

## 1. General description

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

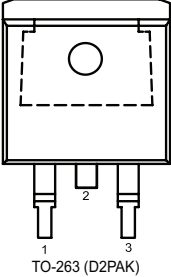
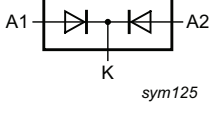
## 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Notes	Values			Unit
<b>Absolute maximum rating</b>							
$V_{RRM}$	repetitive peak reverse voltage			170			V
$I_{F(AV)}$	average forward current	$\delta = 0.5$ ; square-wave pulse; $T_{mb} \leq 149$ °C; per diode; <a href="#">Fig. 1</a> ; <a href="#">Fig. 2</a> ; <a href="#">Fig. 3</a>		20			A
$I_{O(AV)}$	average output current	$\delta = 0.5$ ; square-wave pulse; $T_{mb} \leq 149$ °C; both diodes conducting		40			A
Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
<b>Static characteristics</b>							
$V_F$	forward voltage	$I_F = 20$ A; $T_j = 25$ °C; per diode; <a href="#">Fig. 6</a>		-	0.84	0.95	V
$I_R$	reverse current	$V_R = 170$ V; $T_j = 25$ °C; per diode; <a href="#">Fig. 7</a> ; <a href="#">Fig. 8</a>		-	0.2	10	μA

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode 1	 <p>TO-263 (D2PAK)</p>	 <p>sym125</p>
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
WN3S40170CBT	TO263	WN3S40170CBTJ	Reel	800	TO263N	26-Sep-2016

## 7. Marking

Table 4. Marking codes

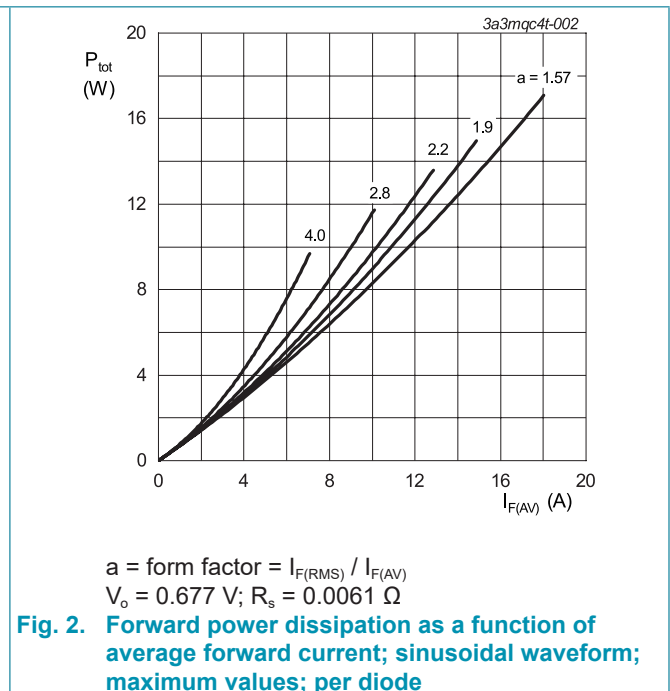
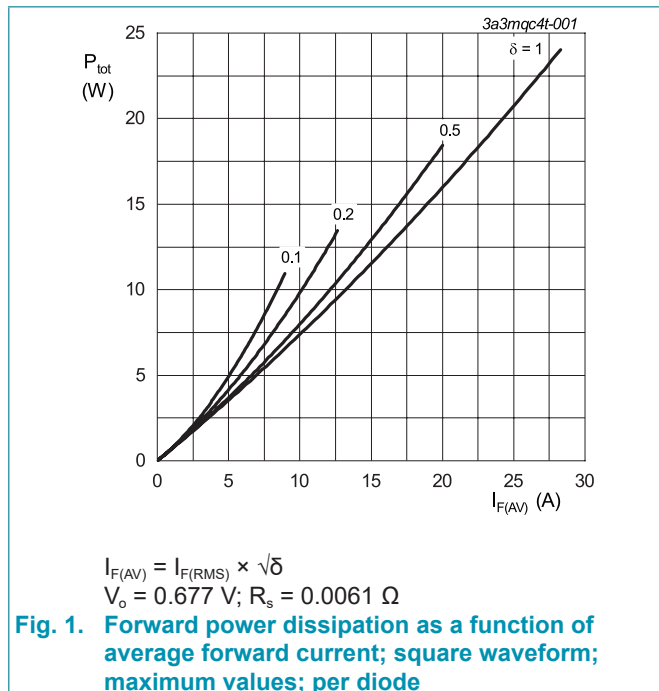
Type number	Marking codes
WN3S40170CBT	WN3S40 170CBT

