

## 1. General description

Dual common cathode power Schottky diode designed for high frequency switched mode power supplies in a TO220 plastic package.



## 2. Features and benefits

- Trench structure
- High junction temperature up to 150°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

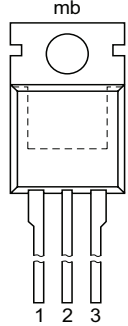
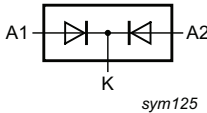
## 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	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; $T_{mb} \leq 129$ °C; per diode; <a href="#">Fig. 1</a> ; <a href="#">Fig. 2</a> ; <a href="#">Fig. 3</a>	10			A
$I_{O(AV)}$	average output current	$\delta = 0.5$ ; square-wave pulse; $T_{mb} \leq 130$ °C; both diodes conducting	20			A
Symbol	Parameter	Conditions	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>	-	0.76	-	V
		$I_F = 5$ A; $T_j = 125$ °C; per diode; <a href="#">Fig. 6</a>	-	0.59	-	V
		$I_F = 10$ A; $T_j = 25$ °C; per diode; <a href="#">Fig. 6</a>	-	1.06	1.1	V
		$I_F = 10$ A; $T_j = 125$ °C; per diode; <a href="#">Fig. 6</a>	-	0.68	0.75	V
$I_R$	reverse current	$V_R = 150$ V; $T_j = 25$ °C; per diode; <a href="#">Fig. 7</a> ; <a href="#">Fig. 8</a>	-	-	50	$\mu$ A
		$V_R = 150$ V; $T_j = 125$ °C; per diode; <a href="#">Fig. 7</a> ; <a href="#">Fig. 8</a>	-	-	15	mA

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode 1		
2	K	cathode		
3	A2	anode 2		
mb	K	mounting base; connected to cathode		

## 6. Ordering information

Table 3. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
WN3S20H150C	TO220	WN3S20H150CQ	Tube	50	SOT78	13-Jun-2008

## 7. Marking

Table 4. Marking codes

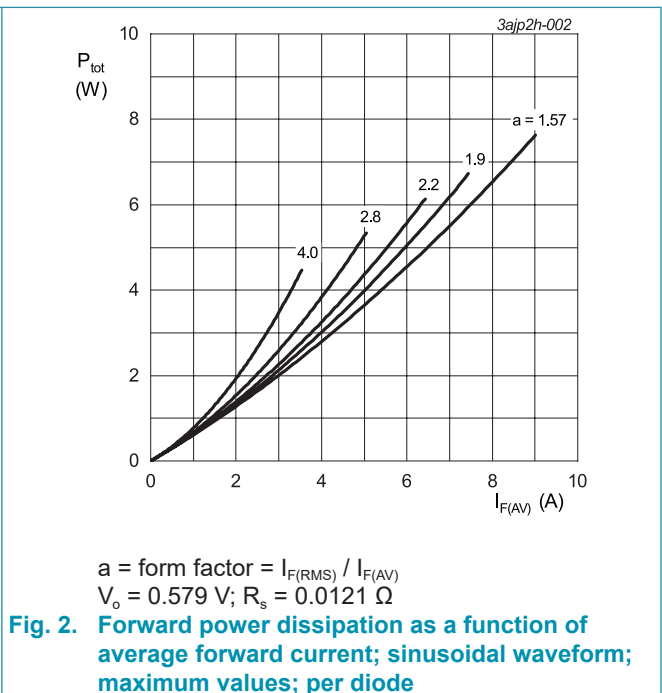
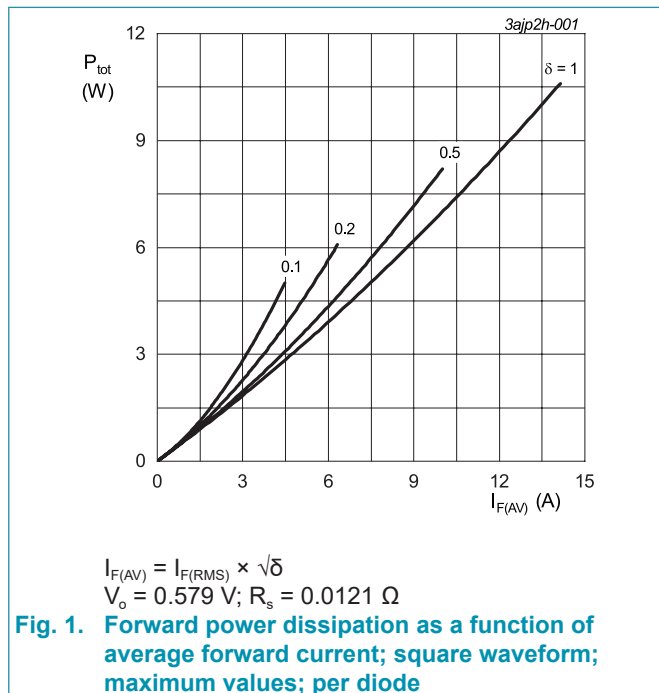
Type number	Marking codes
WN3S20H150C	WN3S 20H150C

