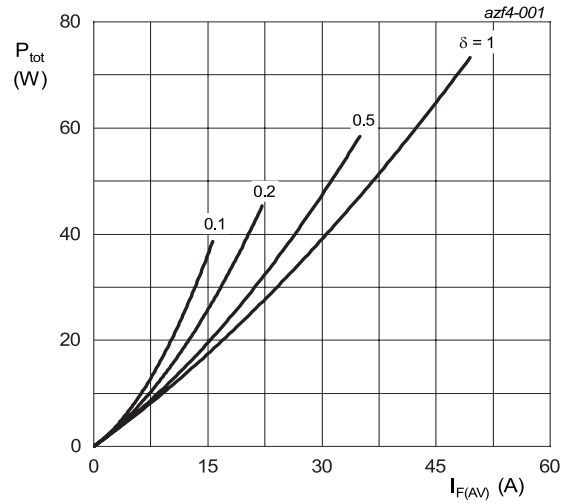
Type number	Marking codes	
	Assembly factory: N	Assembly factory: P
WND35P16B	WND35P16B PJNxxxx xx	WND35P16B PJPxxxx xx

8. Limiting values

Table 5. Limiting values

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

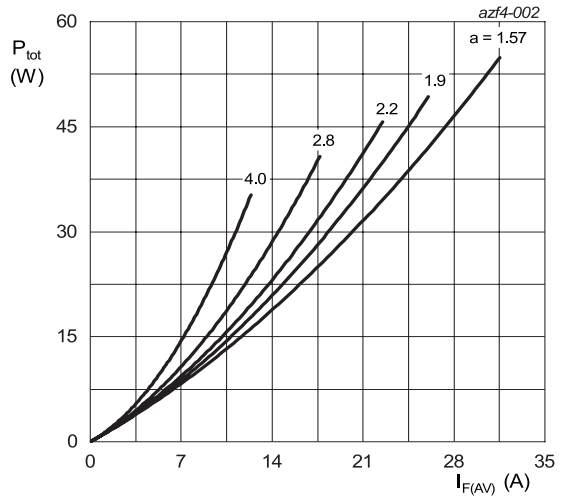
Symbol	Parameter	Conditions	Notes	Values	Unit
V_{RRM}	repetitive peak reverse voltage			1600	V
V_{RWM}	crest working reverse voltage			1600	V
V_R	reverse voltage	DC		1600	V
$I_{F(AV)}$	average forward current	δ = 0.5 ; square-wave pulse; $T_{mb} \leq 97$ °C; Fig. 1; Fig. 2; Fig. 3		35	A
I_{FSM}	non-repetitive 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

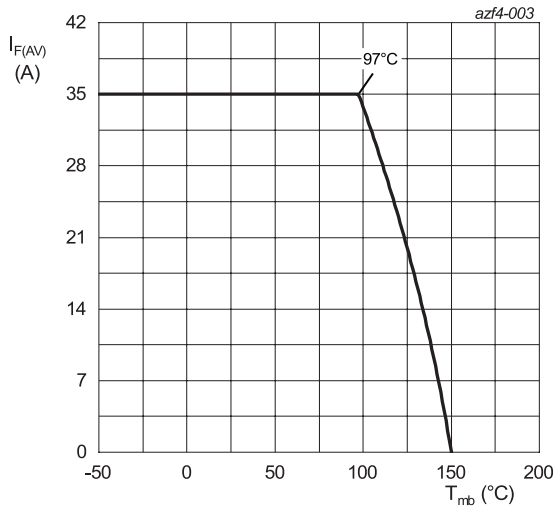


Fig. 3. Forward current as a function of mounting base temperature; maximum values

