

## 1. General description

Dual common cathode power Schottky diode in TO220F plastic package



## 2. Features and benefits

- High junction temperature up to 175°C
- Low forward voltage drop, negligible switching losses
- High efficiency

## 3. Applications

- DC to DC converters
- Freewheeling diode
- OR-ing diode
- Switched mode power supply rectifier

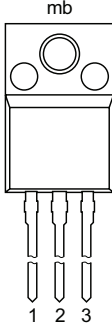
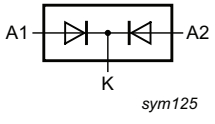
## 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Notes	Values			Unit
<b>Absolute maximum rating</b>							
$V_{RRM}$	repetitive peak reverse voltage			150			V
$I_{F(AV)}$	average forward current	$\delta = 0.5$ ; square-wave pulse; per diode; <a href="#">Fig. 1</a> ; <a href="#">Fig. 2</a> ; <a href="#">Fig. 3</a>		5			A
$I_{O(AV)}$	average output current	$\delta = 0.5$ ; square-wave pulse; both diodes conducting		10			A
Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
<b>Static characteristics</b>							
$V_F$	forward voltage	$I_F = 5$ A; $T_j = 25$ °C; per diode; <a href="#">Fig. 6</a>		-	0.81	0.90	V
$I_R$	reverse current	$V_R = 150$ V; $T_j = 25$ °C; per diode; <a href="#">Fig. 7</a>		-	0.02	5	μA

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode 1		 sym125
2	K	cathode		
3	A2	anode 2		
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
WN3S10S150CXT	TO220F	WN3S10S150CXTQ	Tube	50	SOT186A	14-Nov-2013

## 7. Marking

Table 4. Marking codes

Type number	Marking codes
WN3S10S150CXT	WN3S10S 150CXT

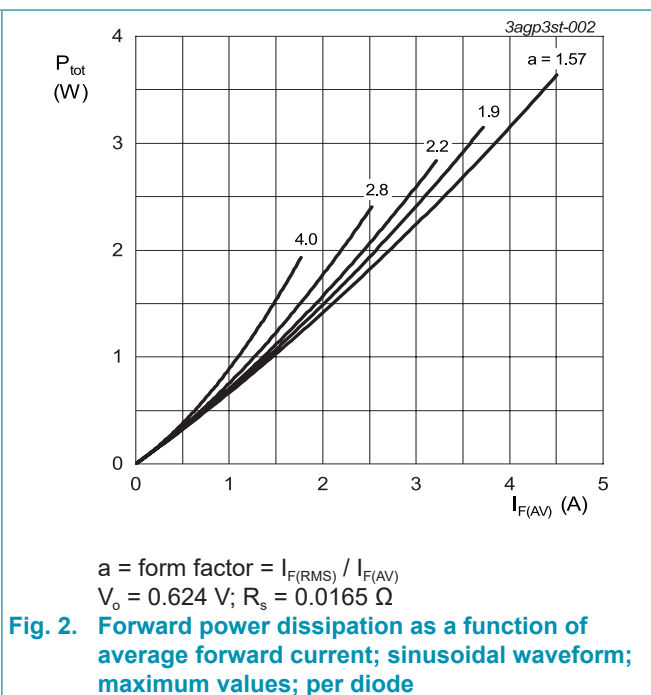
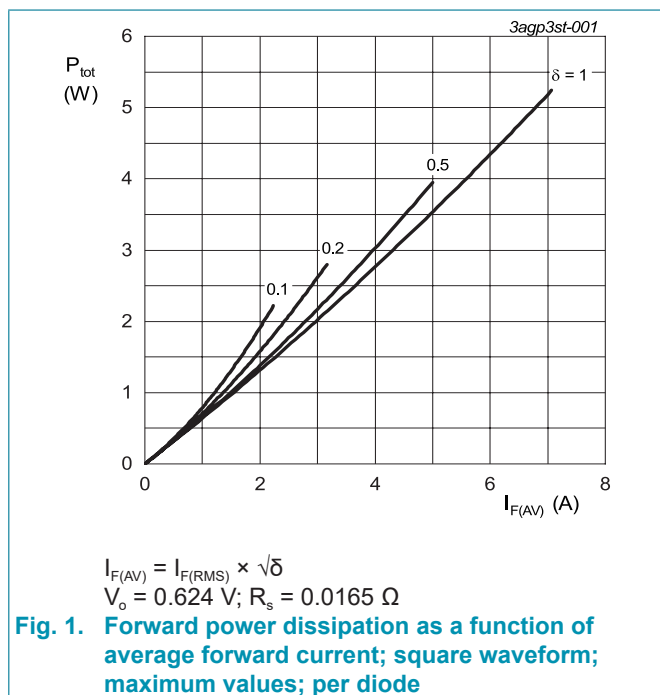
## 8. Limiting values

