

## 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

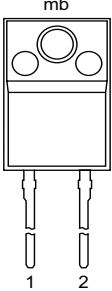
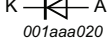
## 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Values			Unit
<b>Absolute maximum rating</b>						
$V_{RRM}$	repetitive peak reverse voltage		1600			V
$I_{F(AV)}$	average forward current	$\delta = 0.5$ ; square-wave pulse; $T_h \leq 113$ °C; <a href="#">Fig. 1</a> ; <a href="#">Fig. 2</a> ; <a href="#">Fig. 3</a>	8			A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 10$ ms; $T_{j(init)} = 25$ °C; sine-wave pulse; <a href="#">Fig. 4</a>	180			A
		$t_p = 8.3$ ms; $T_{j(init)} = 25$ °C; sine-wave pulse	216			A
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static characteristics</b>						
$V_F$	forward voltage	$I_F = 8$ A; $T_j = 25$ °C; <a href="#">Fig. 6</a>	-	-	1.2	V
		$I_F = 8$ A; $T_j = 150$ °C; <a href="#">Fig. 6</a>	-	-	1.1	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
WND08P16X	TO-220F	WND08P16XQ	Tube	50	TO-220F	14-Apr-2014

## 7. Marking

**Table 4. Marking codes**

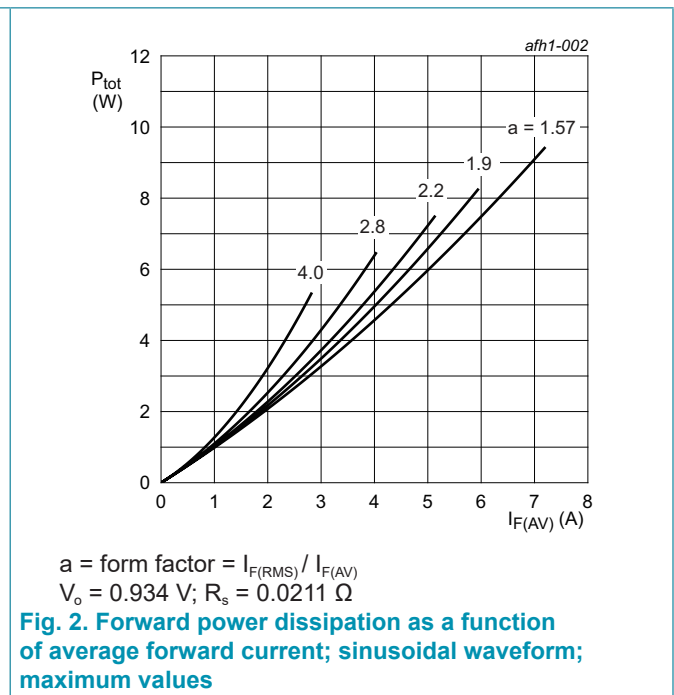
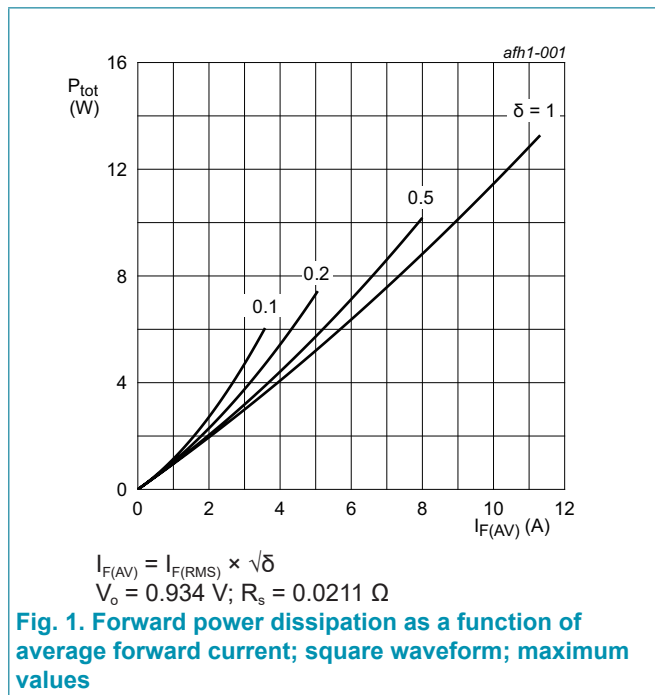
Type number	Marking codes
WND08P16X	WND08P16X

