

SCS220KGHR

Automotive Grade SiC Schottky Barrier Diode

Datasheet

V _R	1200V
I _F	20A
Q _C	65nC

Features

- 1) AEC-Q101 qualified
- 2) Low forward voltage
- 3) Negligible recovery time/current
- 4) Temperature independent switching behavior

Applications

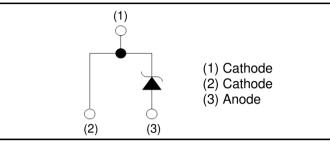
- On Board Charger
- DC/DC Converter
- Wireless Charger
- EV Charger







Inner circuit



Packaging specifications

	Packaging	Tube
Туре	Reel size (mm)	-
	Tape width (mm)	-
	Basic ordering unit (pcs)	50
	Packing code	С
	Marking	SCS220KG

●Absolute maximum ratings (T_j = 25°C)

	3 () ,			
Parameter		Symbol	Value	Unit
Reverse voltage (re	petitive peak)	V _{RM}	1200	V
Reverse voltage (De	C)	V _R	1200	V
Continuous forward	current (T _c = 133°C)	I _F	20	А
Surge non-	PW=10ms sinusoidal, T _j =25°C		79	А
repetitive forward current	PW=10ms sinusoidal, T _j =150°C	I _{FSM}	59	А
	PW=10μs square, T _j =25°C		310	А
Repetitive peak forv	vard current	I _{FRM}	83 ^{*1}	А
·2	PW=10ms, T _j =25°C	C .2	31	A ² s
i ² t value	PW=10ms, T _j =150°C	∫ i²dt	17	A ² s
Total power dissipation		P _D	210 ^{*2}	W
Junction temperature		Tj	175	°C
Range of storage temperature		T _{stg}	–55 to +175	°C
*1 T 10000 T	15000 Dutu avala 100/ 40 T 0/	-		

*1 T_c=100°C, T_j=150°C, Duty cycle=10% *2 T_c=25°C

•Electrical characteristics $(T_j = 25^{\circ}C)$

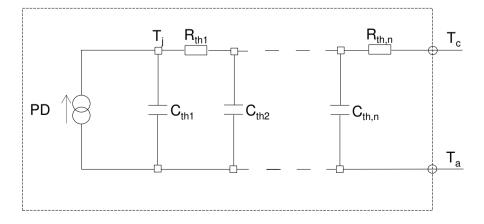
Deremeter	Cumbal	Conditions	Values			Linit	
Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit	
DC blocking voltage	V_{DC}	I _R =0.4mA	1200	-	-	V	
		I _F =20A,T _j =25°C	-	1.4	1.6	V	
Forward voltage	V_{F}	I _F =20A,T _j =150°C	-	1.8	-	V	
		I _F =20A,T _j =175°C	-	1.9	-	V	
	I _R	V _R =1200V,T _j =25°C	-	20	400	μ A	
Reverse current		V _R =1200V,T _j =150°C	-	160	-	μ A	
		V _R =1200V,T _j =175°C	-	260	-	μ A	
Total conscitones	С	V _R =1V,f=1MHz	-	1050	-	pF	
Total capacitance		V _R =800V,f=1MHz	-	85	-	pF	
Total capacitive charge	Q _C	V _R =800V,di/dt=500A/µs	-	65	-	nC	
Switching time	t _C	V _R =800V,di/dt=500A/µs	-	18	-	ns	

•Thermal characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Тур.	Max.	Offic
Thermal resistance	R _{th(j-c)}	-	-	0.62	0.71	°C/W

•Typical Transient Thermal Characteristics

Symbol	Value	Unit	Symbol	Value	Unit
R _{th1}	1.59E-01		C _{th1}	5.03E-03	
R _{th2}	2.74E-01	K/W	C _{th2}	7.27E-03	Ws/K
R _{th3}	1.87E-01		C_{th3}	1.39E-01	

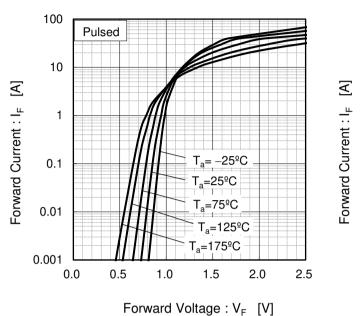




•Electrical characteristic curves



Fig.2 V_F - I_F Characteristics



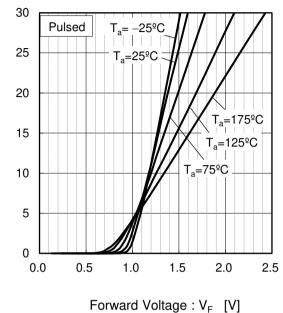
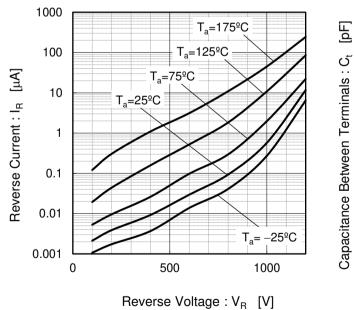
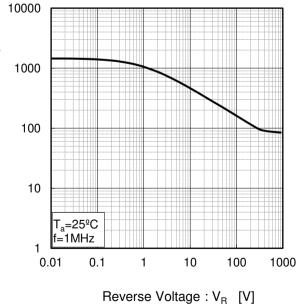