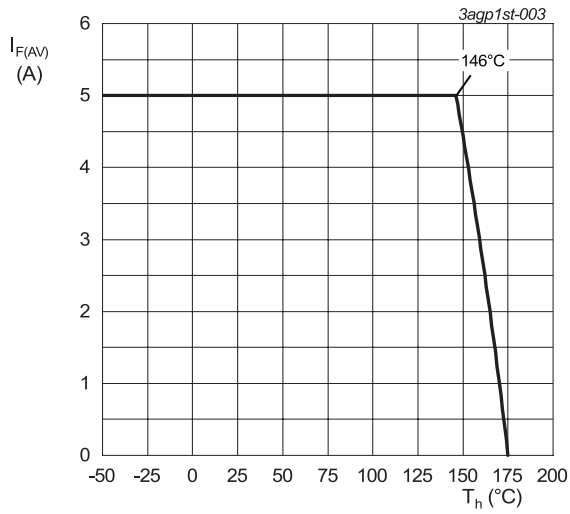
**Table 5. Limiting values**

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

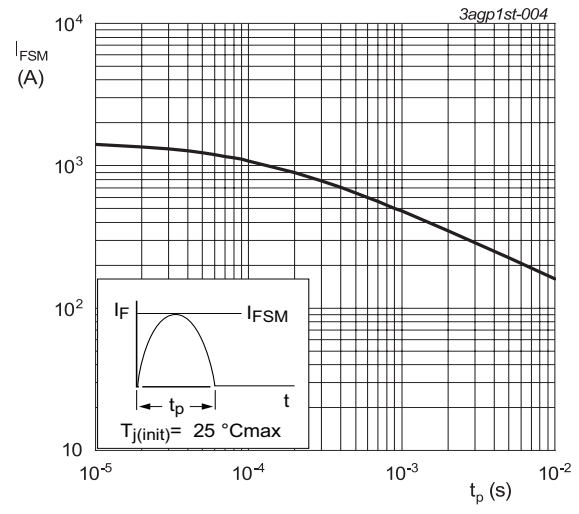
Symbol	Parameter	Conditions	Notes	Values	Unit
$V_{RRM}$	repetitive peak reverse voltage			150	V
$V_{RWM}$	crest working reverse voltage			150	V
$V_R$	reverse voltage	DC		150	V
$I_{F(AV)}$	average forward current	$\delta = 0.5$ ; square-wave pulse; per diode; <a href="#">Fig. 1</a> ; <a href="#">Fig. 2</a> ; <a href="#">Fig. 3</a>		5	A
$I_{O(AV)}$	average output current	$\delta = 0.5$ ; square-wave pulse; both diodes conducting		10	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 10$ ms; $T_{j(init)} = 25$ °C; sine-wave pulse; per diode; <a href="#">Fig. 4</a>		160	A
		$t_p = 8.3$ ms; $T_{j(init)} = 25$ °C; sine-wave pulse; per diode		176	A
$T_{stg}$	storage temperature			-40 to 175	°C
$T_j$	junction temperature		[1]	-40 to 175	°C

[1] The heat generated must be less than the thermal conductivity from Junction to Ambient:  $dP_{tot}/dT_j < 1/R_{th(j-a)}$





**Fig. 3. Average forward current as a function of heatsink temperature; maximum values; per diode**



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

### 9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
$R_{th(j-h)}$	thermal resistance from junction to heatsink	with heatsink compound; per diode;		-	-	7.3	K/W
		with heatsink compound; both diodes conducting		-	-	5.2	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air		-	60	-	K/W

