

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

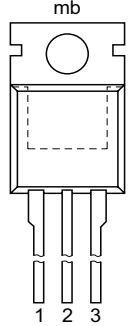
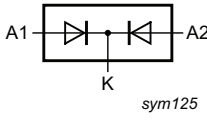
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Notes	Values			Unit
Absolute maximum rating							
V_{RRM}	repetitive peak reverse voltage			60			V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 129$ °C; per diode; Fig. 1 ; Fig. 2 ; Fig. 3		15			A
$I_{O(AV)}$	average output current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 130$ °C; both diodes conducting		30			A
Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
Static characteristics							
V_F	forward voltage	$I_F = 15$ A; $T_j = 25$ °C; per diode; Fig. 6		-	0.57	0.65	V
I_R	reverse current	$V_R = 60$ V; $T_j = 25$ °C; per diode; Fig. 7 ; Fig. 8		-	40	100	μ A

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
WN3S30H60C	TO220	WN3S30H60CQ	Tube	50	SOT78	13-Jun-2008

7. Marking

Table 4. Marking codes

Type number	Marking codes
WN3S30H60C	WN3S 30H60C

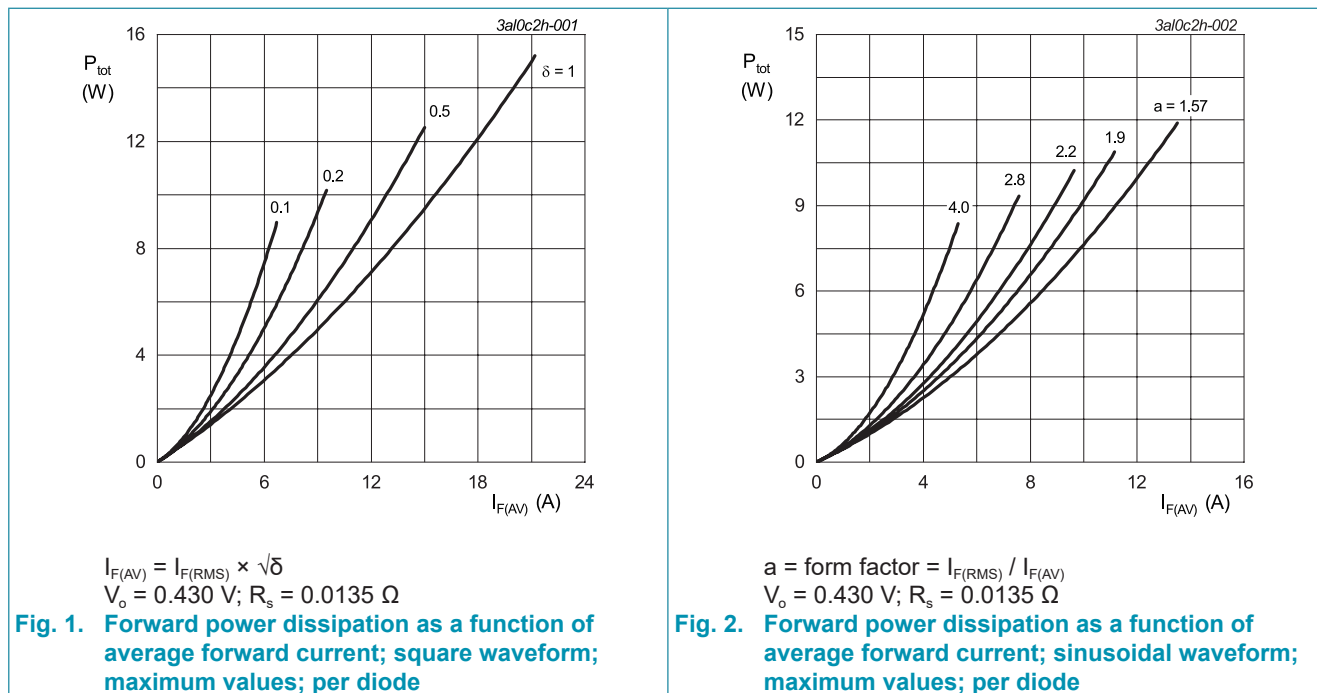
8. Limiting values

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			60	V
V_{RWM}	crest working reverse voltage			60	V
V_R	reverse voltage	DC		60	V
$I_{F(AV)}$	average forward current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 129\text{ }^\circ\text{C}$; per diode; Fig. 1 ; Fig. 2 ; Fig. 3		15	A
$I_{O(AV)}$	average output current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 130\text{ }^\circ\text{C}$; both diodes conducting		30	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; Fig. 4		200	A
		$t_p = 8.3\text{ ms}$; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$; sine-wave pulse; per diode		220	A
T_{stg}	storage temperature			-40 to 150	$^\circ\text{C}$
T_j	junction temperature		[1]	-40 to 150	$^\circ\text{C}$