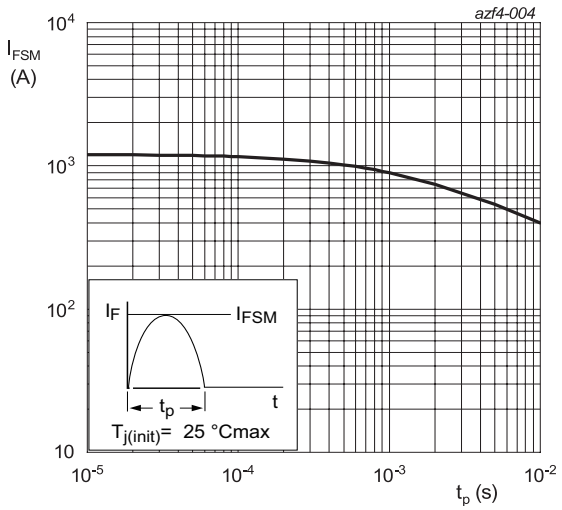


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Notes	Values	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		-	50	-	K/W

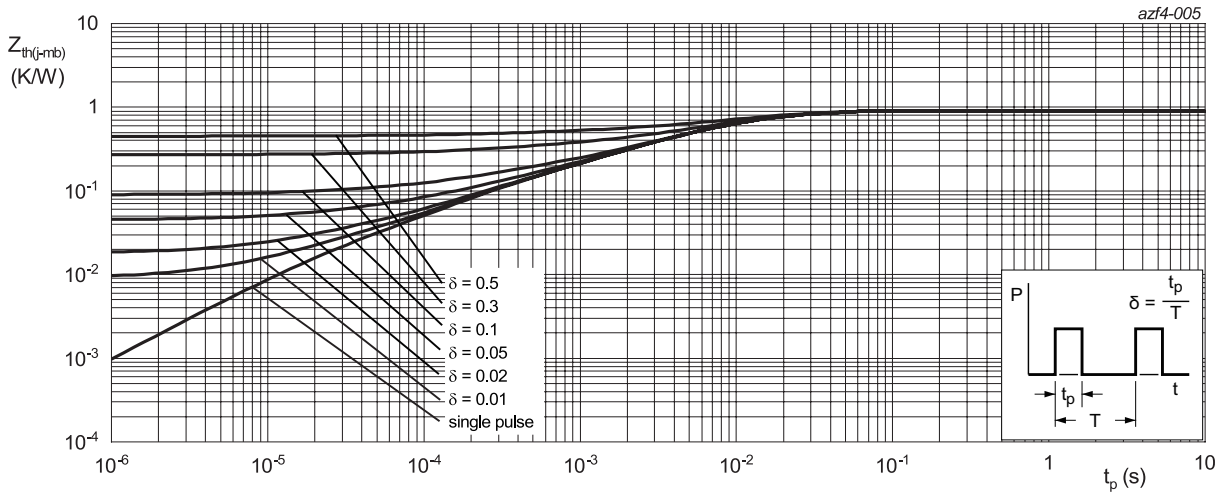
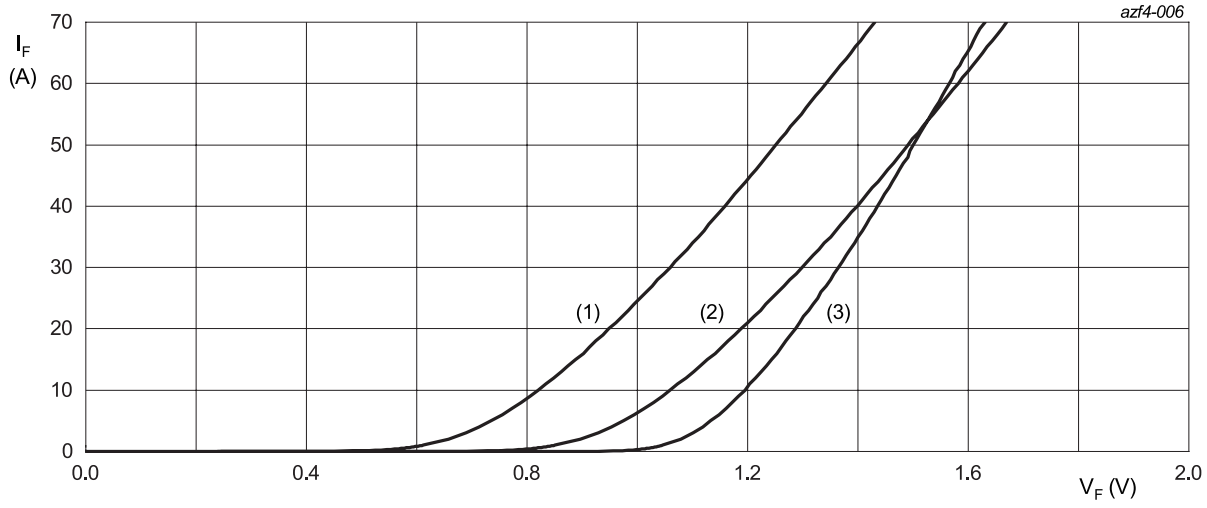


Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Notes	Values	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_F = 25 A; T_j = 25 °C; Fig. 6		-	1.10	1.30	V
		I_F = 25 A; T_j = 150 °C; Fig. 6		-	1.05	1.25	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



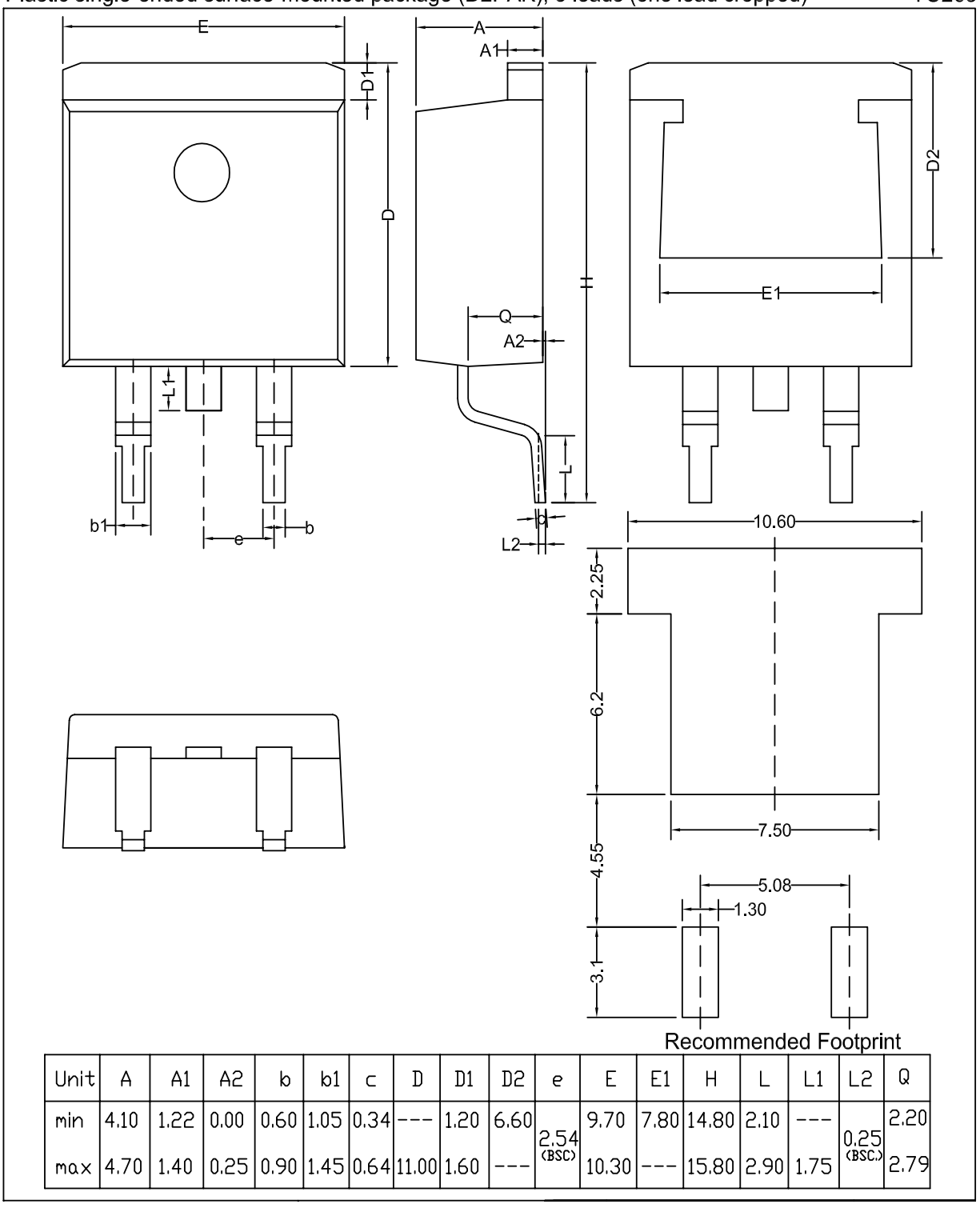
V_o = 1.025 V; R_s = 0.0092 Ω
(1) T_j = 150 °C; typical values
(2) T_j = 150 °C; maximum values
(3) T_j = 25 °C; maximum values