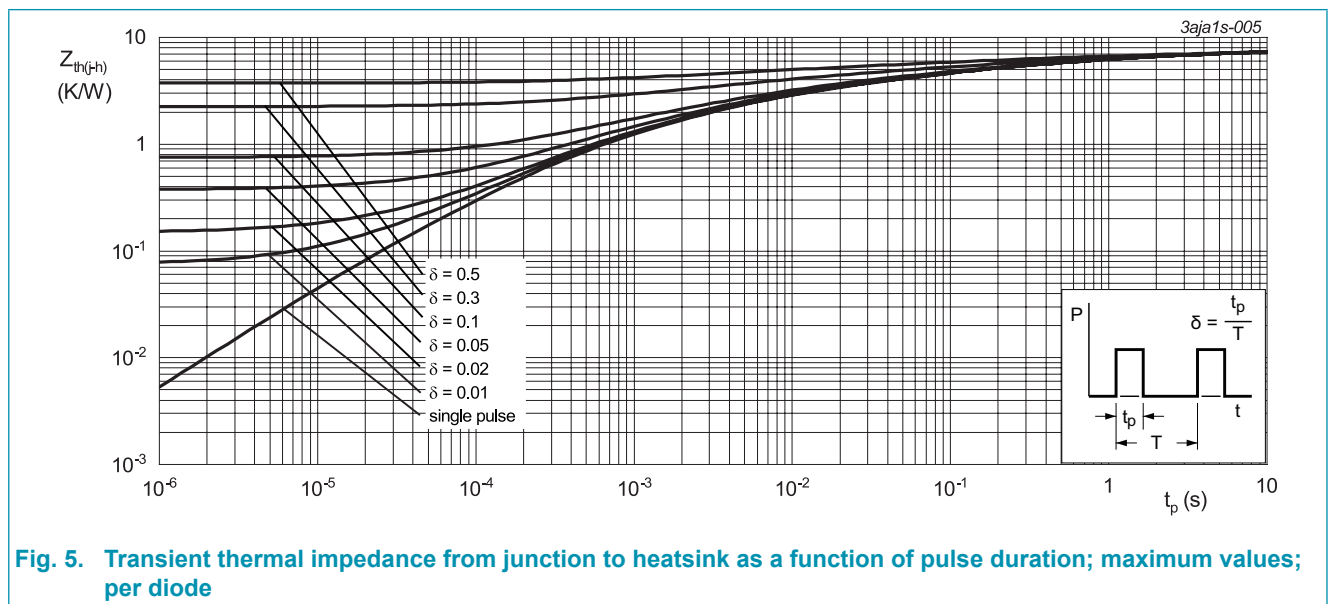


Fig. 5. Transient thermal impedance from junction to heatsink as a function of pulse duration; maximum values; per diode

### 10. Isolation characteristics

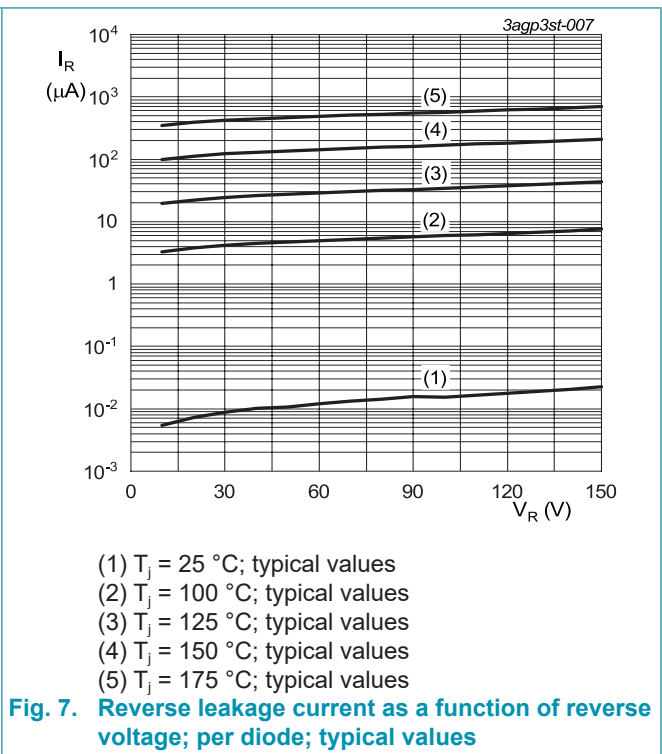
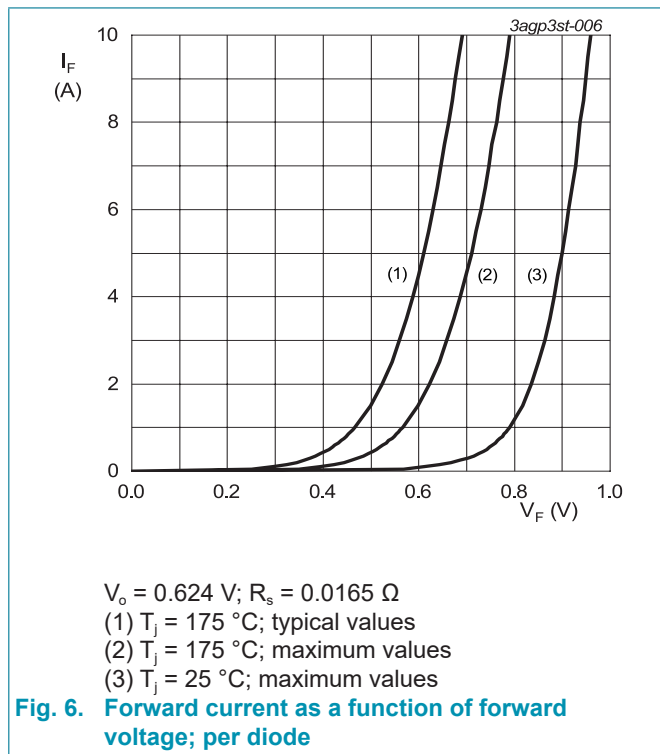
Table 7. Isolation characteristics

