

1. General description

Power Schottky diode in TO252 (DPAK) surface-mountable 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

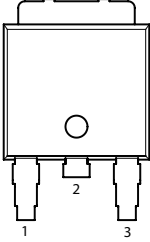
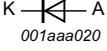
4. Quick reference data

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; $T_{mb} \leq 110$ °C; Fig. 1 ; Fig. 2 ; Fig. 3		20			A
Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
Static characteristics							
V_F	forward voltage	$I_F = 20$ A; $T_J = 25$ °C; Fig. 6		-	0.69	0.75	V
I_R	reverse current	$V_R = 60$ V; $T_J = 25$ °C		-	25	200	μA

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode		
2	K	cathode		
3	A	anode		
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
WN3S2060D	TO252	WN3S2060DJ	Reel	2500	TO252d	07-Sep-2022

7. Marking

Table 4. Marking codes

Type number	Marking codes
WN3S2060D	WN3S20 60D

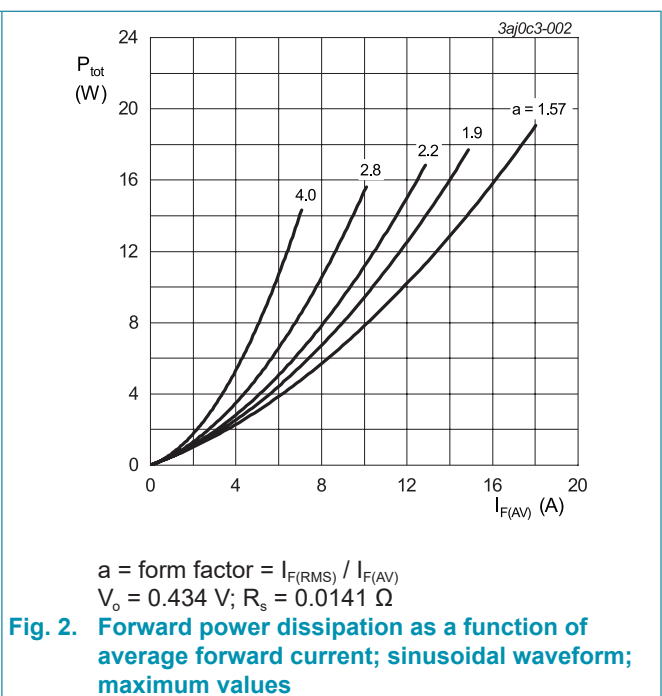
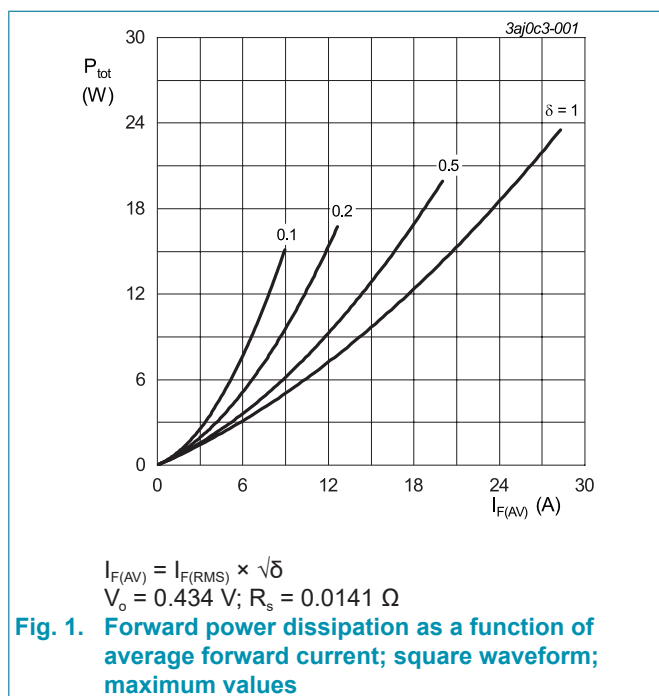
8. Limiting values

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; $T_{mb} \leq 110\text{ °C}$; Fig. 1 ; Fig. 2 ; Fig. 3		20	A
I_{FSM}	non-repetitive peak forward current	$t_p = 10\text{ ms}$; $T_{j(\text{init})} = 25\text{ °C}$; sine-wave pulse; Fig. 4		150	A
		$t_p = 8.3\text{ ms}$; $T_{j(\text{init})} = 25\text{ °C}$; sine-wave pulse		165	A
T_{stg}	storage temperature			-40 to 150	°C
T_j	junction temperature		[1]	-40 to 150	°C