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



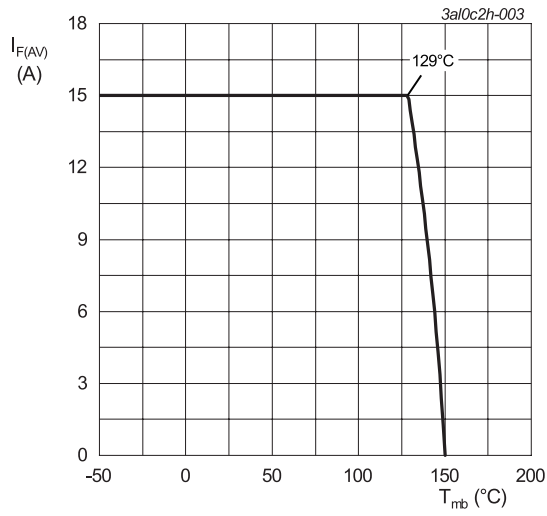


Fig. 3. Average forward current as a function of mounting base temperature; maximum values; per diode

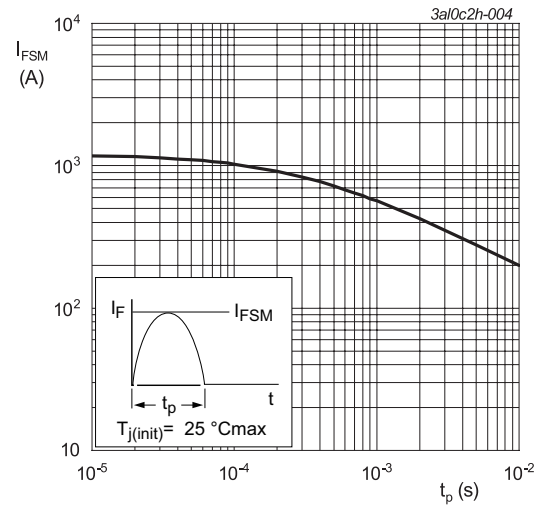


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values; per diode

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
$R_{th(j-mb)}$	thermal resistance from junction to mounting base	per diode; Fig. 5		-	-	1.7	K/W
		both diodes conducting		-	-	0.8	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air		-	60	-	K/W