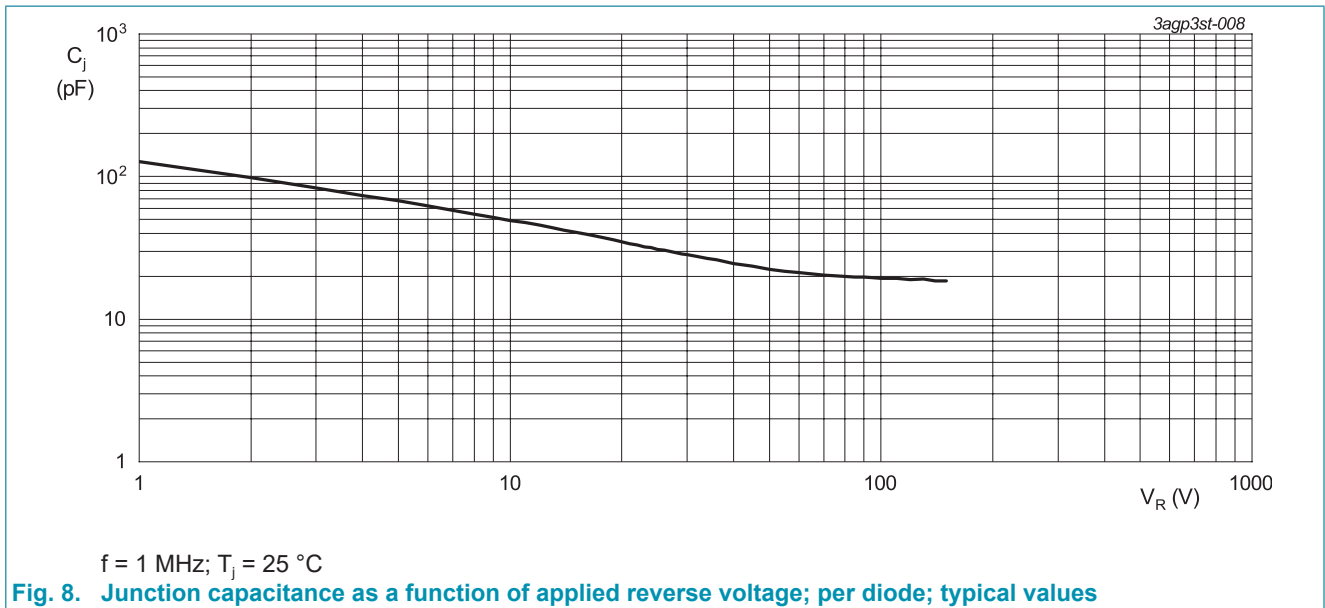
Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
$V_{isol(RMS)}$	RMS isolation voltage	from all terminals to external heatsink; sinusoidal waveform; clean and dust free; 50 Hz ≤ f ≤ 60 Hz; T <sub>h</sub> = 25 °C; RH ≤ 65 %		-	-	2500	V

### 11. Characteristics

Table 8. Characteristics

Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
<b>Static characteristics</b>							
$V_F$	forward voltage	$I_F = 5\text{ A}; T_j = 25\text{ °C};$ per diode; <a href="#">Fig. 6</a>		-	0.81	0.90	V
		$I_F = 5\text{ A}; T_j = 125\text{ °C};$ per diode		-	0.68	-	V
		$I_F = 5\text{ A}; T_j = 175\text{ °C};$ per diode; <a href="#">Fig. 6</a>		-	0.62	0.71	V
$I_R$	reverse current	$V_R = 150\text{ V}; T_j = 25\text{ °C};$ per diode; <a href="#">Fig. 7</a>		-	0.02	5	$\mu\text{A}$
		$V_R = 150\text{ V}; T_j = 125\text{ °C};$ per diode; <a href="#">Fig. 7</a>		-	0.05	-	mA

