WND10P08X

Standard power diode

Rev.01 12 March 2019 Product data sheet

1. General description

Standard reverse recovery power diode in a TO-220F package.

2. Features and benefits

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

3. Applications

- Input rectifier
- Regulator diode

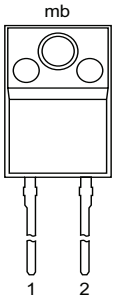
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Values				Unit
Absolute maximum rating							
V_{RRM}	repetitive peak reverse voltage		800				V
$I_{F(AV)}$	average forward current	δ = 0.5 ; square-wave pulse; $T_h \leq 100$ °C; Fig. 1; Fig. 2; Fig. 3	10				A
I_{FSM}	non-repetitive peak forward current	t_p = 10 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse; Fig. 4	180				A
		t_p = 8.3 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse	216				A
Symbol	**Parameter**	**Conditions**		**Min**	**Typ**	**Max**	**Unit**
Static characteristics							
V_F	forward voltage	I_F = 10 A; T_j = 25 °C; Fig. 6		-	-	1.3	V
		I_F = 10 A; T_j = 150 °C; Fig. 6		-	-	1.15	V

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode		
2	K	cathode		
mb	n.c.	mounting base; isolated		

6. Ordering information

Table 3. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
WND10P08X	TO-220F	WND10P08Q	Tube	50	TO-220F	14-Apr-2014

7. Marking

Table 4. Marking codes

Type number	Marking codes
WND10P08X	WND10P08X

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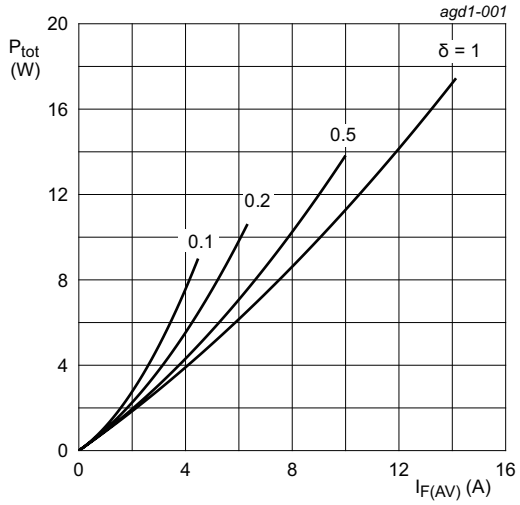
8. Limiting values

Table 5. Limiting values

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

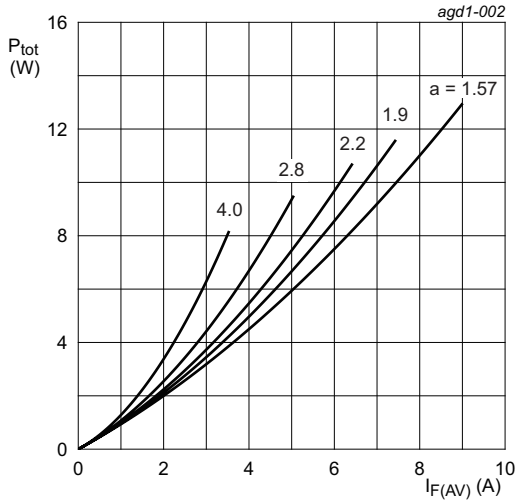
Symbol	Parameter	Conditions	Values	Unit
V_{RRM}	repetitive peak reverse voltage		800	V
V_{RWM}	crest working reverse voltage		800	V
V_R	reverse voltage	DC	800	V
$I_{F(AV)}$	average forward current	δ = 0.5 ; square-wave pulse; $T_h \leq 100$ °C; Fig. 1; Fig. 2; Fig. 3	10	A
I_{FSM}	non-repetitive peak forward current	t_p = 10 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse; Fig. 4	180	A
		t_p = 8.3 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse	216	A
T_{stg}	storage temperature		-55 to 150	°C
T_j	junction temperature		150	°C



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

V_o = 0.874 V; R_s = 0.0255 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 = 0.874 V; R_s = 0.0255 Ω

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

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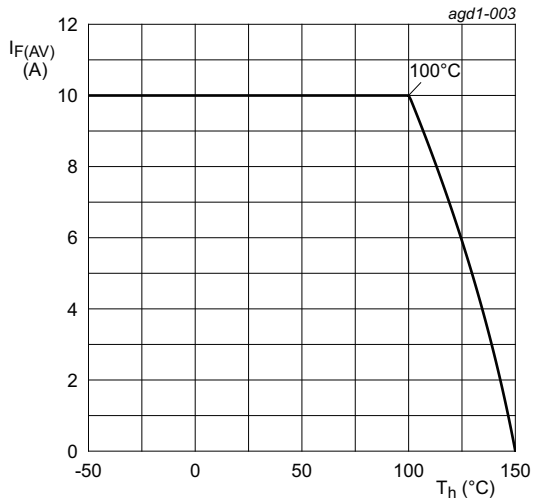

