



PSC1065K

650 V, 10 A SiC Schottky diode in TO-220-2

4 November 2021

Short data sheet

1. General description

Nexperia introduces leading edge Silicon Carbide (SiC) Schottky diode for ultra-high performance, low loss, high efficiency power conversion applications. The SiC Schottky diode encapsulated in a 2-pin TO-220-2 through-hole power plastic package offers temperature independent capacitive turn-off, zero recovery switching behavior combined with an outstanding figure-of-merit ($Q_C \times V_F$). The Merged PiN Schottky (MPS) diode improves the robustness expressed in a high I_{FSM} .

2. Features and benefits

- Zero forward and reverse recovery
- Temperature independent fast and smooth switching performance
- Outstanding figure-of-merit ($Q_C \times V_F$)
- High I_{FSM} capability
- High power density
- Reduced system cost
- System miniaturization
- Reduced EMI

3. Applications

- Switch Mode Power Supply (SMPS)
- AC-DC and DC-DC converter
- Battery charging infrastructure
- Server and telecom power supply
- Uninterruptible Power Supply (UPS)
- Photovoltaic inverters

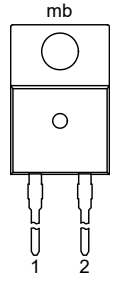
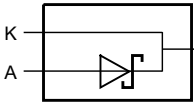
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{DC}	DC blocking voltage		650	-	-	V
I_F	forward current	$\delta = 1$; $T_{case} \leq 140\text{ }^\circ\text{C}$	-	-	10	A
Q_C	total capacitive charge	$V_R = 400\text{ V}$; $dI_F/dt = 200\text{ A}/\mu\text{s}$; $I_F \leq I_{Fmax}$; $T_j = 150\text{ }^\circ\text{C}$	-	15	-	nC

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode	 <p>TO-220-2 (SOT8021)</p>	 <p>aaa-033312</p>
2	A	anode		
mb	K	mounting base; connected to cathode		

6. Ordering information

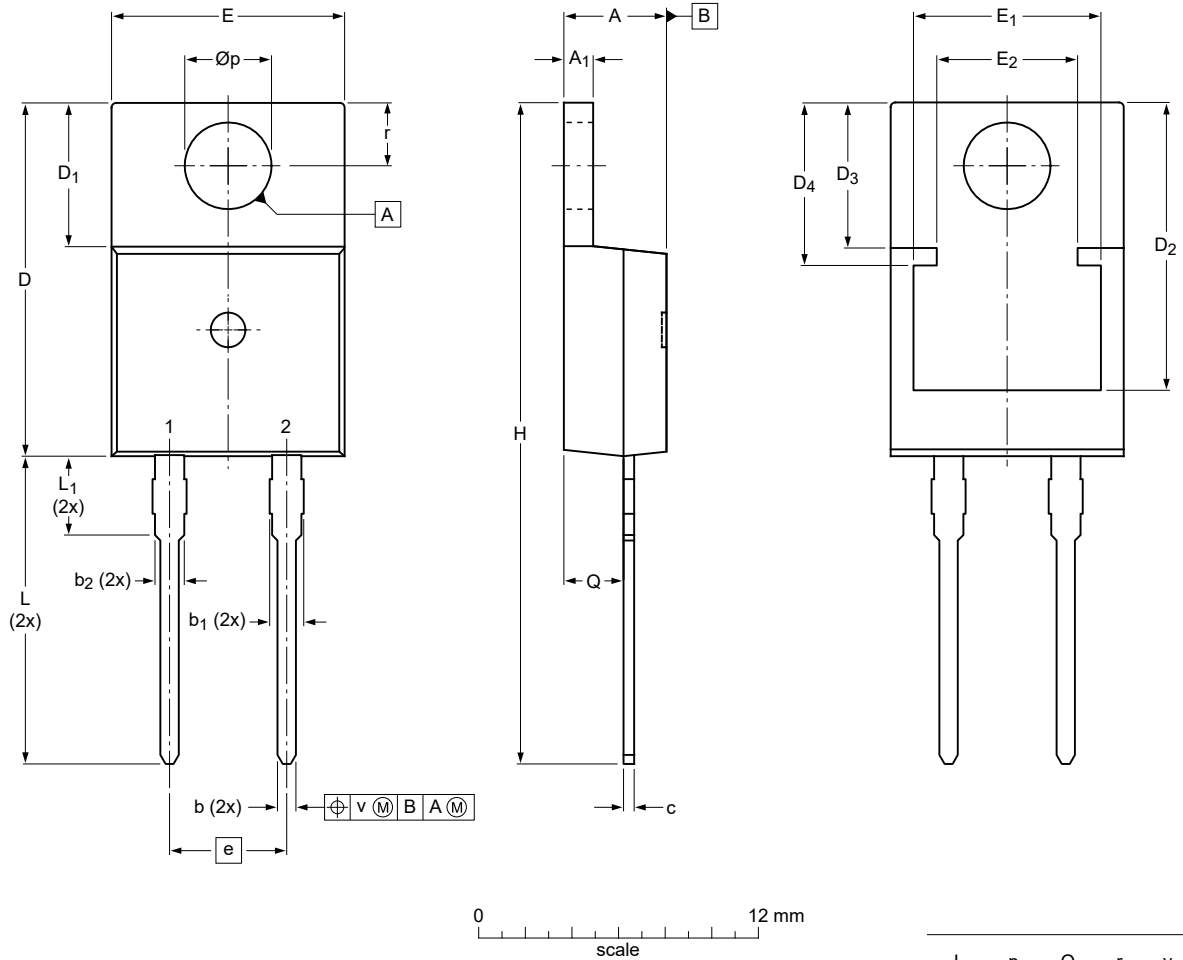
Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PSC1065K	TO-220-2	Plastic, single-ended package (heatsink mounted, 1 mounting hole) (TO-220-2); 2 leads; 5.08 mm pitch; 15.3 mm x 10 mm x 4.4 mm body	SOT8021

7. Package outline

Plastic, single-ended package (heatsink mounted, 1 mounting hole) (TO-220-2); 2 leads;
5.08 mm pitch; 15.3 mm x 10 mm x 4.4 mm body

SOT8021



L ₁	p	Q	r	v
3.81	3.89	2.80	3.05	0.35
3.30	3.63	2.38	2.54	

Dimensions (mm are the original dimensions)

Unit	A	A ₁	b	b ₁	b ₂	c	D	D ₁	D ₂	D ₃	D ₄	E	E ₁	E ₂	e	H	L	
mm	max	4.70	1.37	0.92	1.55	1.40	0.64	15.62	6.48	12.45	6.22	7.04	10.42	8.12	6.10	5.08	29.14	13.97
	nom									(REF.)	(REF.)	(REF.)	(REF.)	(REF.)	(REF.)			
	min	4.19	1.22	0.63	1.14	1.14	0.35	14.98	5.96							28.06	12.71	

sot8021_po

Outline version	References			European projection	Issue date
	IEC	JEDEC	JEITA		
SOT8021	TO-220-2				-21-02-10 21-11-03

Fig. 1. Package outline TO-220-2 (SOT8021)

8. Revision history

Table 4. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PSC1065K_SDS v.1	20211104	Short data sheet	-	-

9. 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.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at <https://www.nexperia.com>.

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