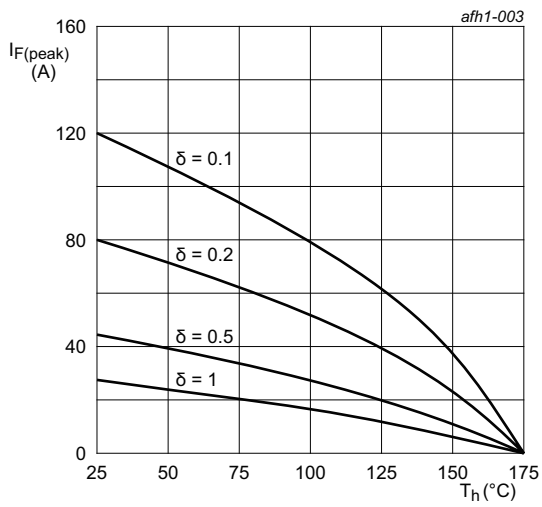
## 8. Limiting values

**Table 5. Limiting values**

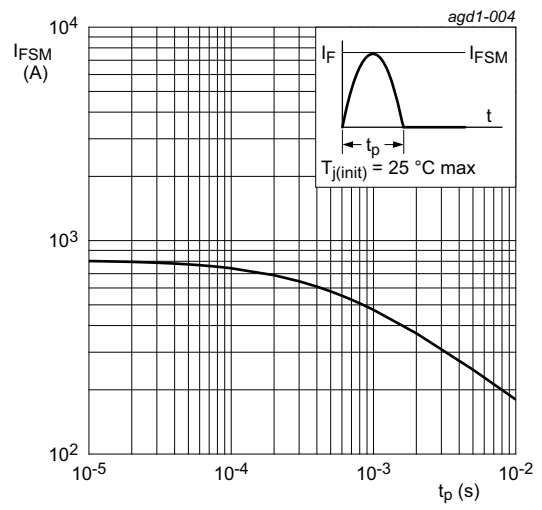
In accordance with the Absolute Maximum Rating System (IEC 60134).

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; $T_n \leq 113\text{ }^\circ\text{C}$ ; <a href="#">Fig. 1</a> ; <a href="#">Fig. 2</a> ; <a href="#">Fig. 3</a>	8	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; <a href="#">Fig. 4</a>	180	A
		$t_p = 8.3\text{ ms}$ ; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$ ; sine-wave pulse	216	A
$T_{stg}$	storage temperature		-55 to 150	$^\circ\text{C}$
$T_j$	junction temperature		150	$^\circ\text{C}$