## 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			170	V
$V_{RWM}$	crest working reverse voltage			170	V
$V_R$	reverse voltage	DC		170	V
$I_{F(AV)}$	average forward current	$\delta = 0.5$ ; square-wave pulse; $T_{mb} \leq 149\text{ }^\circ\text{C}$ ; per diode; <a href="#">Fig. 1</a> ; <a href="#">Fig. 2</a> ; <a href="#">Fig. 3</a>		20	A
$I_{O(AV)}$	average output current	$\delta = 0.5$ ; square-wave pulse; $T_{mb} \leq 149\text{ }^\circ\text{C}$ ; both diodes conducting		40	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>		300	A
		$t_p = 8.3\text{ ms}$ ; $T_{j(\text{init})} = 25\text{ }^\circ\text{C}$ ; sine-wave pulse; per diode		330	A
$T_{stg}$	storage temperature			-40 to 175	$^\circ\text{C}$
$T_j$	junction temperature			-40 to 175	$^\circ\text{C}$



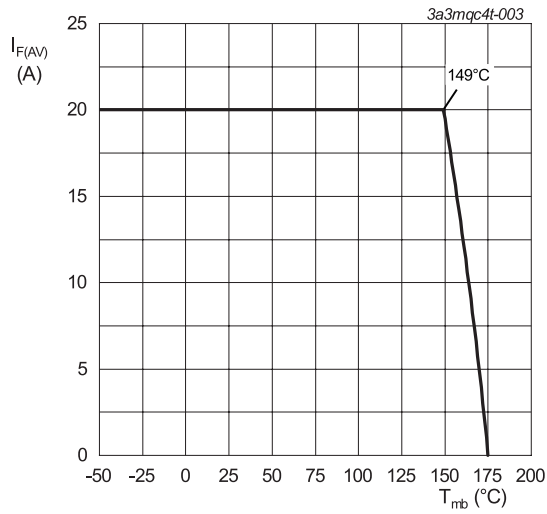


Fig. 3. Average forward current as a function of mounting base temperature; maximum values; per diode

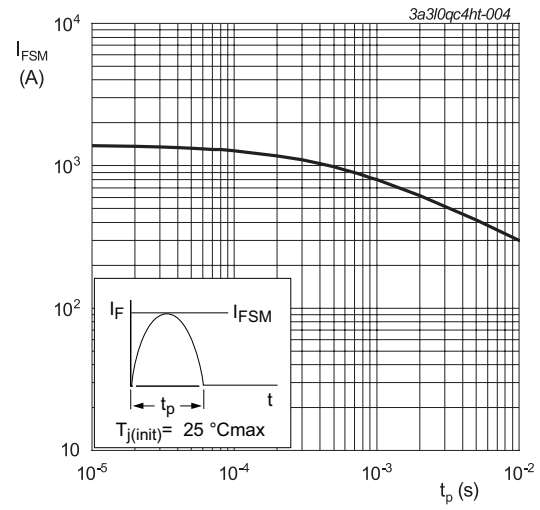


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values; per diode

## 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>		-	-	1.4	K/W
		both diodes conducting		-	-	0.7	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient free air	in free air		-	60	-	K/W