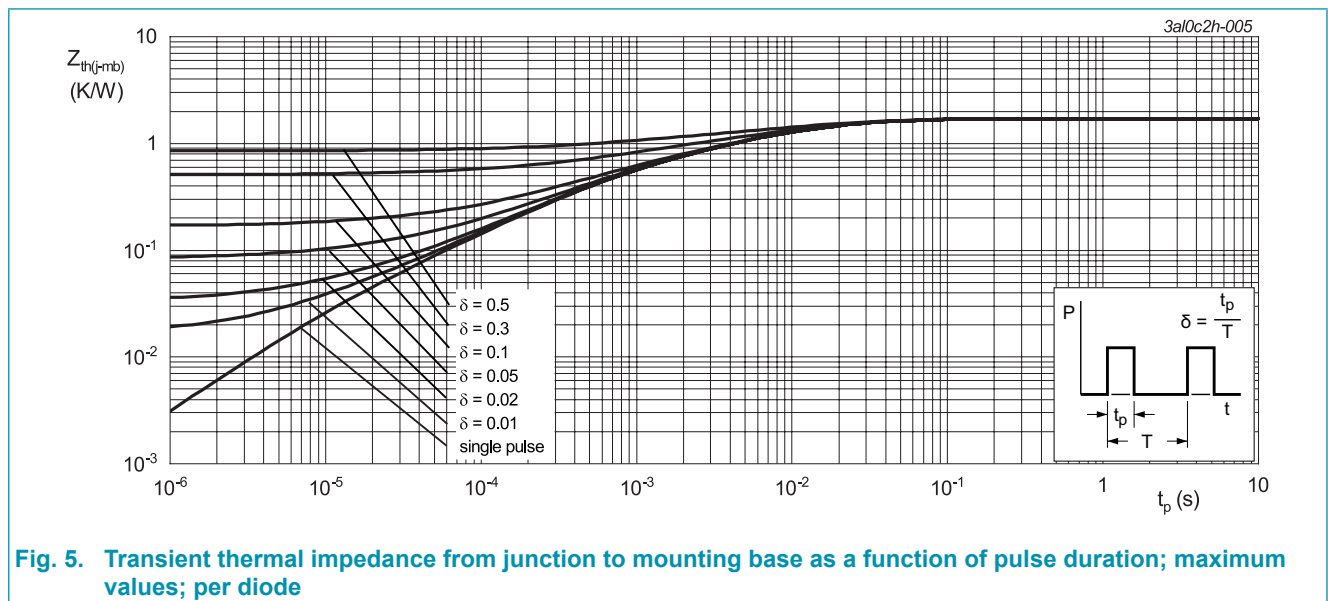
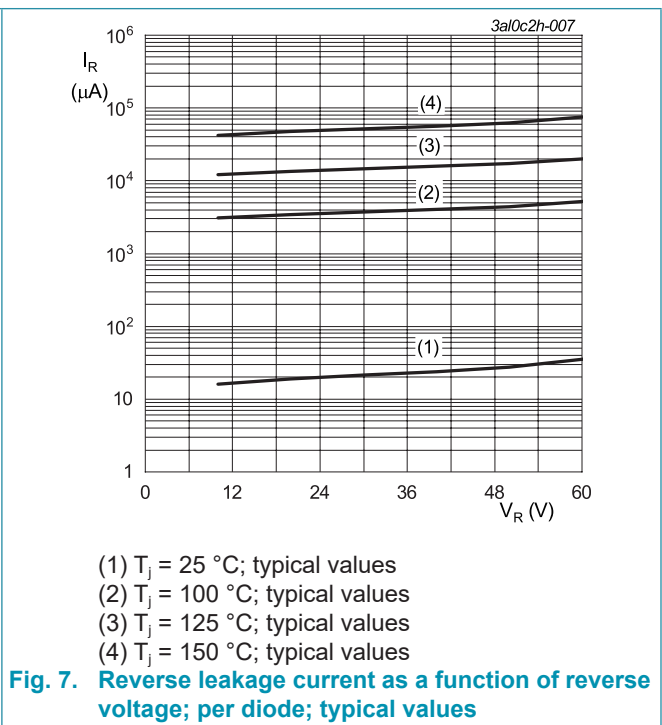
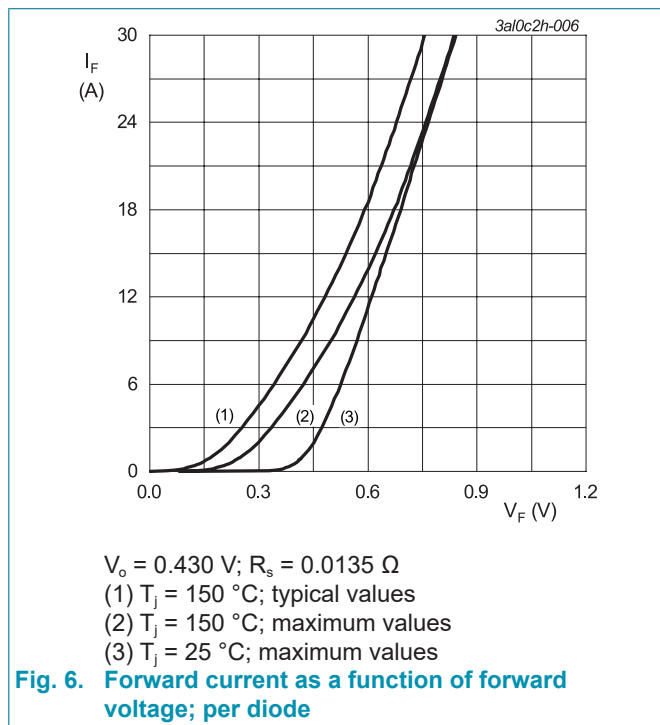