Fig. 3. Forward current as a function of heatsink temperature; maximum values

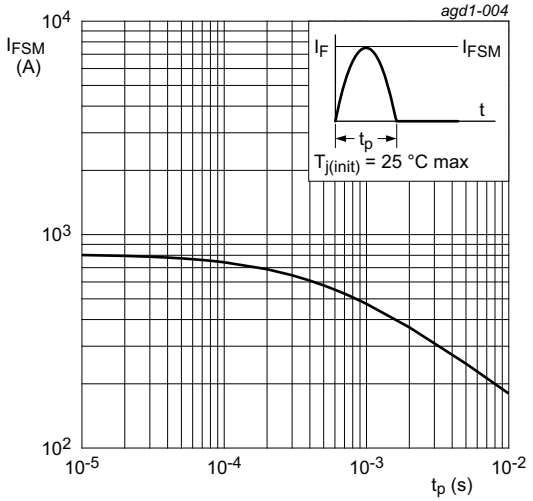

Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

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9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-h)}$	thermal resistance from junction to heatsink	Fig. 5		-	-	3.6	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air		-	55	-	K/W

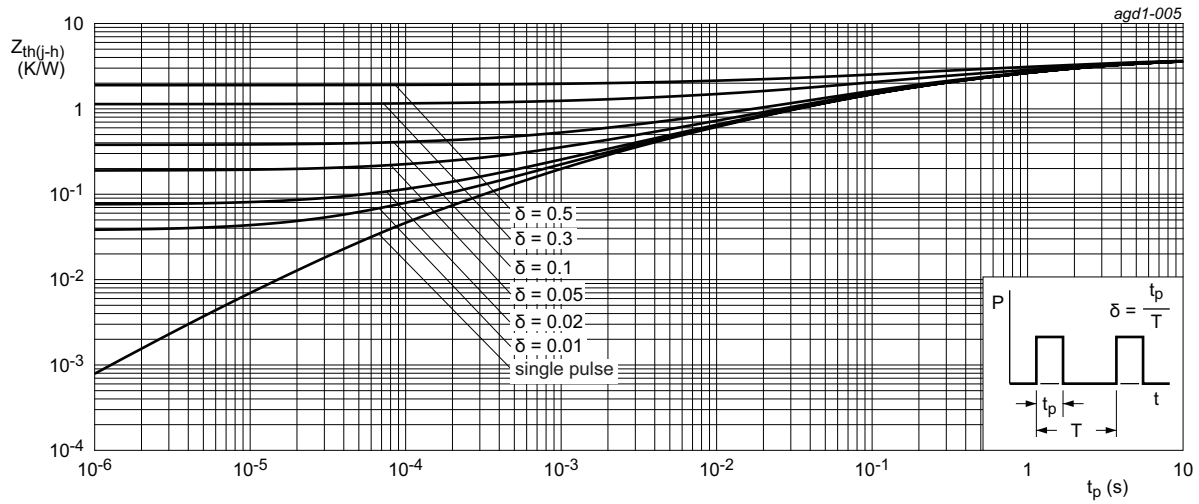

Fig. 5. Transient thermal impedance from junction to heatsink as a function of pulse duration

10. Isolation characteristics

Table 7. Isolation characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$V_{isol(RMS)}$	RMS isolation voltage	50 Hz ≤ f ≤ 60 Hz; RH ≤ 65 %; from all pins to external heatsink; sinusoidal waveform; clean and dust free		-	-	2500	V
C_{isol}	isolation capacitance	from cathode to external heatsink		-	10	-	PF