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



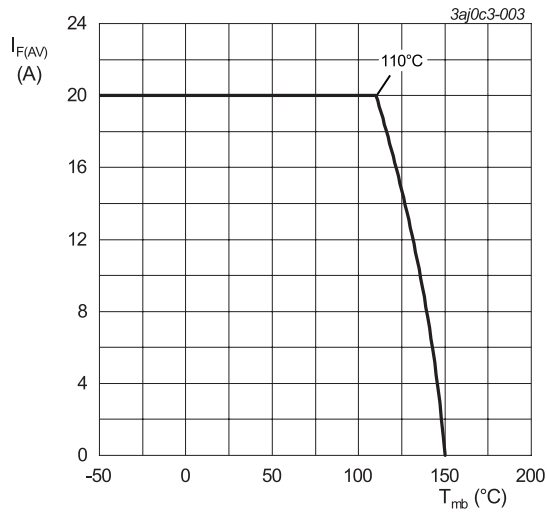


Fig. 3. Average forward current as a function of mounting base temperature; maximum values

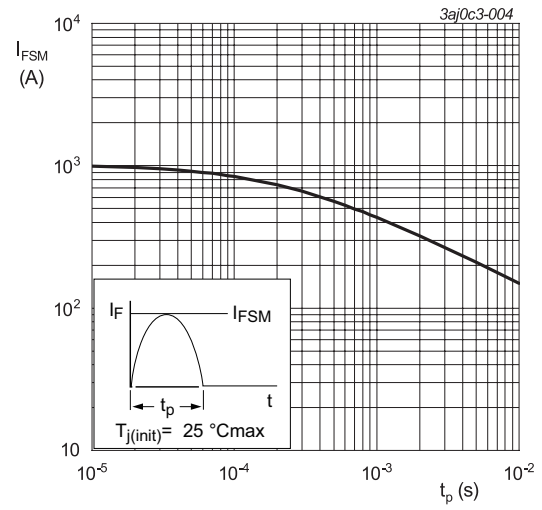


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values

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	Fig. 5		-	-	2	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air		-	50	-	K/W

