

## 1. General description

Dual common cathode power Schottky diode designed for high frequency switched mode power supplies in a TO263 (D2PAK) 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

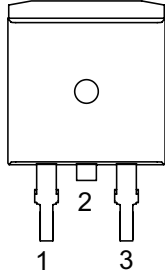
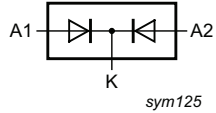
## 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Notes	Values			Unit
<b>Absolute maximum rating</b>							
$V_{RRM}$	repetitive peak reverse voltage			100			V
$I_{F(AV)}$	average forward current	$\delta = 0.5$ ; square-wave pulse; $T_{mb} \leq 117$ °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; $T_{mb} \leq 113$ °C; both diodes conducting		20			A
Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
<b>Static characteristics</b>							
$V_F$	forward voltage	$I_F = 10$ A; $T_j = 25$ °C; per diode; <a href="#">Fig. 6</a>		-	0.90	1.00	V
$I_R$	reverse current	$V_R = 100$ V; $T_j = 25$ °C; per diode; <a href="#">Fig. 7</a> ; <a href="#">Fig. 8</a>		-	2.5	15	$\mu$ A

## 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	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
WN3S20S100CB	TO263	WN3S20S100CBJ	Reel	800	TO263d	17-Mar-2023

## 7. Marking

Table 4. Marking codes

Type number	Marking codes
WN3S20S100CB	WN3S20S 100CB

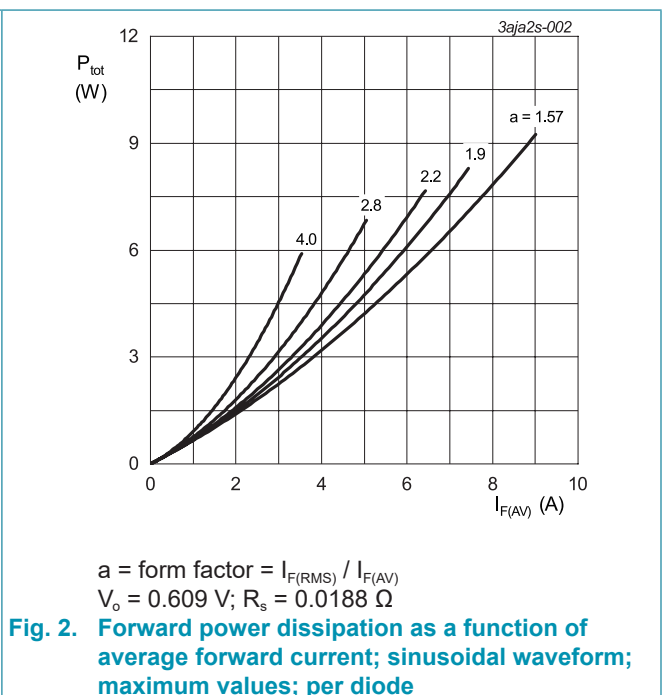
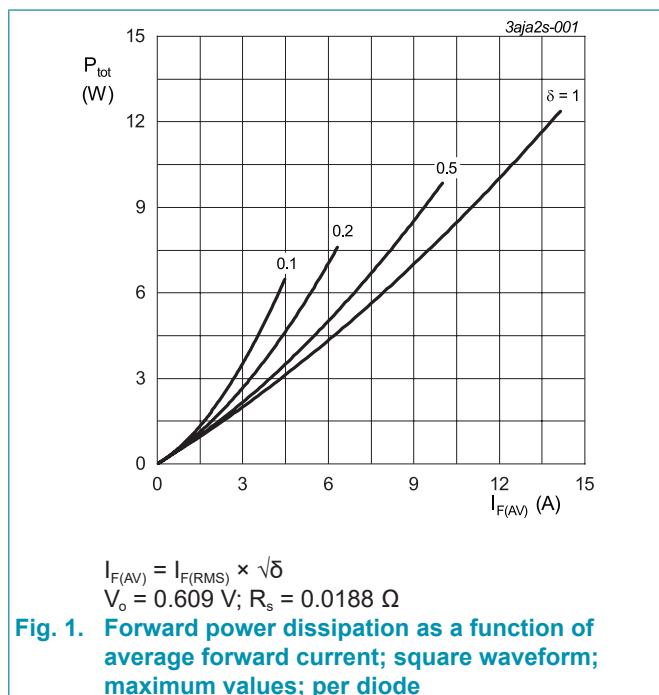
## 8. Limiting values