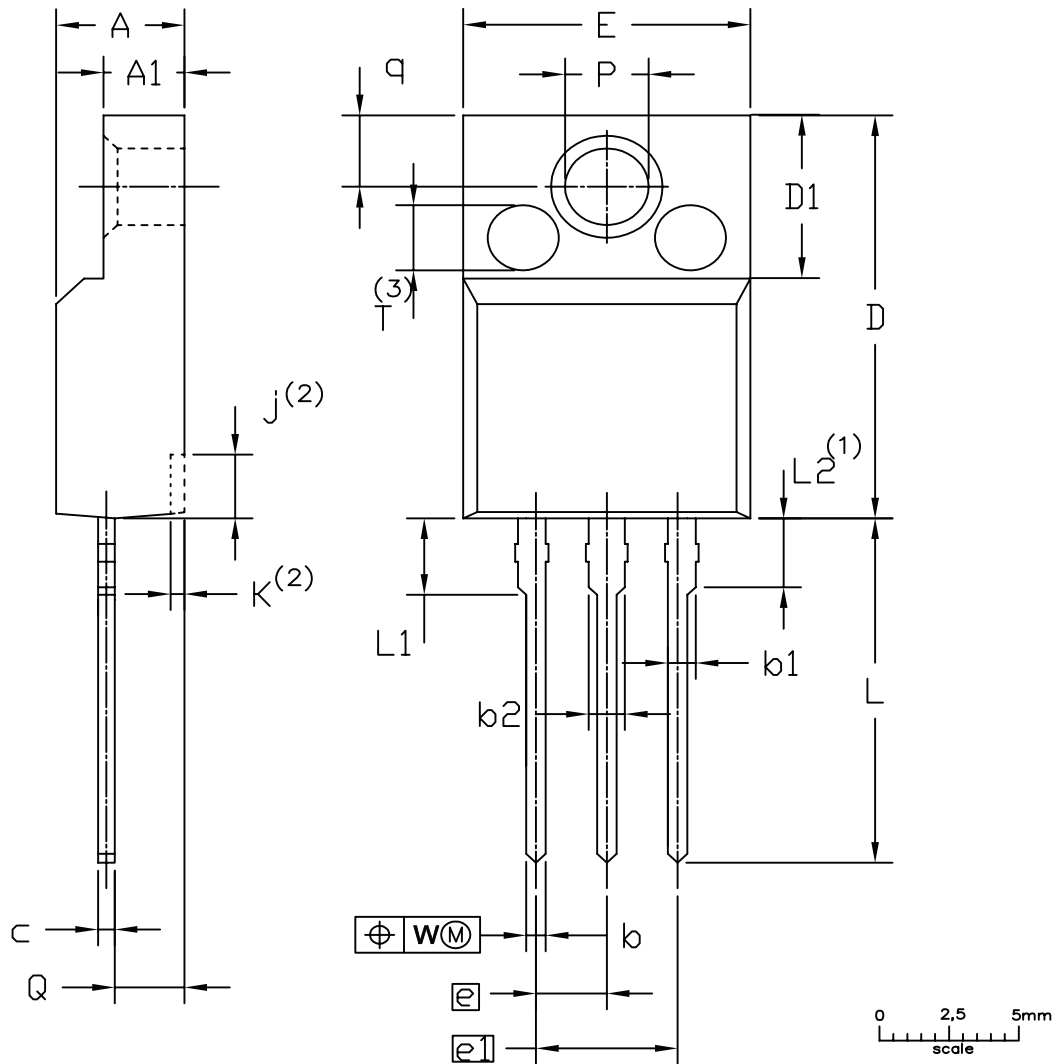




### 12. Package outline

Plastic single-ended package; isolated heatsink mounted; 1 mounting hole; 3-lead TO-220 "full pack"

SOT186A



UNIT	A	A <sub>1</sub>	b	b <sub>1</sub>	b <sub>2</sub>	c	D	D <sub>1</sub>	E	e	e <sub>1</sub>	j <sup>(2)</sup>	k <sup>(2)</sup>	L	L <sub>1</sub>	L <sub>2</sub> <sup>(1)</sup> max.	P	Q	q	W	T <sup>(3)</sup>
mm	4.6	2.9	0.9	1.1	1.4	0.7	15.8	6.5	10.3	2.54	5.08	2.7	0.6	14.4	3.30	3	3.2	2.6	3.0	0.4	2.5
	4.0	2.5	0.7	0.9	1.0	0.4	15.2	6.3	9.7			1.7	0.4	13.5	2.79		3.0	2.3	2.6		

Notes

1. Terminal dimensions within this zone are uncontrolled
2. Dot lines area designs may vary
3. Eject pin mark is for reference only

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT186A		3 LEADS TO220F			2013-11-14



## 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.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
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