

1. General description

Automotive grade 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
- Package meets UL94V-0 flammability requirement

3. Applications

- Input rectification
- Bypass diode
- On board and off-board xEV battery chargers

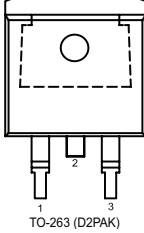
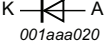
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Values			Unit
Absolute maximum rating						
V_{RRM}	repetitive peak reverse voltage		1200			V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; 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	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
		$I_F = 35$ A; $T_j = 150$ °C; Fig. 6	-	1.15	1.35	V

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode	 <p>TO-263 (D2PAK)</p>	 <p>001aaa020</p>
2	K	cathode [1]		
3	A	anode		
mb	K	mounting base; connected to cathode		

[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
WND35P12B-A	TO263	WND35P12B-AJ	Reel	800	TO263N	26-Sep-2016

7. Marking

Table 4. Marking codes

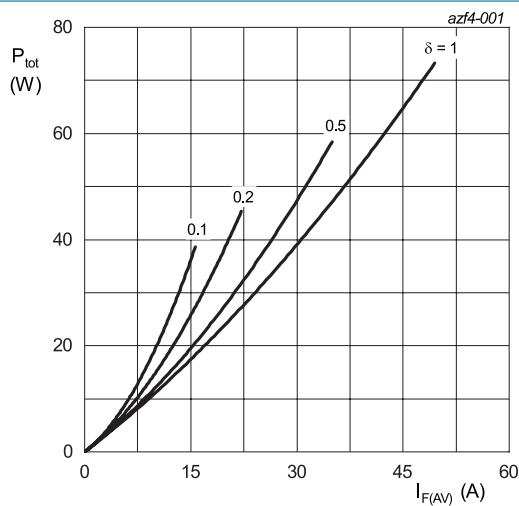
Type number	Marking codes
WND35P12B-A	WND35P12B-A

8. Limiting values

Table 5. Limiting values

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

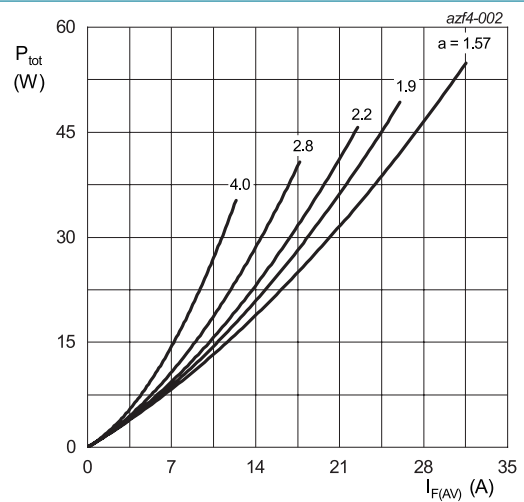
Symbol	Parameter	Conditions	Values	Unit
V_{RRM}	repetitive peak reverse voltage		1200	V
V_{RWM}	crest working reverse voltage		1200	V
V_R	reverse voltage	DC	1200	V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 97\text{ }^\circ\text{C}$; Fig. 1 ; Fig. 2 ; Fig. 3	35	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	400	A
		$t_p = 8.3\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse	435	A
T_{stg}	storage temperature		-40 to 150	$^\circ\text{C}$
T_j	junction temperature		-40 to 150	$^\circ\text{C}$



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

$$V_o = 1.025\text{ V}; R_s = 0.0092\ \Omega$$

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



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

$$V_o = 1.025\text{ V}; R_s = 0.0092\ \Omega$$

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

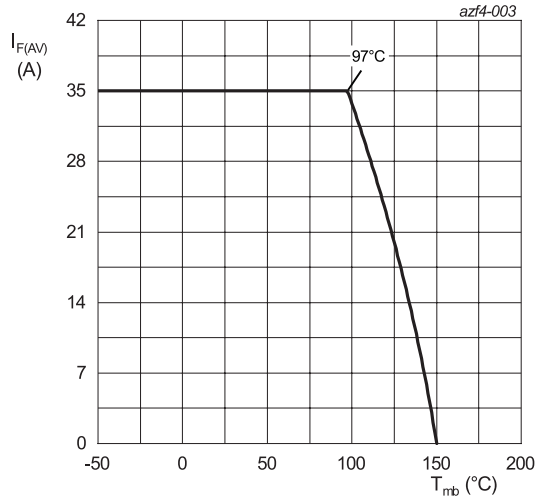


Fig. 3. Forward current as a function of mounting base temperature; maximum values