**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			100	V
$V_{RWM}$	crest working reverse voltage			100	V
$V_R$	reverse voltage	DC		100	V
$I_{F(AV)}$	average forward current	$\delta = 0.5$ ; square-wave pulse; $T_{mb} \leq 117\text{ }^\circ\text{C}$ ; 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; $T_{mb} \leq 113\text{ }^\circ\text{C}$ ; 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>		120	A
		$t_p = 8.3\text{ ms}$ ; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$ ; sine-wave pulse; per diode		132	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:  $dP_{tot}/dT_j < 1/R_{th(j-a)}$



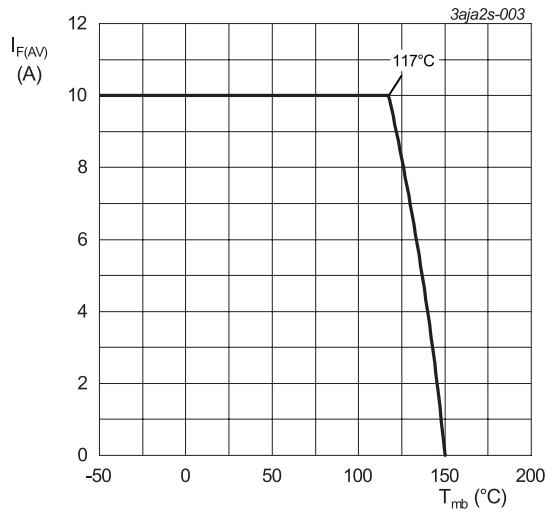


Fig. 3. Average forward current as a function of mounting base temperature; maximum values; per diode

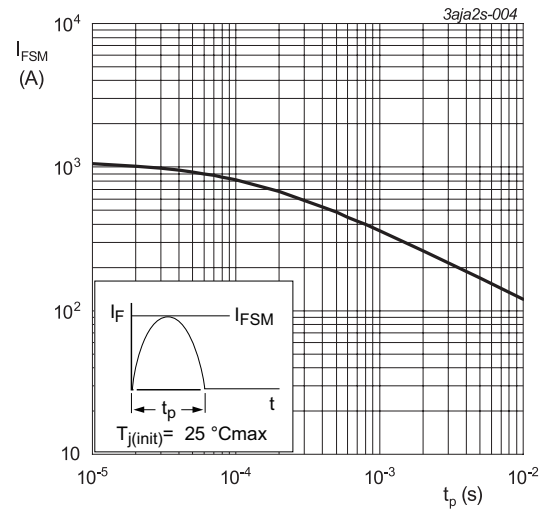


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values; per diode

### 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; <a href="#">Fig. 5</a>		-	-	3.3	K/W
		both diodes conducting		-	-	1.9	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air		-	60	-	K/W