**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**

## 9. Thermal characteristics

Table 6. Thermal characteristics

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

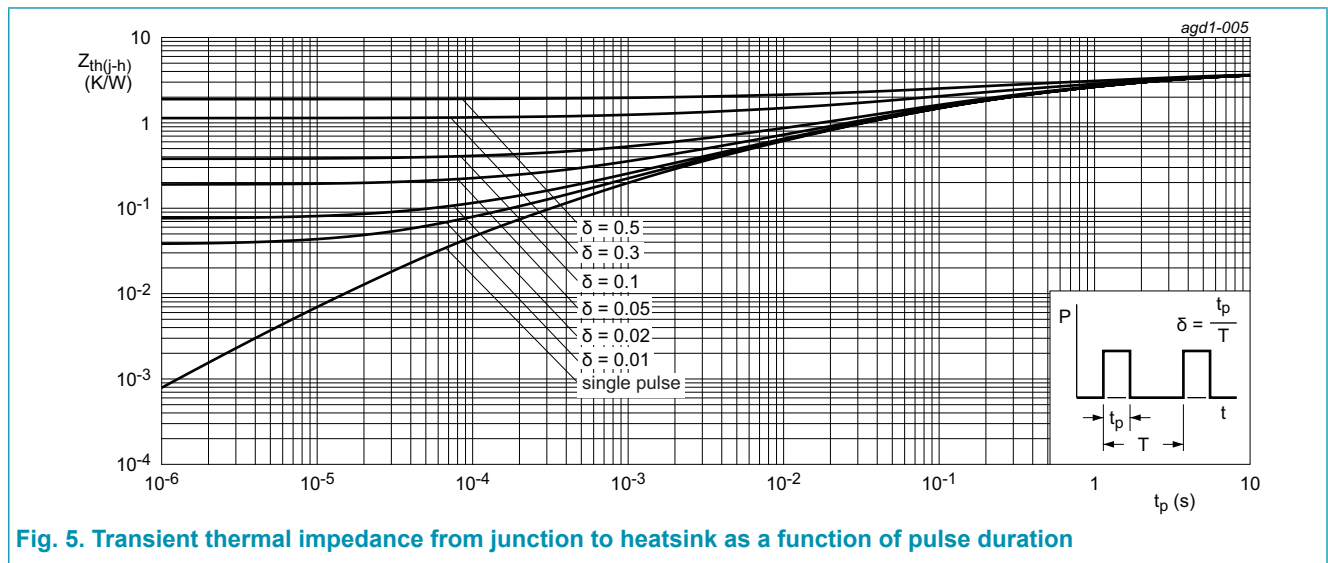


Fig. 5. Transient thermal impedance from junction to heatsink as a function of pulse duration

## 10. Isolation characteristics

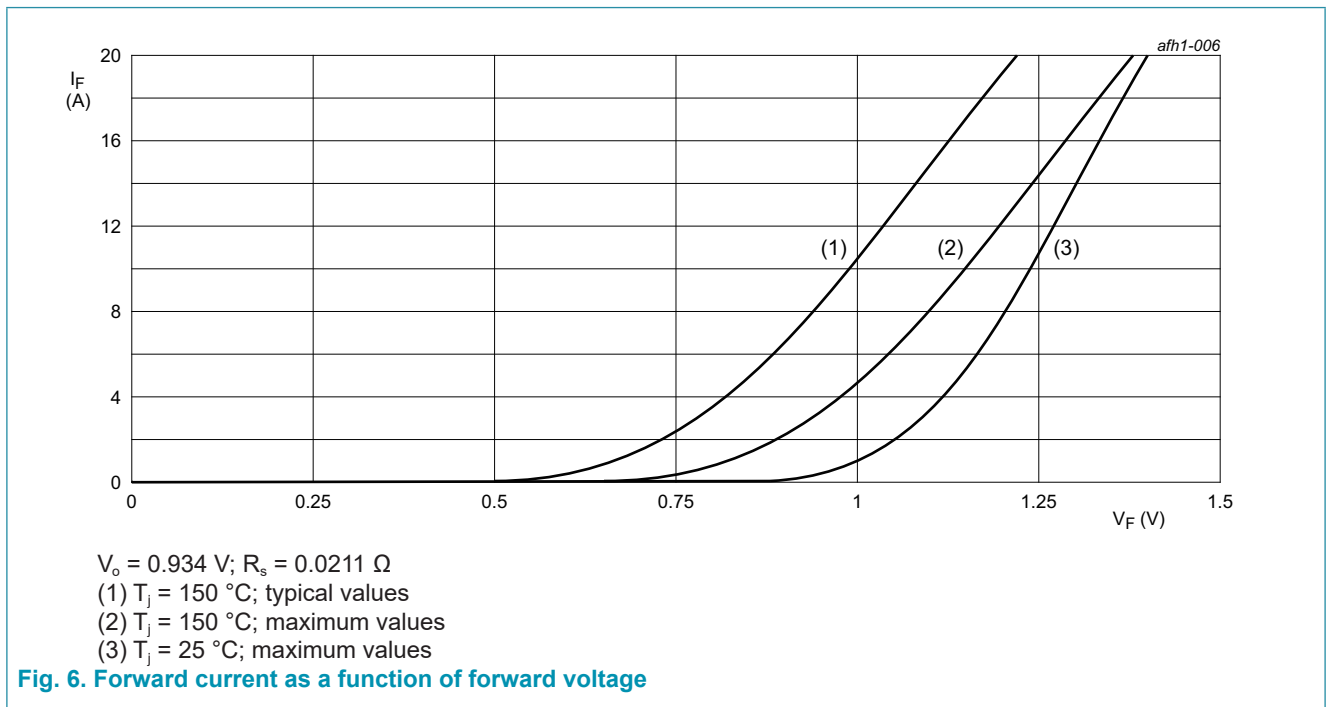
Table 7. Isolation characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{isol(RMS)}$	RMS isolation voltage	50 Hz $\leq$ f $\leq$ 60 Hz; RH $\leq$ 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