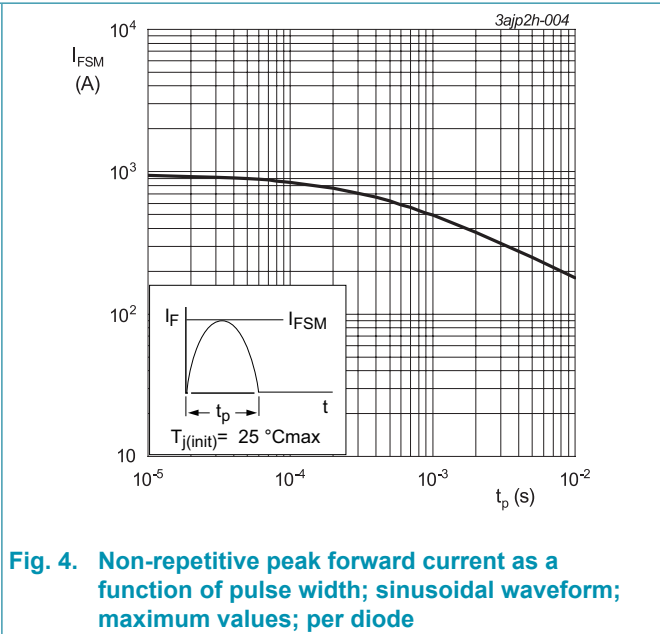
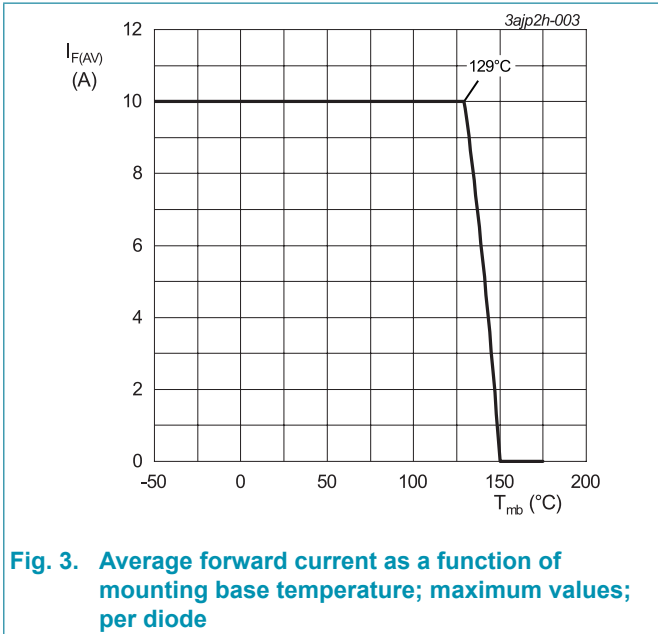
## 8. Limiting values

**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		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; $T_{mb} \leq 129\text{ }^\circ\text{C}$ ; per diode; <a href="#">Fig. 1</a> ; <a href="#">Fig. 2</a> ; <a href="#">Fig. 3</a>	10	A
$I_{O(AV)}$	average output current	$\delta = 0.5$ ; square-wave pulse; $T_{mb} \leq 130\text{ }^\circ\text{C}$ ; both diodes conducting	20	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; per diode; <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; per diode	198	A
$T_{stg}$	storage temperature		-40 to 150	$^\circ\text{C}$
$T_j$	junction temperature		150	$^\circ\text{C}$