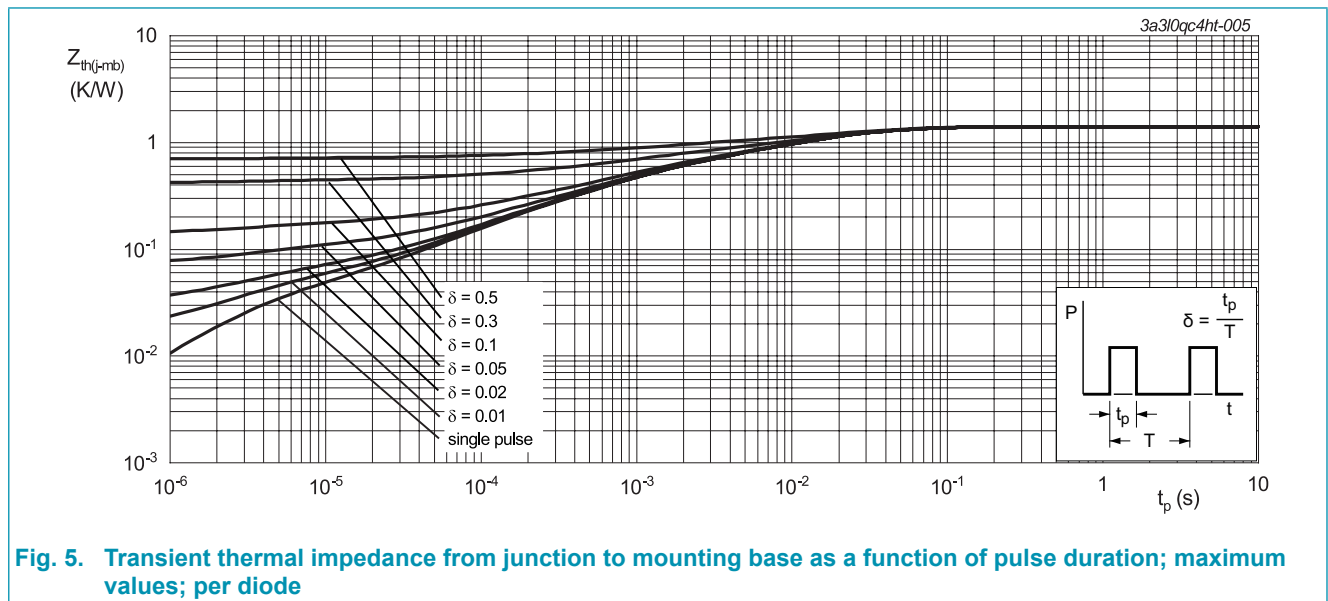
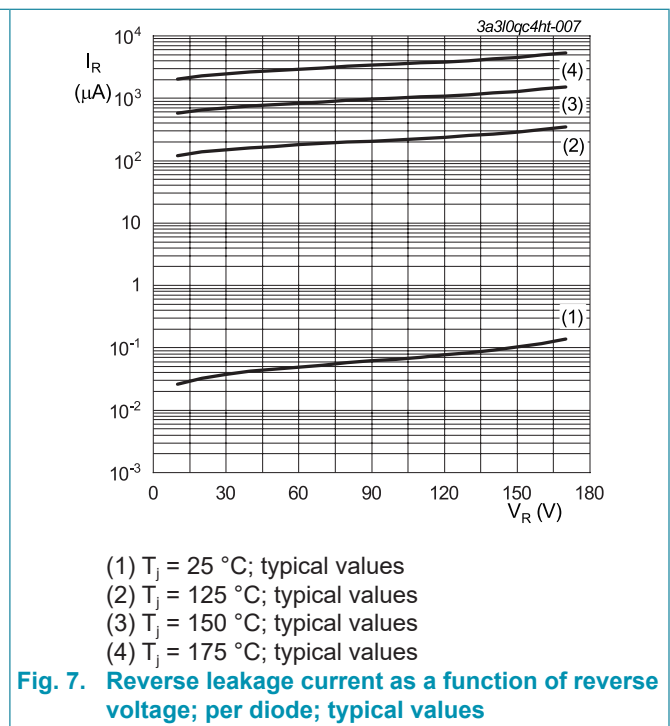
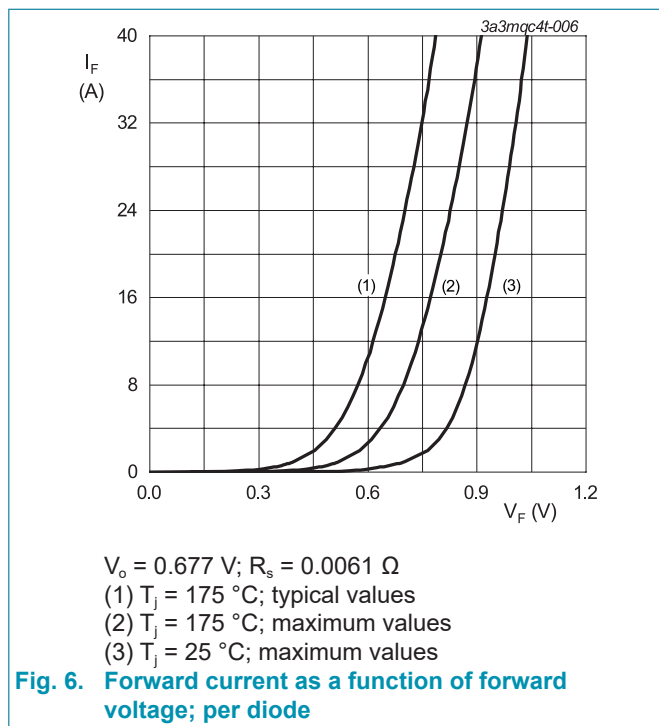


