



UnitedSiC offers the 3rd generation of high performance SiC Merged-PiN-Schottky (MPS) diodes. With zero reverse recovery charge and 175°C maximum junction temperature, these diodes are ideally suited for high frequency and high efficiency power systems with minimum

25A - 1700V SiC Schottky Diode

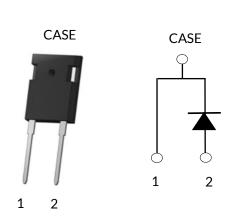
Rev. A, September 2020

Description

DATASHEET

J3D1725K2





Features

- Maximum operating temperature of 175°C
- Easy paralleling

cooling requirements.

- Extremely fast switching not dependent on temperature
- No reverse or forward recovery
- Enhanced surge current capability, MPS structure
- 100% UIS tested
- AEC-Q101 qualified

Typical applications

- Power converters
- Industrial motor drives
- Switch mode power supplies
- Power factor correction modules

Part Number	Package	Marking
UJ3D1725K2	TO-247-2L	UJ3D1725K2







Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Units	
DC blocking voltage	V _R		1700	V	
Repetitive peak reverse voltage, T _J =25°C	V _{RRM}		1700	V	
Surge peak reverse voltage	V _{RSM}		1700	V	
Maximum DC forward current	I _F	T _C = 138°C	25	А	
Non-repetitive forward surge current sine halfwave	I _{FSM}	$T_{\rm C}$ = 25°C, $t_{\rm p}$ = 10ms	180	^	
		T _C = 110°C, t _p = 10ms	163	A	
Repetitive forward surge current	1	$T_{\rm C}$ = 25°C, $t_{\rm p}$ = 10ms	117	А	
sine halfwave, D=0.1	I _{FRM}	T _C = 110°C, t _p = 10ms	68.7		
Non-repetitive peak forward current	I _{F,max}	T _C = 25°C, t _p = 10μs	1100	•	
		T _C = 110°C, t _p = 10μs	1100	A	
-2 .	∫i²dt —	$T_{c} = 25^{\circ}C, t_{p} = 10ms$	162	– A ² s	
i ² t value		$T_{\rm C} = 110^{\circ} {\rm C}, t_{\rm p} = 10 {\rm ms}$	133		
Power dissipation	P _{tot} —	T _C = 25°C	283		
		T _C = 138°C	69.8	W	
Maximum junction temperature	T _{J,max}		175	°C	
Operating and storage temperature	T _J , T _{STG}		-55 to 175	°C	
Soldering temperatures, wavesoldering only allowed at leads	T _{sold}	1.6mm from case for 10s	260	°C	

Thermal Characteristics

Parameter	Symbol	Test Conditions	Value			Units
			Min	Тур	Max	Units
Thermal resistance, junction-to-case	$R_{\theta JC}$			0.41	0.53	°C/W



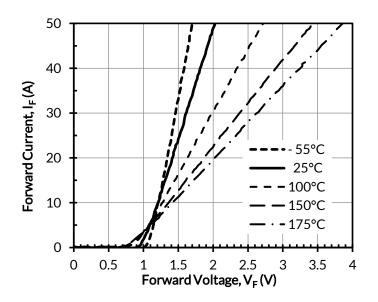
Related Buy	Spice	Contact	Learn
Devices Online	Models	Sales	More

Electrical Characteristics (T_J = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Value			L In the
			Min	Тур	Max	Units
Forward voltage	V _F	I _F = 25A, T _J =25°C	-	1.54	1.7	V
		I _F = 25A, T _J =150°C	-	2.1		
		I _F = 25A, T _J =175°C	-	2.3	2.75	
Reverse current	I _R	V _R =1700V, T _J =25°C	-	24	360	μA
		V _R =1700V, T _J =175°C	-	950		
Total capacitive charge ⁽¹⁾	Q _C	V _R =1200V		184		nC
Total capacitance	с	V_R =1V, f = 1MHz		1500		pF
		V _R =800V, f = 1MHz		100		
		V _R =1700V, f = 1MHz		80		
Capacitance stored energy	E _C	V _R =1200V		78		μJ

(1) Q_c is independent on T_J , di_F/dt , and I_F as shown in the application note USCi_AN0011.