### 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	per diode; Fig. 5	-	-	2.5	K/W
		both diodes conducting	-	-	1.2	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air	-	60	-	K/W

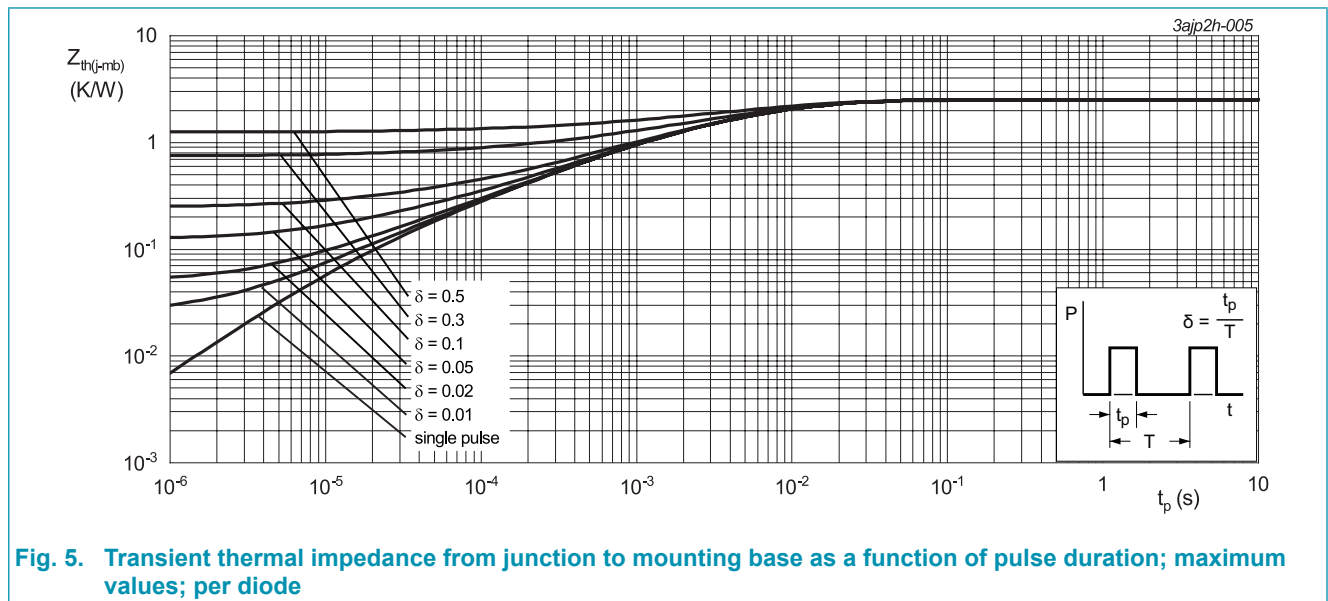
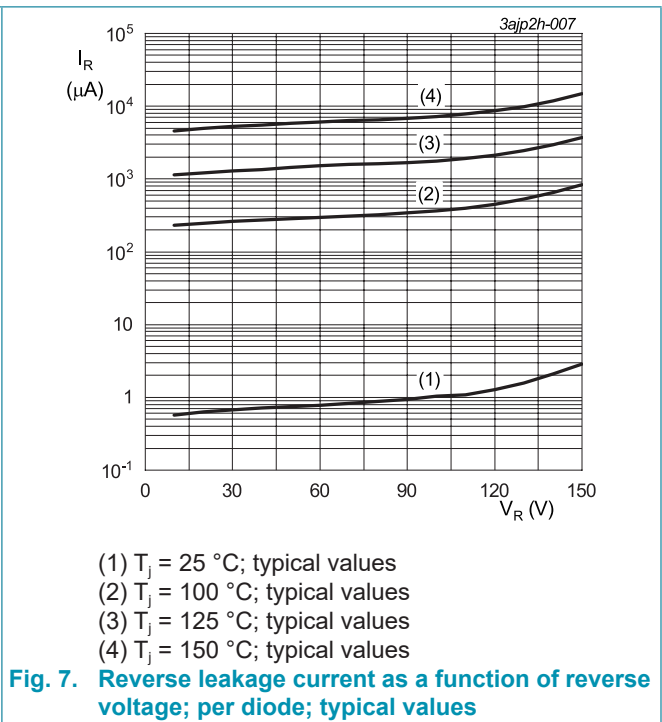
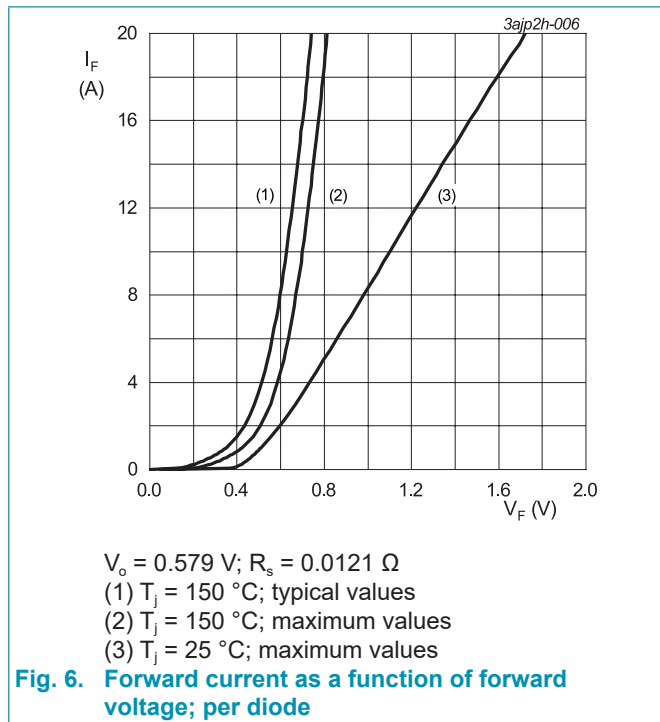