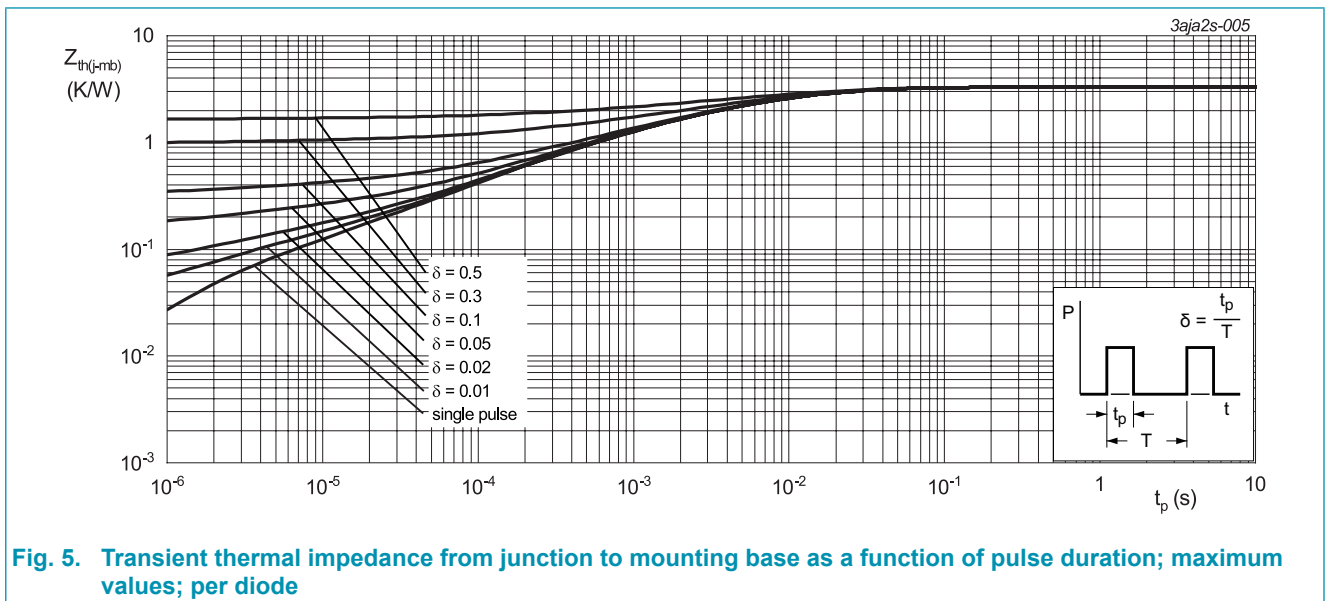
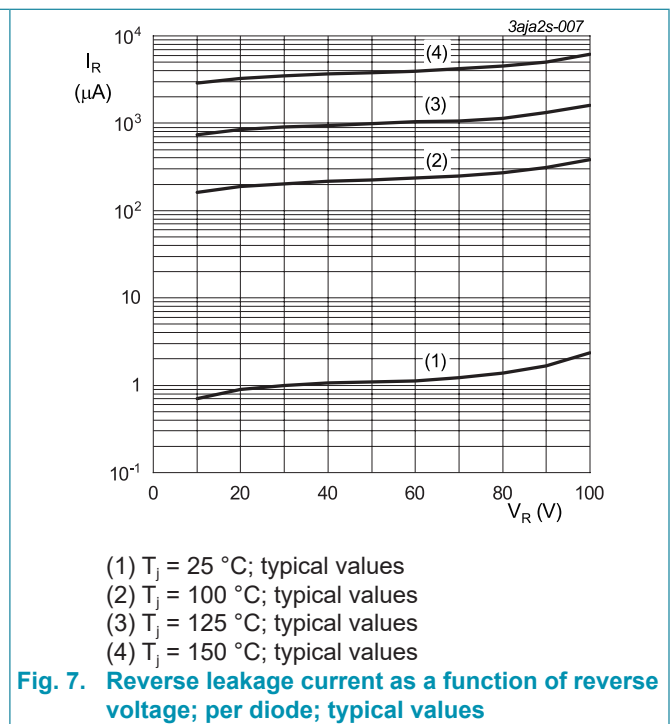
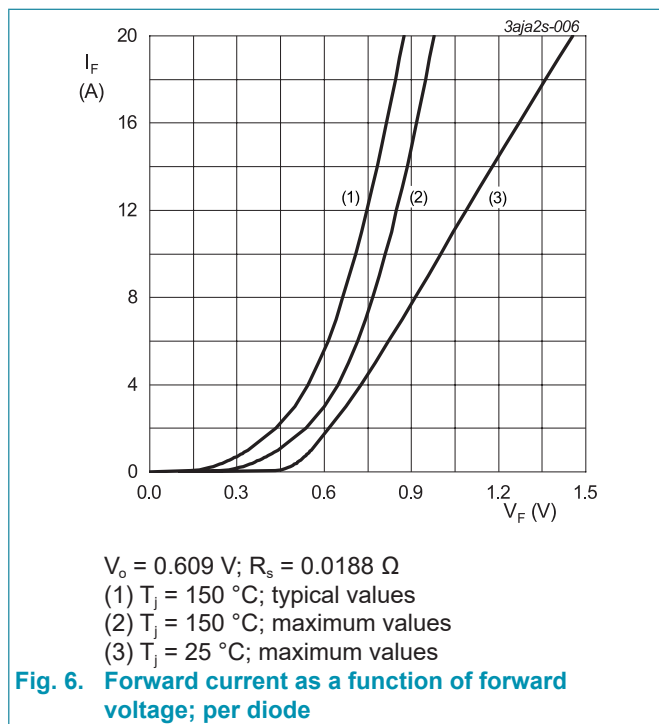