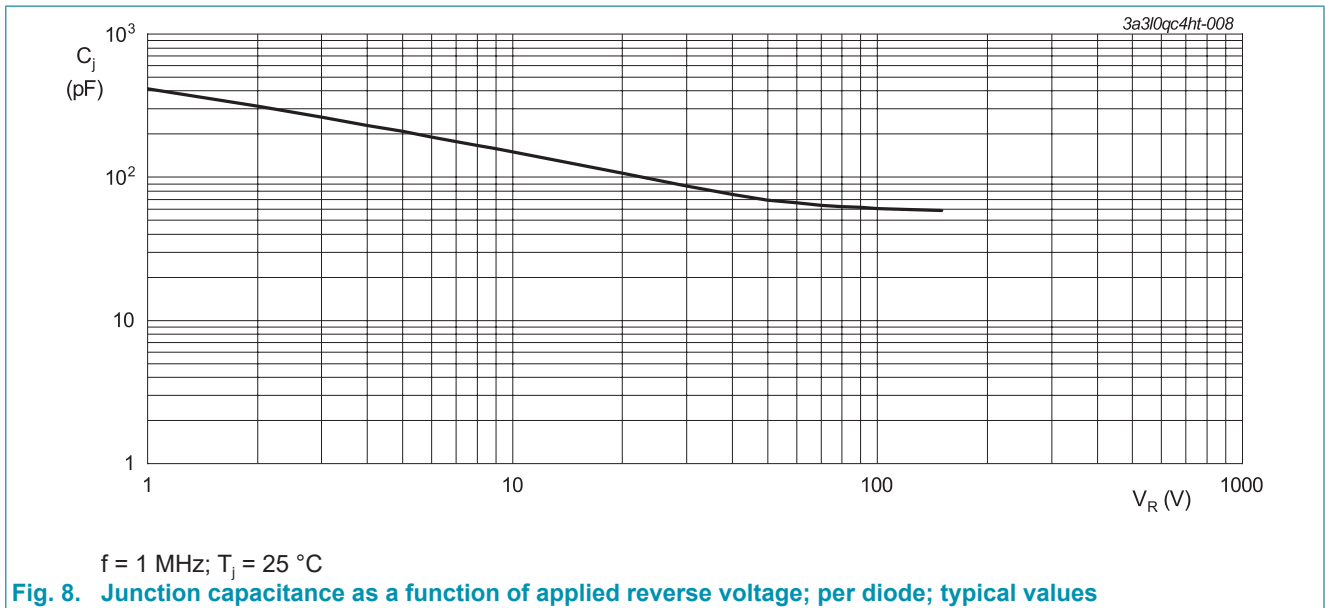
Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration; maximum values; per diode