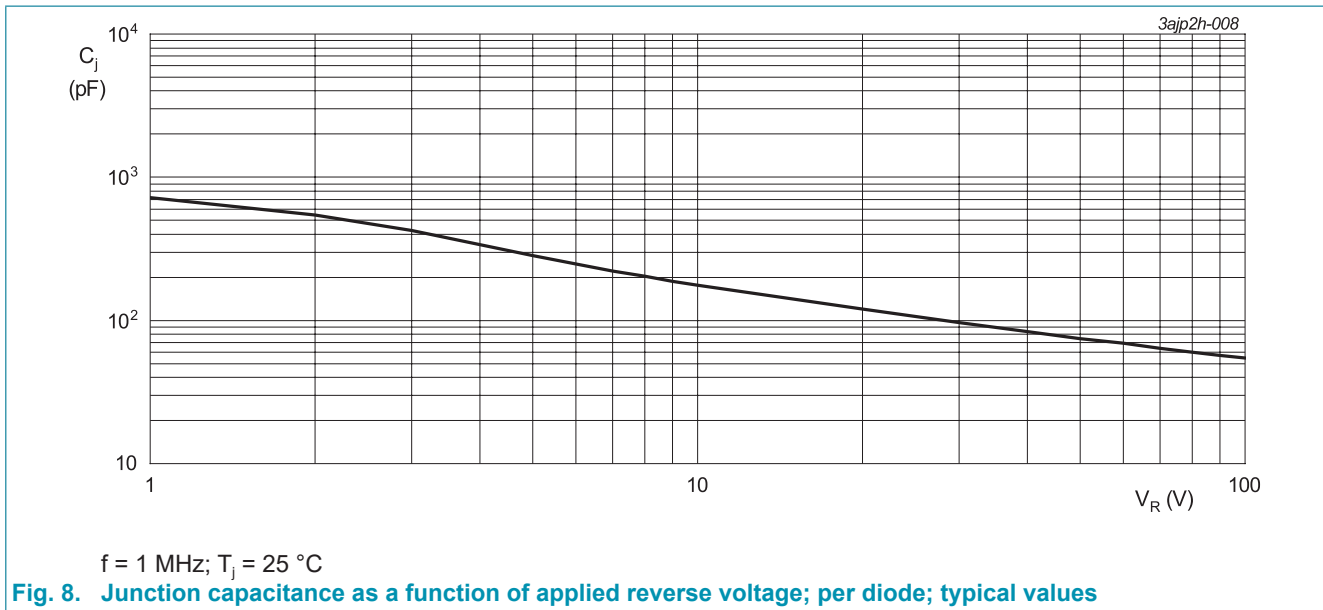
Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration; maximum values; per diode