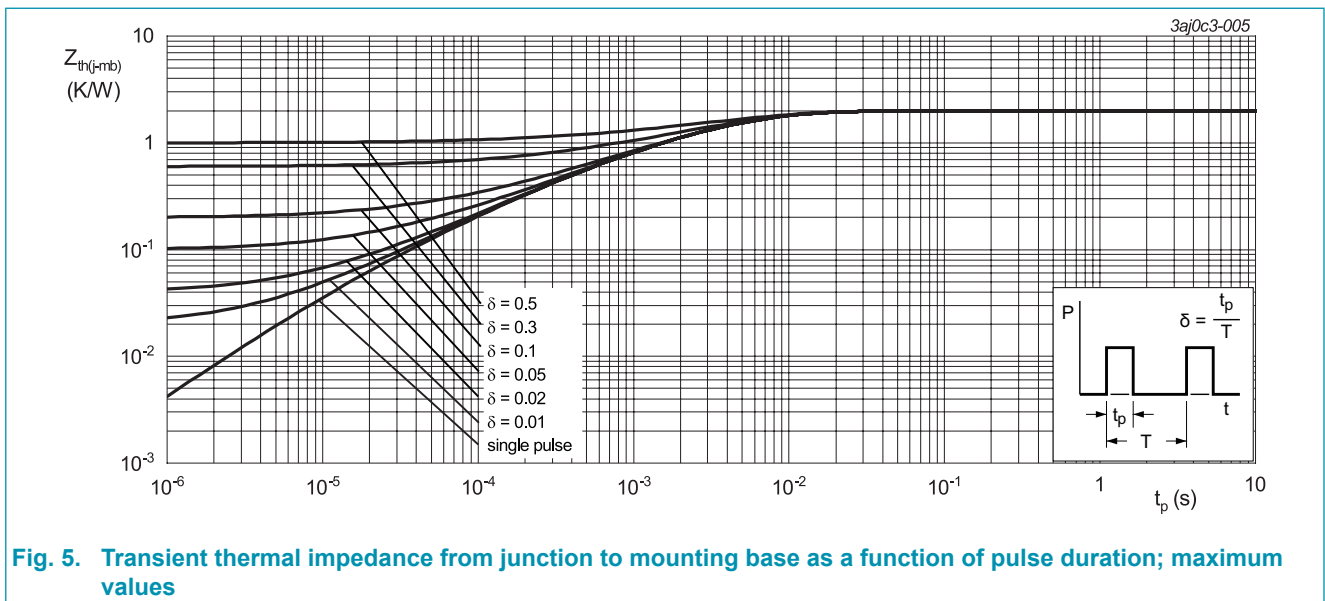
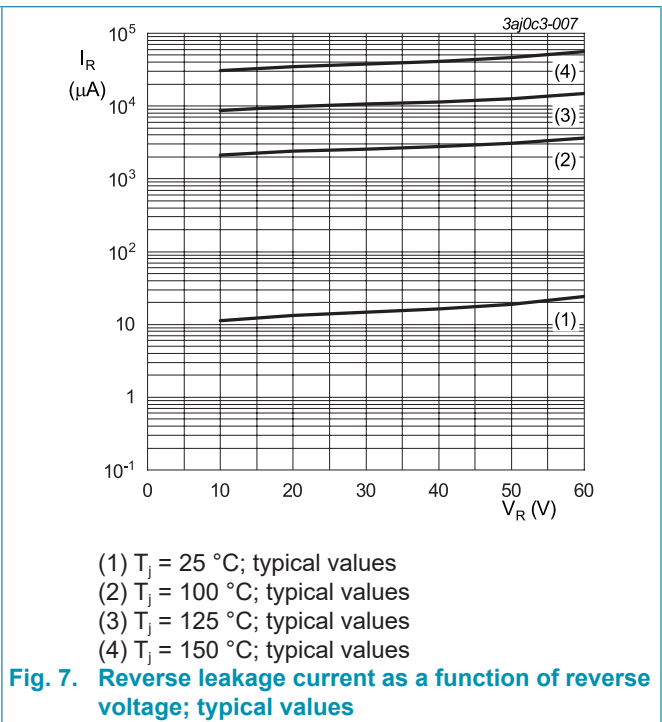
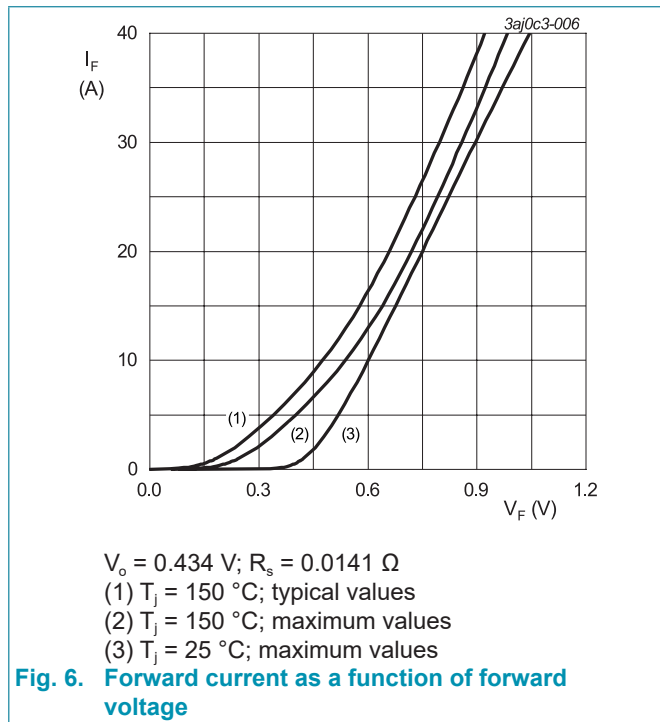


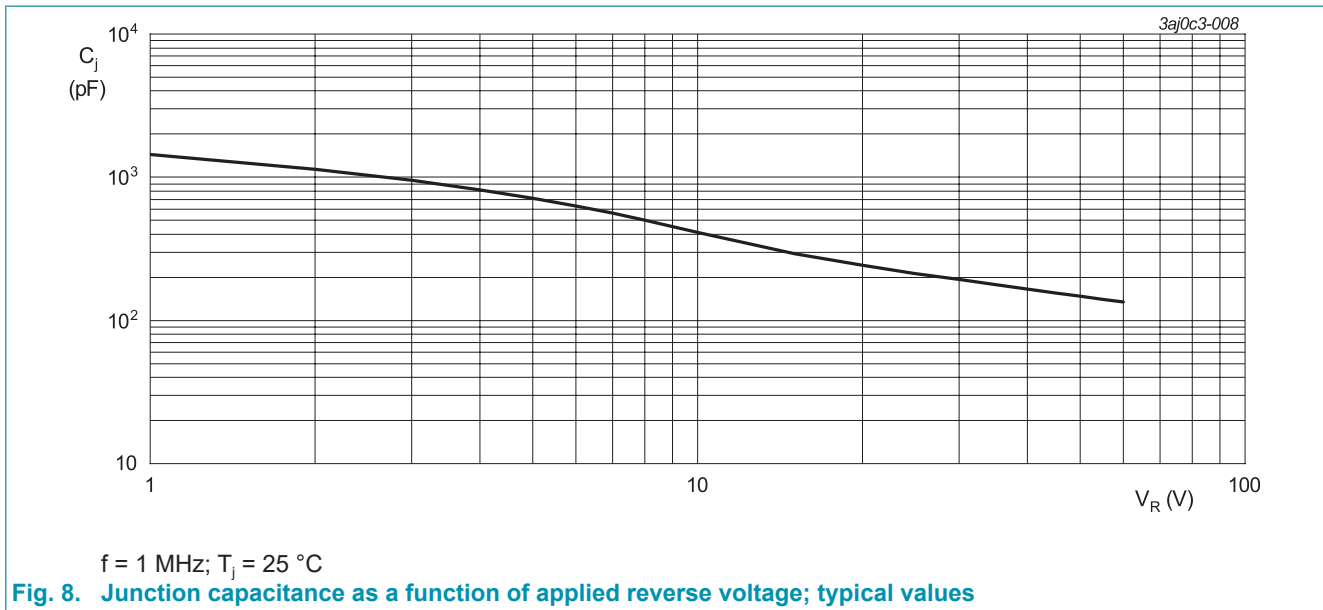
Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration; maximum values