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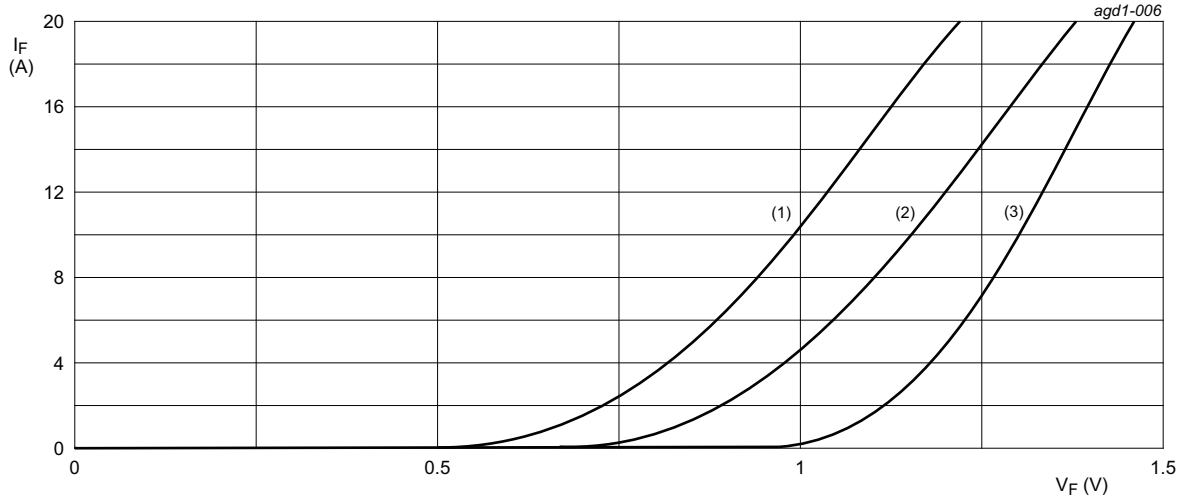
11. Characteristics

Table 8. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Static characteristics							
V_F	forward current	I_F = 10 A; T_j = 25 °C; Fig. 6		-	-	1.3	V
		I_F = 10 A; T_j = 150 °C; Fig. 6		-	-	1.15	V
I_R	reverse current	V_R = 800 V; T_j = 25 °C		-	-	10	µA
		V_R = 800 V; T_j = 150 °C		-	-	1	mA



V_o = 0.874 V; R_s = 0.0255 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

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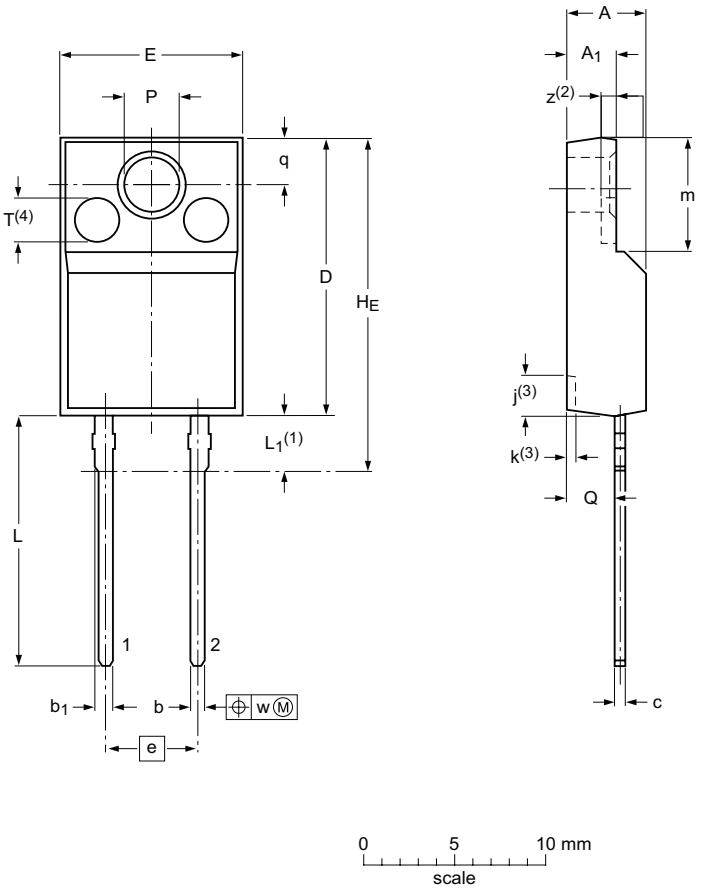
12. Package outline

Plastic single-ended package; isolated heasink mounted; 1 mounting hole; 2-lead TO-220F 'full pack' **SOD113A**



Dimensions (mm are the original dimensions)

Unit		A	A_1	b	b_1	c	D	E	e	H_E max	$j^{(3)}$	$k^{(3)}$	L	$L_1{}^{(1)}$	m	P	Q	q	$T^{(4)}$	W	$z^{(2)}$
mm	max	4.6	3.1	0.9	1.1	0.7	15.8	10.3	5.08	19.0	2.7	0.8	14.4	3.3	6.5	3.2	2.8	2.6	2.55	0.4	0.8
	nom																				
	min	4.0	2.5	0.7	0.9	0.4	15.2	9.7			1.7	0.4	13.5	2.8	6.3	3.0	2.3				

Note
1. Terminals are uncontrolled within zone L1.
2. z is depth of T.
3. Dot lines area designs may vary.
4. Eject pin mark is for reference only.

sod113a_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOD113A		2 LEADS TO220F				~~14-01-14~~ 14-04-10

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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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