### 10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static characteristics</b>						
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 5 A; T <sub>J</sub> = 25 °C; per diode; <a href="#">Fig. 6</a>	-	0.76	-	V
		I <sub>F</sub> = 5 A; T <sub>J</sub> = 125 °C; per diode; <a href="#">Fig. 6</a>	-	0.59	-	V
		I <sub>F</sub> = 10 A; T <sub>J</sub> = 25 °C; per diode; <a href="#">Fig. 6</a>	-	1.06	1.1	V
		I <sub>F</sub> = 10 A; T <sub>J</sub> = 125 °C; per diode; <a href="#">Fig. 6</a>	-	0.68	0.75	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 150 V; T <sub>J</sub> = 25 °C; per diode; <a href="#">Fig. 7</a> ; <a href="#">Fig. 8</a>	-	-	50	μA
		V <sub>R</sub> = 150 V; T <sub>J</sub> = 125 °C; per diode; <a href="#">Fig. 7</a> ; <a href="#">Fig. 8</a>	-	-	15	mA

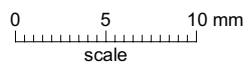
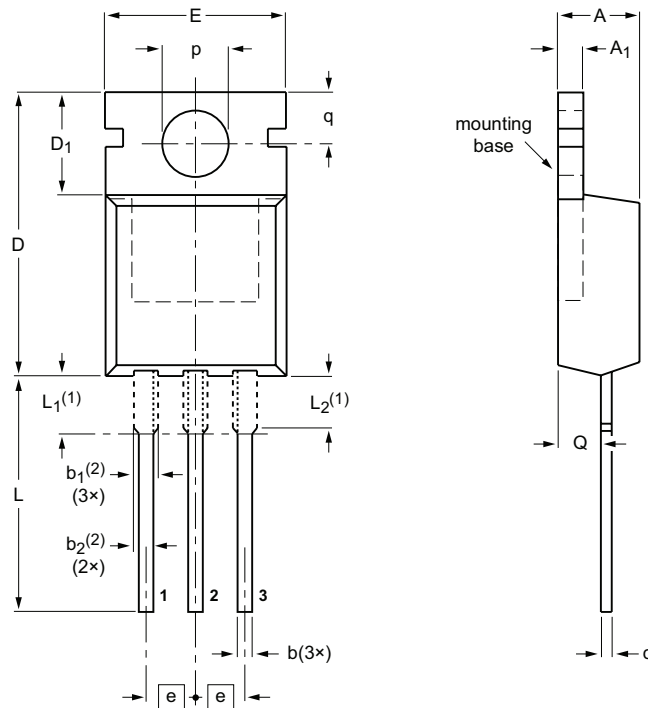




### 11. Package outline

Plastic single-ended package; heatsink mounted; 1 mounting hole; 3-lead TO-220AB

SOT78



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub>	b	b <sub>1</sub> (2)	b <sub>2</sub> (2)	c	D	D <sub>1</sub>	E	e	L	L <sub>1</sub> (1)	L <sub>2</sub> (1) max.	p	q	Q
mm	4.7 4.1	1.40 1.25	0.9 0.6	1.6 1.0	1.3 1.0	0.7 0.4	16.0 15.2	6.6 5.9	10.3 9.7	2.54	15.0 12.8	3.30 2.79	3.0	3.8 3.5	3.0 2.7	2.6 2.2

**Notes**

- 1. Lead shoulder designs may vary.
- 2. Dimension includes excess dambar.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT78		3-lead TO-220AB	SC-46		08-04-23 08-06-13



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

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- [2] The term 'short data sheet' is explained in section "Definitions".
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