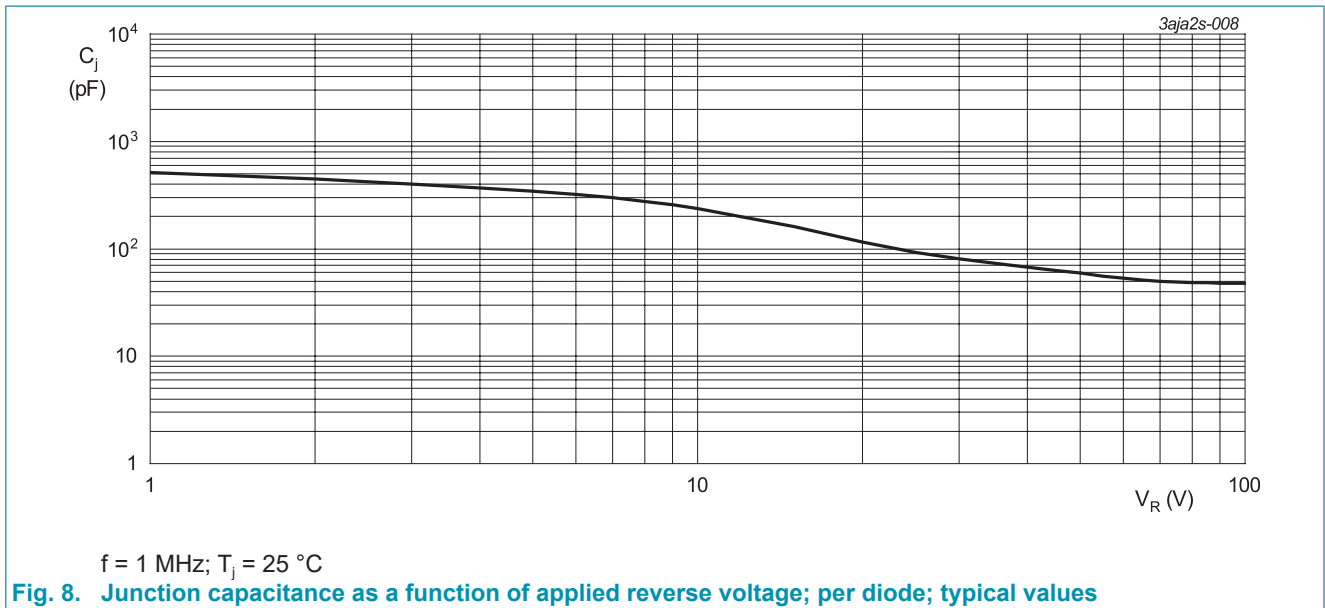
Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration; maximum values; per diode

## 10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
<b>Static characteristics</b>							
$V_F$	forward voltage	$I_F = 10 \text{ A}; T_j = 25 \text{ }^\circ\text{C};$ per diode; <a href="#">Fig. 6</a>		-	0.90	1.00	V
		$I_F = 10 \text{ A}; T_j = 125 \text{ }^\circ\text{C};$ per diode; <a href="#">Fig. 6</a>		-	0.76	-	V
$I_R$	reverse current	$V_R = 100 \text{ V}; T_j = 25 \text{ }^\circ\text{C};$ per diode; <a href="#">Fig. 7; Fig. 8</a>		-	2.5	15	$\mu\text{A}$
		$V_R = 100 \text{ V}; T_j = 125 \text{ }^\circ\text{C};$ per diode; <a href="#">Fig. 7; Fig. 8</a>		-	1.7	10	mA