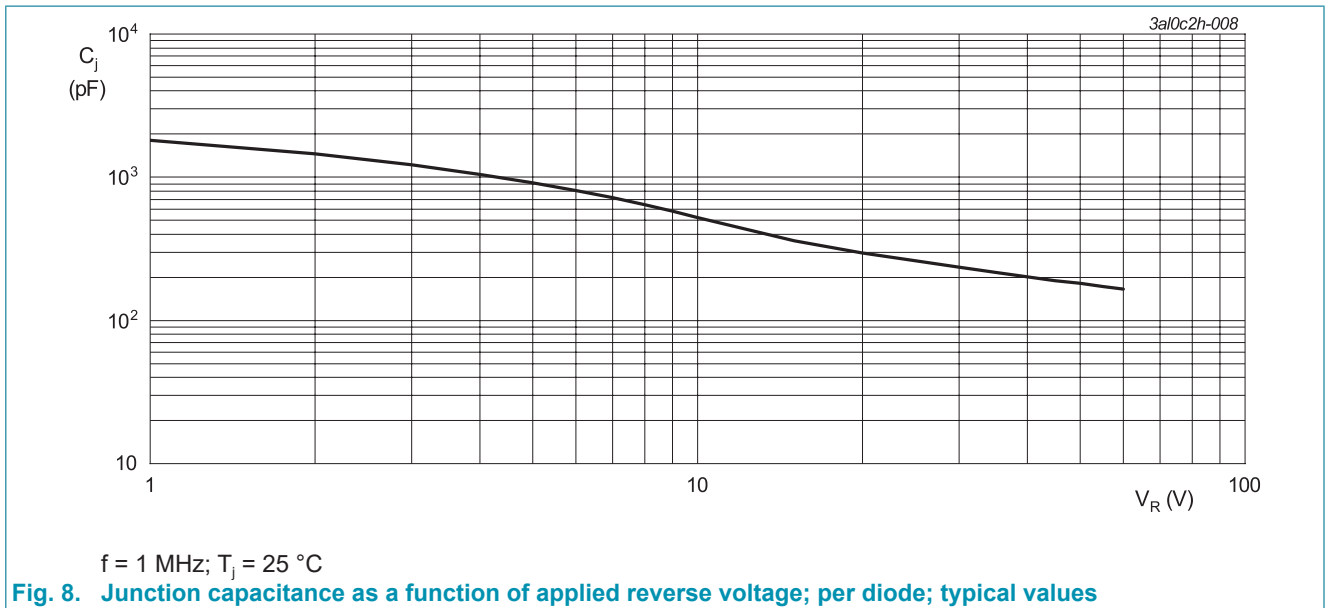
Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration; maximum values; per diode

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
Static characteristics							
V_F	forward voltage	$I_F = 15\text{ A}; T_j = 25\text{ °C};$ per diode; Fig. 6		-	0.57	0.65	V
		$I_F = 15\text{ A}; T_j = 125\text{ °C};$ per diode; Fig. 6		-	0.55	-	V
		$I_F = 3\text{ A}; T_j = 25\text{ °C};$ per diode; Fig. 6		-	0.39	-	V
		$I_F = 3\text{ A}; T_j = 125\text{ °C};$ per diode; Fig. 6		-	0.29	-	V
I_R	reverse current	$V_R = 60\text{ V}; T_j = 25\text{ °C};$ per diode; Fig. 7 ; Fig. 8		-	40	100	μA
		$V_R = 60\text{ V}; T_j = 125\text{ °C};$ per diode; Fig. 7 ; Fig. 8		-	25	100	mA

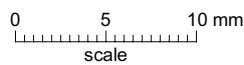
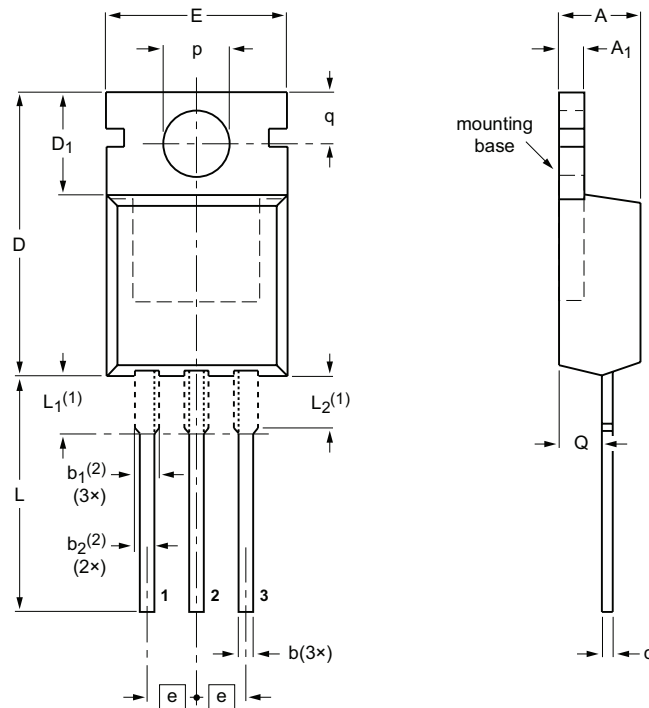




11. Package outline

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

SOT78



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁	b	b ₁ (2)	b ₂ (2)	c	D	D ₁	E	e	L	L ₁ (1)	L ₂ (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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13. Contents

1. General description.....	1
2. Features and benefits	1
3. Applications	1
4. Quick reference data	1
5. Pinning information.....	2
6. Ordering information.....	2
7. Marking.....	2
8. Limiting values	3
9. Thermal characteristics	5
10. Characteristics.....	6
11. Package outline	8
12. Legal information	9
13. Contents	11

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Date of release: 30 August 2022