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

11. Package outline

Assembly factory: N

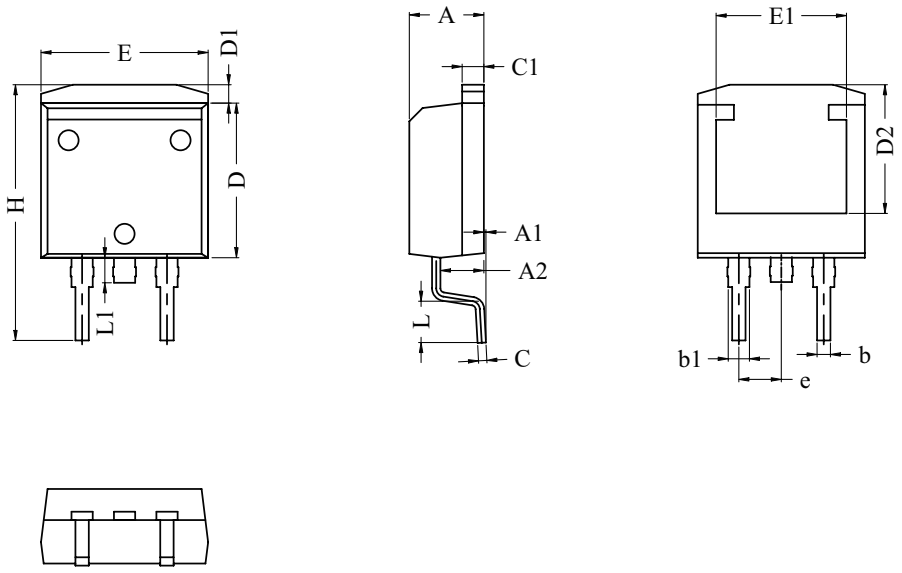
Plastic single-ended surface-mounted package (D2PAK); 3 leads (one lead cropped) TO263



Unit	A	A1	A2	b	b1	c	D	D1	D2	e	E	E1	H	L	L1	L2	Q
min	4.10	1.22	0.00	0.60	1.05	0.34	---	1.20	6.60	2.54 (BSC)	9.70	7.80	14.80	2.10	---	0.25 (BSC.)	2.20
max	4.70	1.40	0.25	0.90	1.45	0.64	11.00	1.60	---		10.30	---	15.80	2.90	1.75		2.79

Assembly factory: P

Plastic single-ended surface-mounted package (D2PAK); 3 leads (one lead cropped) TO263



Dim	All Dimensions in Millimeters		
	Min	Typ	Max
A	4.30	4.46	4.60
A1	0	0.13	0.25
A2	2.50	2.60	2.70
b	0.70	0.80	0.90
b1	1.10	1.27	1.45
C	0.40	0.52	0.60
C1	1.17	1.30	1.40
D	9.10	9.25	9.40
D1	1.00	1.10	1.30
D2	7.40	7.70	8.00
E	9.80	10.00	10.20
E1	7.60	7.80	8.00
e	2.54 BSC		
H	14.80	15.30	15.80
L	2.10	2.47	2.80
L1	1.30	1.50	1.70

12. Legal information

Data sheet status

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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13. Contents

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