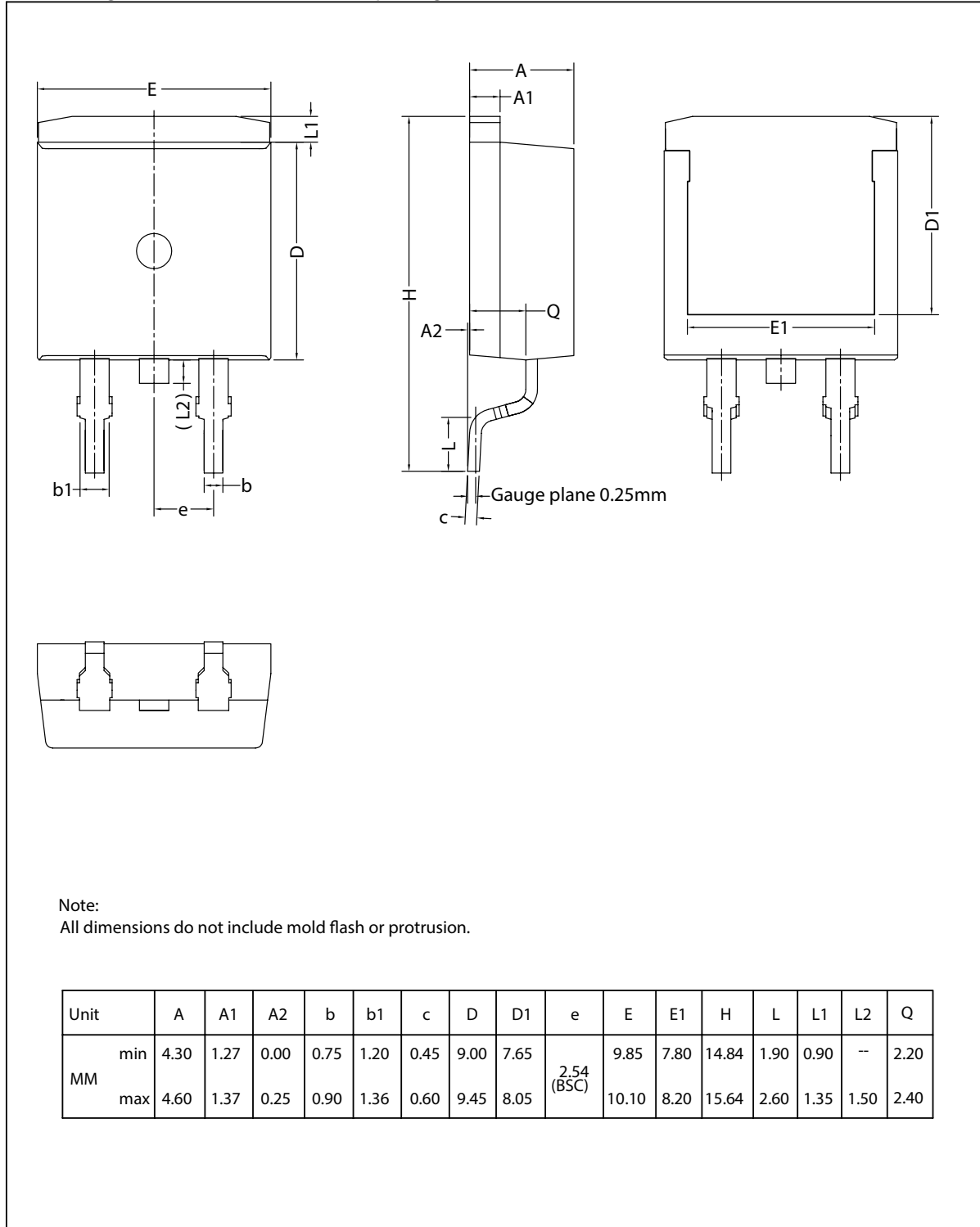




### 11. Package outline

Plastic single-ended surface-mounted package (D2PAK);

TO263





## 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.
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