Product data sheet

1. General description

Dual common cathode power Schottky diode designed for high frequency switched mode power supplies in a TO-220 plastic package.

2. Features and benefits

- Trench structure
- High junction temperature up to 150°C
- Low forward conduction voltage
- · Negligible switching losses

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	Min	Тур	Max	Unit
V_{RRM}	repetitive peak reverse voltage		-	-	100	V
I _{F(AV)}	average forward current	δ = 0.5 ; T _{mb} ≤ 134 °C; square-wave pulse; per diode; Fig. 1; Fig. 2; Fig. 3	-	-	15	Α
I _{O(AV)}	average output current	δ = 0.5 ; T _{mb} ≤ 133 °C; square-wave pulse; both diodes conducting	-	-	30	Α
Static chara	acteristics		·			
V _F	forward voltage	I _F = 5 A; T _j = 25 °C; <u>Fig. 6</u> ; per diode	-	0.48	0.55	V
		I _F = 5 A; T _j = 125 °C; <u>Fig. 6</u> ; per diode	-	0.41	0.48	V
		I _F = 10 A; T _j = 25 °C; <u>Fig. 6</u> ; per diode	-	0.56	0.63	V
		I _F = 10 A; T _j = 125 °C; <u>Fig. 6</u> ; per diode	-	0.53	0.6	V
		I _F = 15 A; T _j = 25 °C; <u>Fig. 6</u> ; per diode	-	0.64	0.71	V
		I _F = 15 A; T _j = 125 °C; <u>Fig. 6</u> ; per diode	-	0.6	0.67	V
I _R	reverse current	V_R = 100 V; T_j = 25 °C; <u>Fig. 7</u> ; <u>Fig. 8</u> ; per diode	-	-	50	μΑ
		V _R = 100 V; T _j = 125 °C; <u>Fig. 7</u> ; <u>Fig. 8</u> ; per diode	-	-	30	mA

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5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode 1		A1
2	K	cathode		
3	A2	anode 2		K sym125
mb	К	mounting base; connected to cathode	TO-220E	

6. Ordering information

Table 3. Ordering information

Type number	Package				
	Name	Description	Version		
WNS30H100C	TO-220E	plastic single-ended package; heatsink mounted; 1 mounting hole; 3-lead TO-220AB	TO-220E		

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7. Limiting values

Table 4. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
V_{RRM}	repetitive peak reverse voltage		-	100	V
V_{RWM}	limiting crest working reverse voltage		-	100	V
V_R	limiting reverse voltage	DC	-	100	V
I _{F(AV)}	average forward current	δ = 0.5 ; T _{mb} ≤ 134 °C; square-wave pulse; per diode; <u>Fig. 1</u> ; <u>Fig. 2</u> ; <u>Fig. 3</u>	-	15	А
I _{O(AV)}	average output current	δ = 0.5 ; T _{mb} ≤ 133 °C; square-wave pulse; both diodes conducting	-	30	А
I _{FSM}	non-repetitive peak forward current	t _p = 10 ms; T _{j(init)} = 25 °C; sine-wave pulse; per diode; <u>Fig. 4</u>	-	330	Α
		t_p = 8.3 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse; per diode	-	363	Α
T _{stg}	storage temperature		-40	150	°C
Tj	junction temperature		-	150	°C

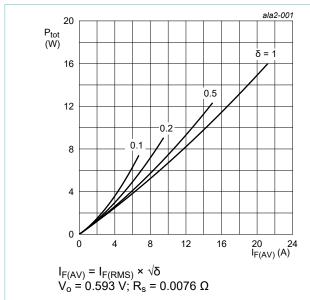


Fig. 1. Forward power dissipation as a function of average forward current; square waveform; maximum values; per diode

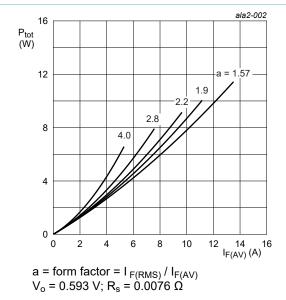


Fig. 2. Forward power dissipation as a function of average forward current; sinusoidal waveform; maximum values; per diode

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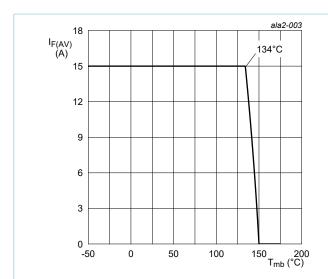


Fig. 3. Average forward current as a function of mounting base temperature; maximum values; per diode

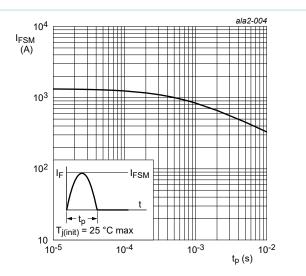


Fig. 4. Non-repetitive peak forward current as a function of pulse width; sinusoidal waveform; maximum values; per diode

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8. Thermal characteristics

Table 5. Thermal characteristics

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
R _{th(j-mb)}	thermal resistance from junction to mounting base	per diode; Fig. 5	-	-	1.3	K/W
		both diodes conducting	-	-	0.7	K/W
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	-	60	-	K/W