### 10. Characteristics

Table 7. Characteristics

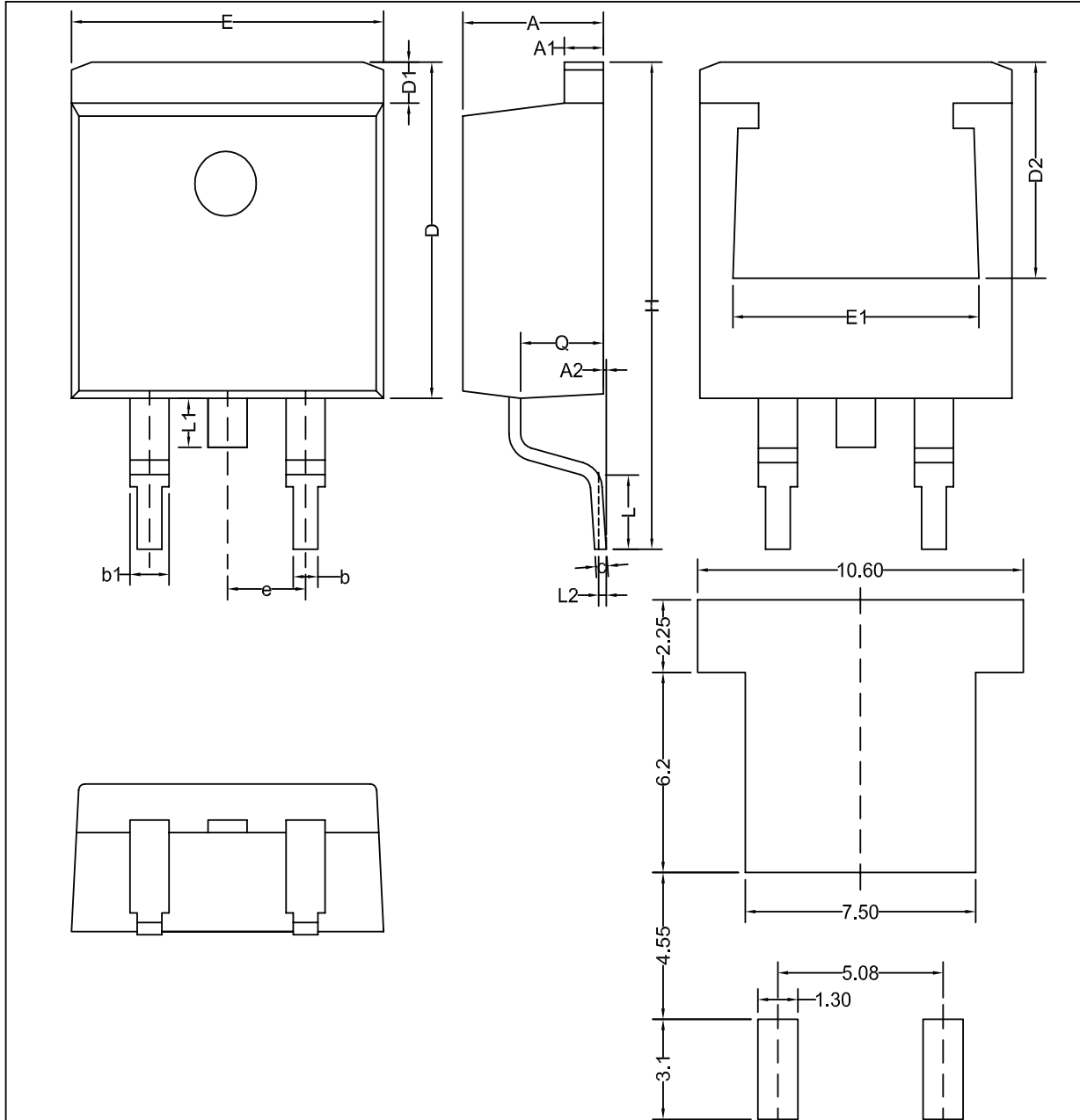
Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
<b>Static characteristics</b>							
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 20 A; T <sub>j</sub> = 25 °C; per diode; <a href="#">Fig. 6</a>		-	0.84	0.95	V
		I <sub>F</sub> = 20 A; T <sub>j</sub> = 125 °C; per diode; <a href="#">Fig. 6</a>		-	0.71	-	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 170 V; T <sub>j</sub> = 25 °C; per diode; <a href="#">Fig. 7</a>		-	0.2	10	μA
		V <sub>R</sub> = 170 V; T <sub>j</sub> = 125 °C; per diode; <a href="#">Fig. 7</a>		-	0.4	10	mA





### 11. Package outline

Plastic single-ended surface-mounted package (D2PAK); 3 leads (one lead cropped) TO263



Recommended Footprint

Unit	A	A1	A2	b	b1	c	D	D1	D2	e	E	E1	H	L	L1	L2	Q
min	4.10	1.22	0.00	0.60	1.05	0.34	---	1.20	6.60	2.54 (BSC)	9.70	7.80	14.80	2.10	---	0.25 (BSC)	2.20
max	4.70	1.40	0.25	0.90	1.45	0.64	11.00	1.60	---	---	10.30	---	15.80	2.90	1.75	---	2.79



## 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.
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