Fig.3 V_R - I_R Characteristics

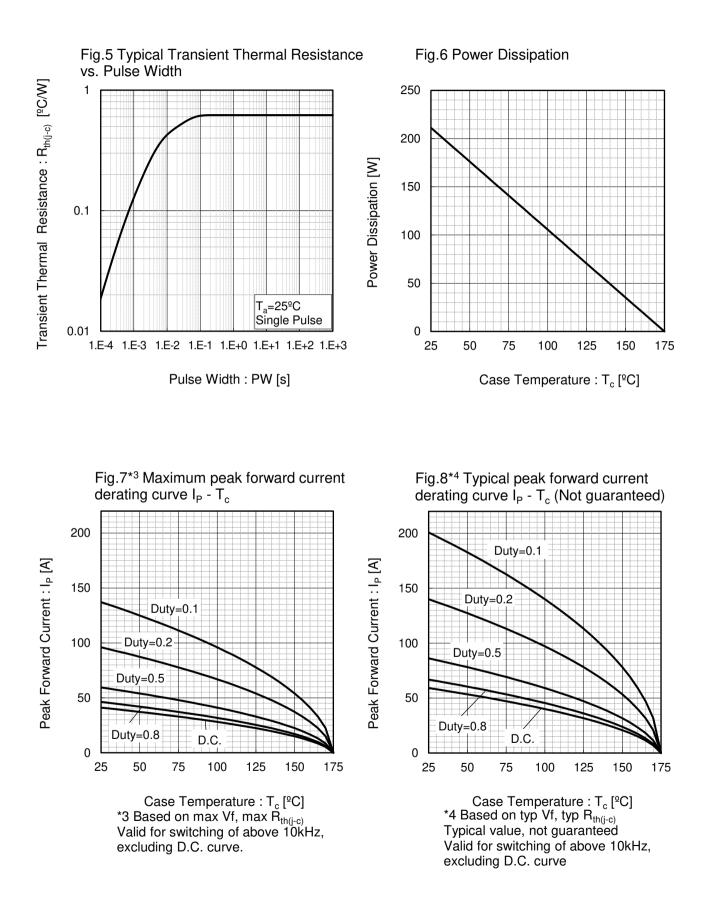








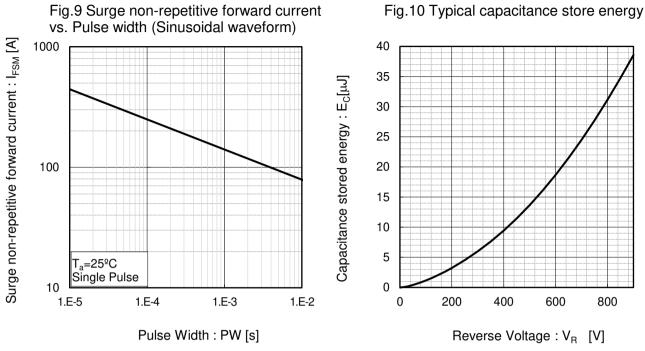
•Electrical characteristic curves





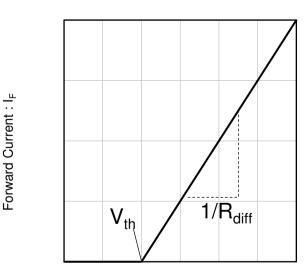
ROHM

Electrical characteristic curves



•Symplified forward characteristic model

Fig.11 Equivalent forward current curve



Forward Voltage : V_F

$V_F =$	V_{th}	+	R _{diff}	I _F
---------	----------	---	-------------------	----------------

V _{th} ($(\Gamma_{j}) = a_{0} + a_{1} T_{j}$	
R _{diff} ($(f_j) = b_0 + b_1 T_j + b_2 T_j$	2 İ

Symbol	Typical Value	Unit
a ₀	9.93E-01	V
a ₁	-1.27E-03	V/°C
b ₀	1.83E-02	Ω
b ₁	1.03E-04	Ω/°C
b ₂	6.65E-07	$\Omega/^{\circ}C^{2}$

 $T_j \text{ in } {}^{\circ}C; -55 \; {}^{\circ}C < \; T_j < {}^{\circ}C \; ; \; I_F < \; 40 \; A$

se			
1.E	<u>-</u> 4	1.E-3	1.E-2
Ρ	ulse Wic	lth : PW [s]	

	Notes
1)	The information contained herein is subject to change without notice.
2)	Before you use our Products, please contact our sales representative and verify the latest specifications :
3)	Although ROHM is continuously working to improve product reliability and quality, semicon ductors can break down and malfunction due to various factors. Therefore, in order to prevent personal injury or fire arising from failure, please take safet measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Poducts beyond the rating specified b ROHM.
4)	Examples of application circuits, circuit constants and any other information contained herein ar provided only to illustrate the standard usage and operations of the Products. The periphera conditions must be taken into account when designing circuits for mass production.
5)	The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly any license to use or exercise intellectual property or other rights held by ROHM or any othe parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.
6)	The Products specified in this document are not designed to be radiation tolerant.
7)	For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safet equipment, medical systems, and power transmission systems.
8)	Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.
9)	ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.
10)	ROHM has used reasonable care to ensur the accuracy of the information contained in this document. However, ROHM does not warrants that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.
11)	Please use the Products in accordance with any applicable environmental laws and regulations such as the RoHS Directive. For more details, including RoHS compatibility, please contact ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.
12)	When providing our Products and technologies contained in this document to other countries you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.
13)	This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.



Thank you for your accessing to ROHM product informations. More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

http://www.rohm.com/contact/