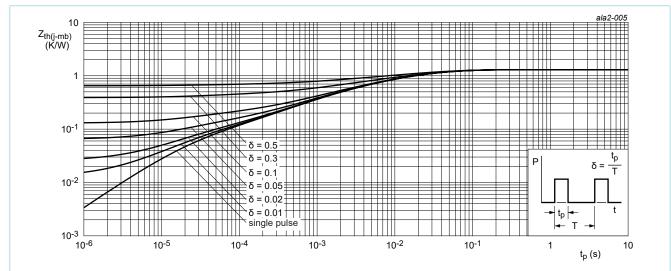


Fig. 5. Transient thermal impedance from junction to mounting base as a function of pulse duration; maximum values; per diode

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9. Characteristics

Table 6. Characteristics

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
Static characteristics					,	
V _F	forward voltage	I _F = 5 A; T _j = 25 °C; <u>Fig. 6</u> ; per diode	-	0.48	0.55	V
		I _F = 5 A; T _j = 125 °C; <u>Fig. 6</u> ; per diode	-	0.41	0.48	V
		I _F = 10 A; T _j = 25 °C; <u>Fig. 6</u> ; per diode	-	0.56	0.63	V
		I _F = 10 A; T _j = 125 °C; <u>Fig. 6</u> ; per diode	-	0.53	0.6	V
		I _F = 15 A; T _j = 25 °C; <u>Fig. 6</u> ; per diode	-	0.64	0.71	V
		I _F = 15 A; T _j = 125 °C; <u>Fig. 6</u> ; per diode	-	0.6	0.67	V
I _R	reverse current	$V_R = 100 \text{ V}; T_j = 25 ^{\circ}\text{C}; Fig. 7; Fig. 8; per diode}$	-	-	50	μΑ
		$V_R = 100 \text{ V}; T_j = 125 \text{ °C}; Fig. 7; Fig. 8; per diode}$	-	-	30	mA

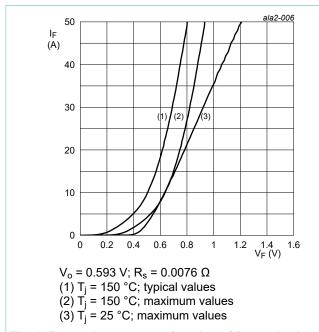


Fig. 6. Forward current as a function of forward voltage; per diode

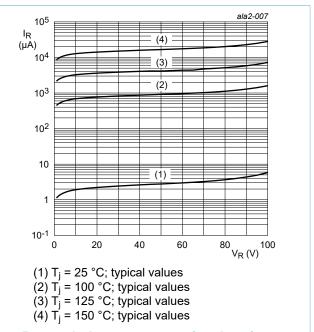
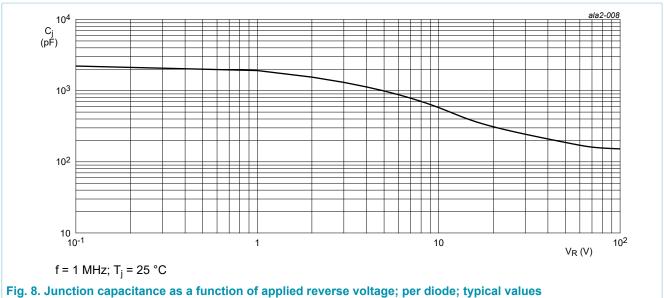


Fig. 7. Reverse leakage current as a function of reverse voltage; per diode; typical values

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10. Package outline

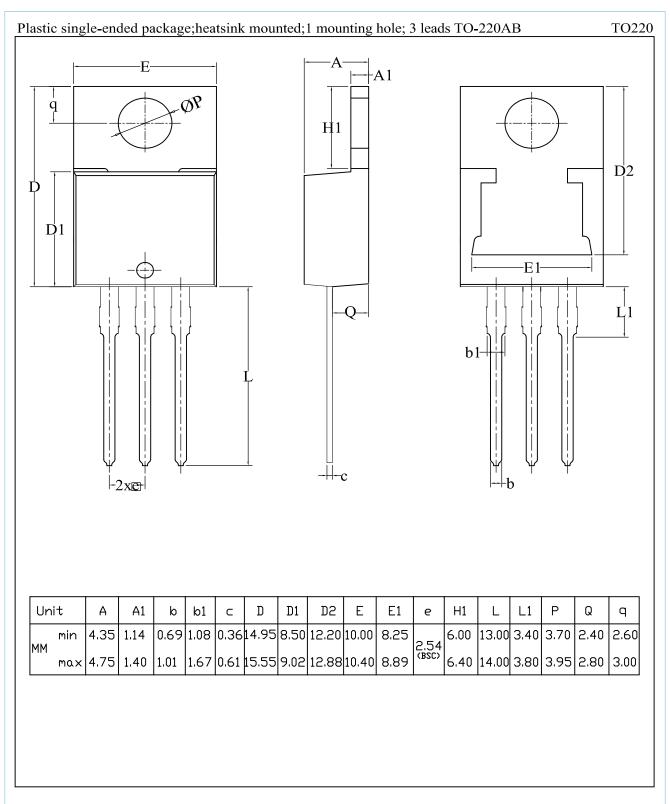


Fig. 9. Package outline TO-220E

11. 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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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,

Промышленная ул, дом № 19, литера Н,

помещение 100-Н Офис 331