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Notes	Min	Typ	Max	Unit
Static characteristics							
V_F	forward voltage	$I_F = 20\text{ A}; T_J = 25\text{ °C}; \text{Fig. 6}$		-	0.69	0.75	V
		$I_F = 20\text{ A}; T_J = 125\text{ °C}; \text{Fig. 6}$		-	0.68	-	V
		$I_F = 10\text{ A}; T_J = 25\text{ °C}; \text{Fig. 6}$		-	0.53	-	V
		$I_F = 10\text{ A}; T_J = 125\text{ °C}; \text{Fig. 6}$		-	0.49	-	V
I_R	reverse current	$V_R = 60\text{ V}; T_J = 25\text{ °C}; \text{Fig. 7}; \text{Fig. 8}$		-	25	200	μA
		$V_R = 60\text{ V}; T_J = 125\text{ °C}; \text{Fig. 7}; \text{Fig. 8}$		-	15	75	mA

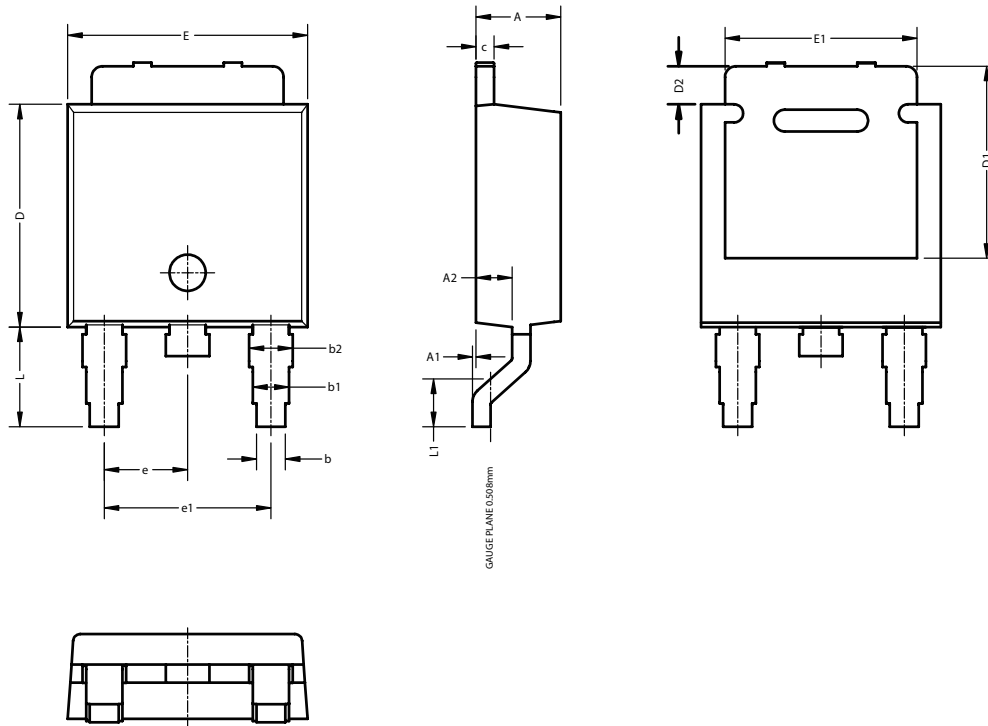




11. Package outline

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

TO252



Note:

1. All dimensions do not include mold flash & gate remain and metal protrusion.

Unit	A	A1	A2	b	b1	b2	c	D	D1	D2	E	E1	e	e1	L	L1
min	2.16	0.00	0.90	0.70	0.86	1.06	0.46	5.97	5.05	0.98	6.45	5.20			2.60	1.25
nom													2.30	4.60		
max	2.41	0.10	1.10	0.90	1.11	1.32	0.58	6.22	5.35	1.18	6.75	5.40			2.90	1.65

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