Typical Performance Diagrams





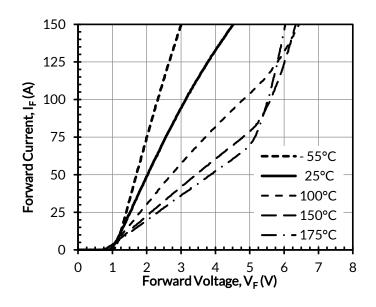


Figure 2. Typical forward characteristics in surge current





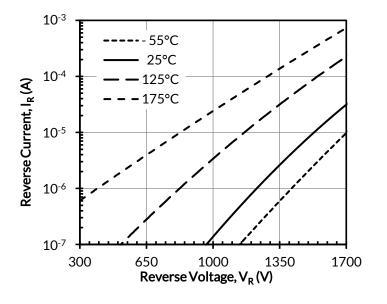


Figure 3. Typical reverse characteristics

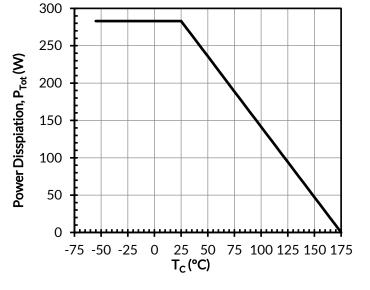


Figure 4. Power dissipation

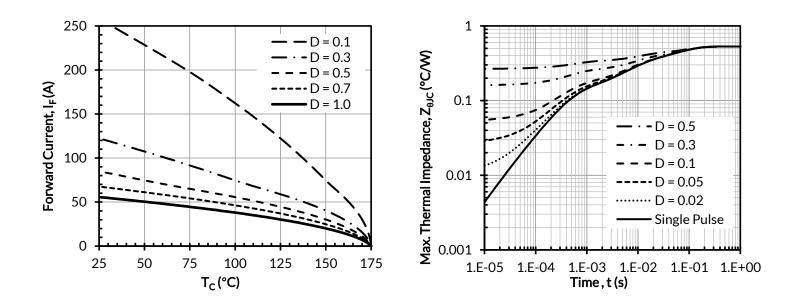


Figure 5. Diode forward current

Figure 6. Maximum transient thermal impedance





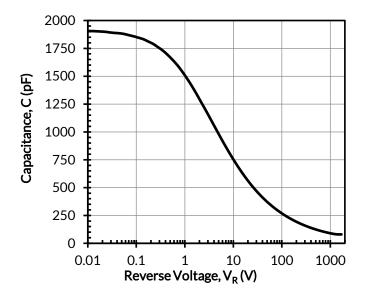


Figure 7. Capacitance vs. reverse voltage at 1MHz

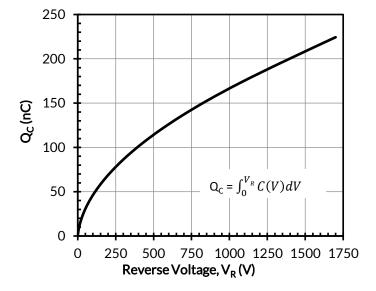


Figure 8. Typical capacitive charge vs. reverse voltage

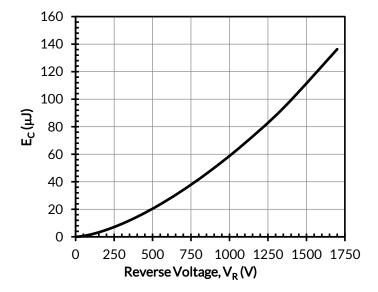


Figure 9. Typical capacitance stored energy vs. reverse voltage









Disclaimer

UnitedSiC reserves the right to change or modify any of the products and their inherent physical and technical specifications without prior notice. UnitedSiC assumes no responsibility or liability for any errors or inaccuracies within.

Information on all products and contained herein is intended for description only. No license, express or implied, to any intellectual property rights is granted within this document.

UnitedSiC assumes no liability whatsoever relating to the choice, selection or use of the UnitedSiC products and services described herein.