## 11. Characteristics

Table 8. Characteristics

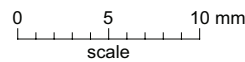
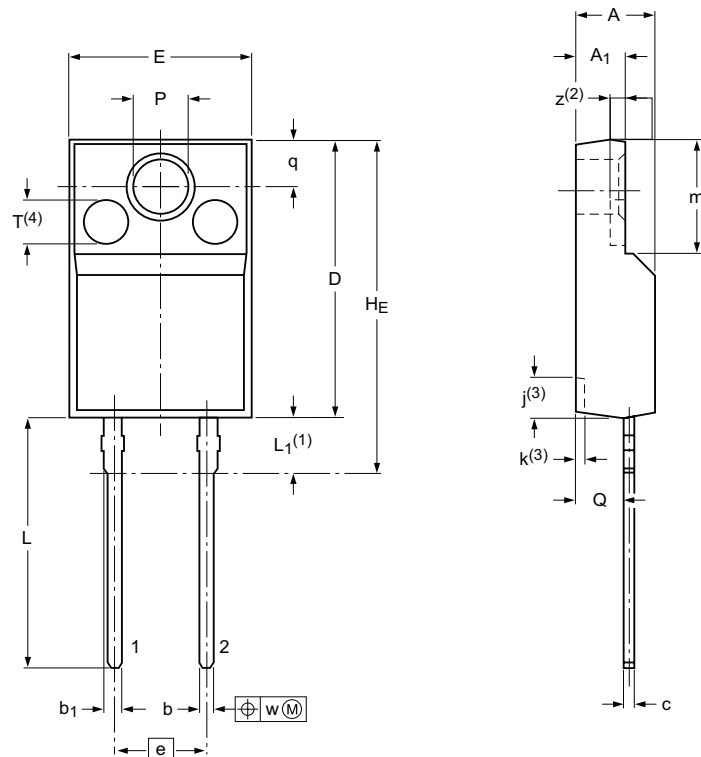
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static characteristics</b>						
$V_F$	forward current	$I_F = 8 \text{ A}; T_j = 25 \text{ }^\circ\text{C}; \text{ Fig. 6}$	-	-	1.2	V
		$I_F = 8 \text{ A}; T_j = 150 \text{ }^\circ\text{C}; \text{ Fig. 6}$	-	-	1.1	V
$I_R$	reverse current	$V_R = 1600 \text{ V}; T_j = 25 \text{ }^\circ\text{C}$	-	-	50	$\mu\text{A}$
		$V_R = 1600 \text{ V}; T_j = 150 \text{ }^\circ\text{C}$	-	-	1.5	mA



## 12. Package outline

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

SOD113A



Dimensions (mm are the original dimensions)

Unit	A	A <sub>1</sub>	b	b <sub>1</sub>	c	D	E	e	H <sub>E</sub> max	j <sup>(3)</sup>	k <sup>(3)</sup>	L	L <sub>1</sub> <sup>(1)</sup>	m	P	Q	q	T <sup>(4)</sup>	W	z <sup>(2)</sup>	
max	4.6	3.1	0.9	1.1	0.7	15.8	10.3			2.7	0.8	14.4	3.3	6.5	3.2	2.8					
nom								5.08	19.0									2.6	2.55	0.4	0.8
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

## 13. 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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