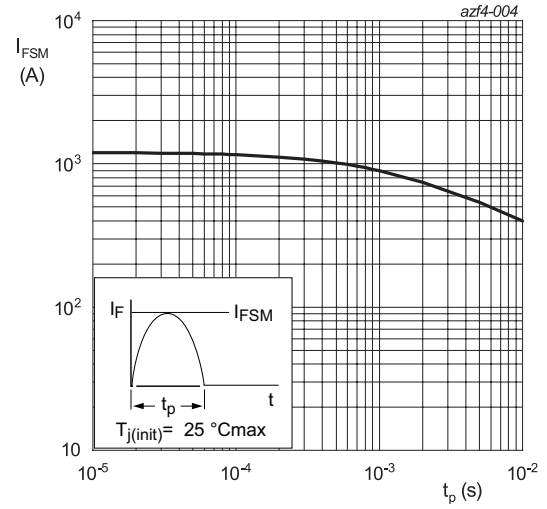


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

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	-	-	0.9	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air	-	50	-	K/W

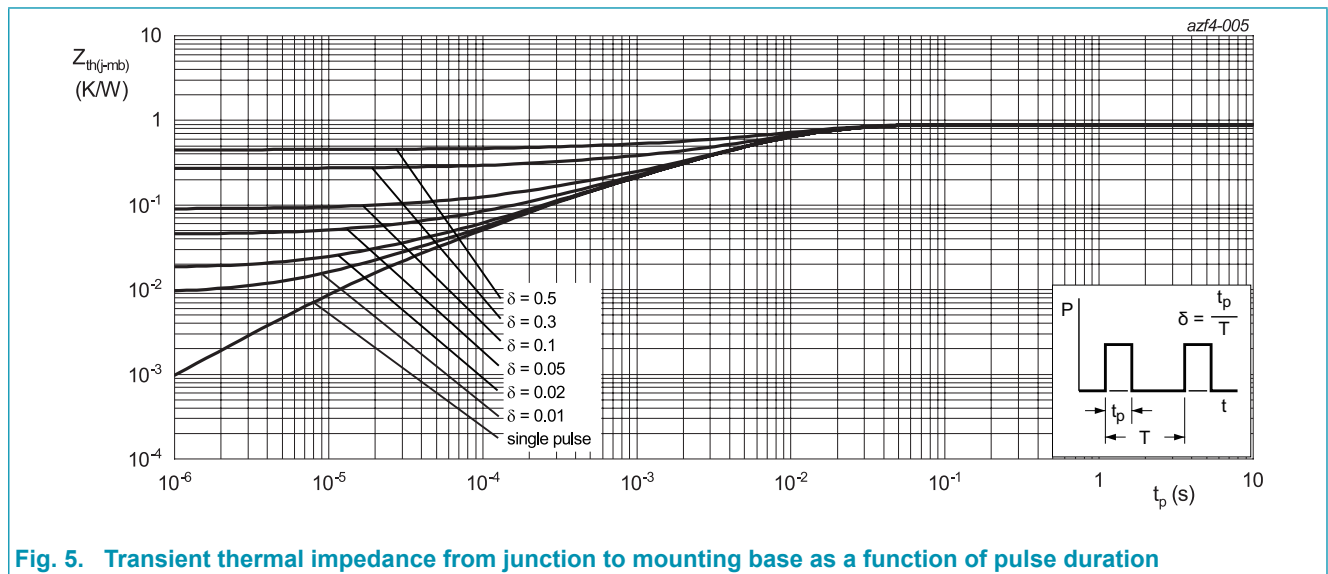
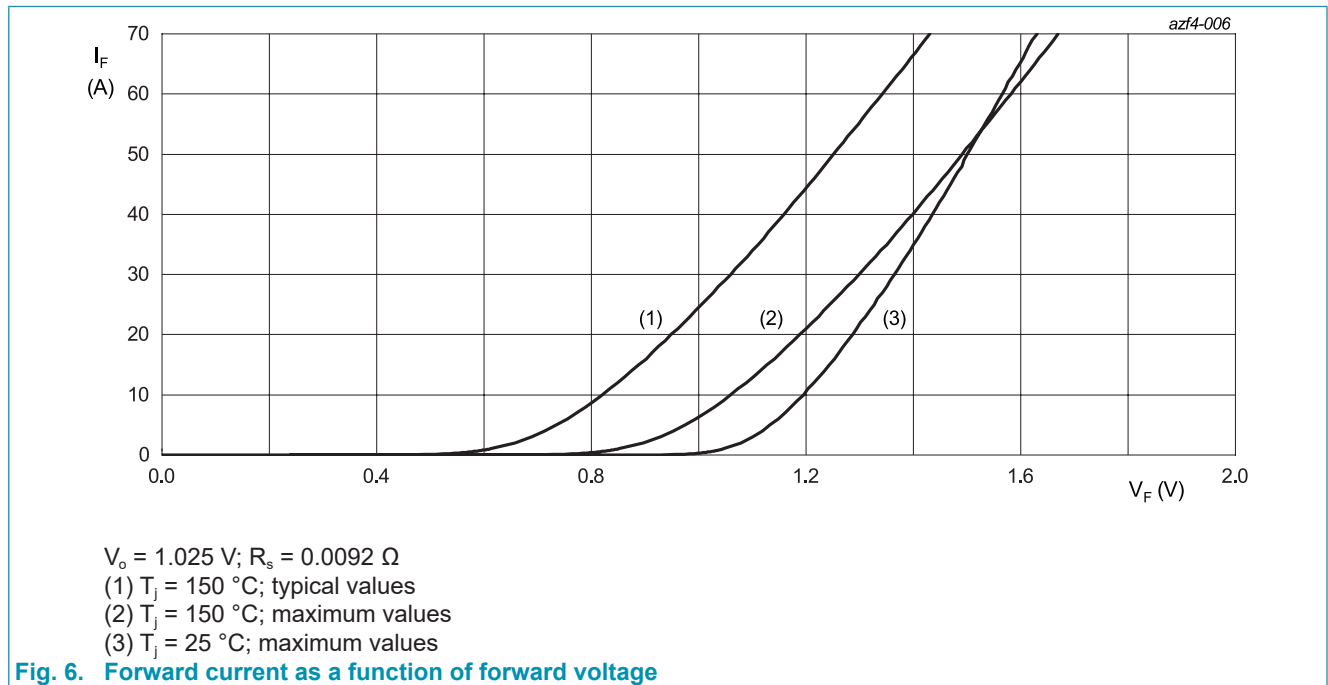


Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration

10. Characteristics

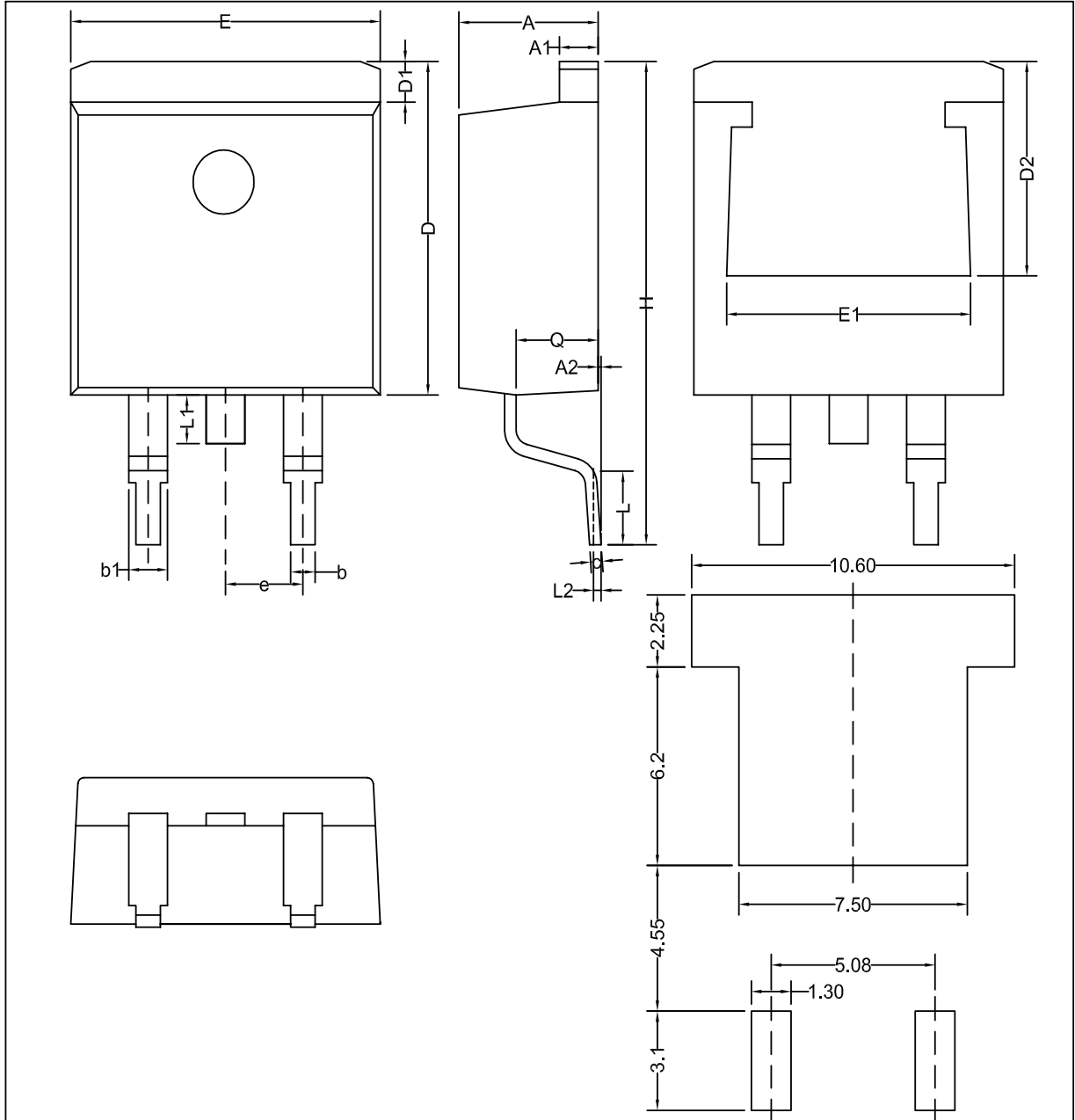
Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V_F	forward current	$I_F = 35\text{ A}; T_j = 25\text{ °C}; \text{Fig. 6}$	-	1.18	1.40	V
		$I_F = 35\text{ A}; T_j = 150\text{ °C}; \text{Fig. 6}$	-	1.15	1.35	V
		$I_F = 25\text{ A}; T_j = 25\text{ °C}; \text{Fig. 6}$	-	1.10	1.30	V
		$I_F = 25\text{ A}; T_j = 150\text{ °C}; \text{Fig. 6}$	-	1.05	1.25	V
I_R	reverse current	$V_R = 1200\text{ V}; T_j = 25\text{ °C}$	-	-	50	μA
		$V_R = 1200\text{ V}; T_j = 150\text{ °C}$	-	-	1	mA



11. Package outline

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



Recommended Footprint

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

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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.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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