Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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SCS208AGHR

Automotive Grade SiC Schottky Barrier Diode Datasheet

V_R	650V
I_F	8A
Q_C	13nC

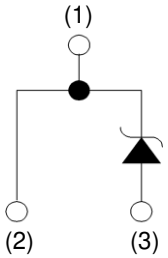
●Outline

TO-220AC

●Features

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

●Inner circuit



(1) Cathode
(2) Cathode
(3) Anode

●Applications

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

●Packaging specifications

Type	Packaging	Tube
	Reel size (mm)	-
	Tape width (mm)	-
	Basic ordering unit (pcs)	50
	Packing code	C
	Marking	SCS208AG

●Absolute maximum ratings (T_j = 25°C)

Parameter		Symbol	Value	Unit
Reverse voltage (repetitive peak)		V_{RM}	650	V
Reverse voltage (DC)		V_R	650	V
Continuous forward current (T_c= 138°C)		I_F	8	A
Surge non-repetitive forward current	PW=10ms sinusoidal, T_j=25°C	I_{FSM}	30	A
	PW=10ms sinusoidal, T_j=150°C		23	A
	PW=10μs square, T_j=25°C		110	A
Repetitive peak forward current		I_{FRM}	36 *1	A
i^2t value	PW=10ms, T_j=25°C	$\int i^2dt$	4.3	A^2s
	PW=10ms, T_j=150°C		2.6	A^2s
Total power dissipation		P_D	68 *2	W
Junction temperature		T_j	175	°C
Range of storage temperature		T_{stg}	−55 to +175	°C

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

●Electrical characteristics (T_j = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}	I_R =1.6mA	650	-	-	V
Forward voltage	V_F	I_F=8A,T_j=25°C	-	1.35	1.55	V
		I_F=8A,T_j=150°C	-	1.55	-	V
		I_F=8A,T_j=175°C	-	1.63	-	V
Reverse current	I_R	V_R=600V,T_j=25°C	-	1.6	160	μA
		V_R=600V,T_j=150°C	-	24	-	μA
		V_R=600V,T_j=175°C	-	56	-	μA
Total capacitance	C	V_R=1V,f=1MHz	-	290	-	pF
		V_R=600V,f=1MHz	-	30	-	pF
Total capacitive charge	Q_C	V_R=400V,di/dt=350A/μs	-	13	-	nC
Switching time	t_C	V_R=400V,di/dt=350A/μs	-	13	-	ns

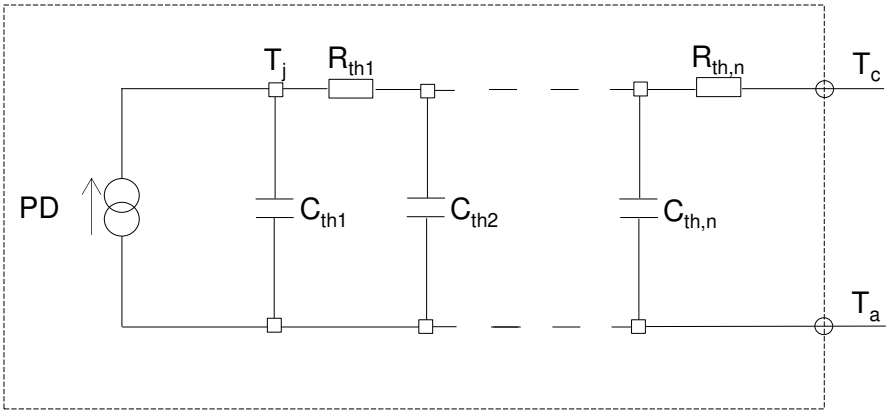
●Thermal characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th(j-c)}$	-	-	1.9	2.2	°C/W

●Typical Transient Thermal Characteristics

Symbol	Value	Unit
R_{th1}	7.38E-01	K/W
R_{th2}	6.56E-01	
R_{th3}	4.84E-01	

Symbol	Value	Unit
C_{th1}	1.52E-03	Ws/K
C_{th2}	3.80E-03	
C_{th3}	5.59E-02	



●Electrical characteristic curves

Fig.1 V_F - I_F Characteristics

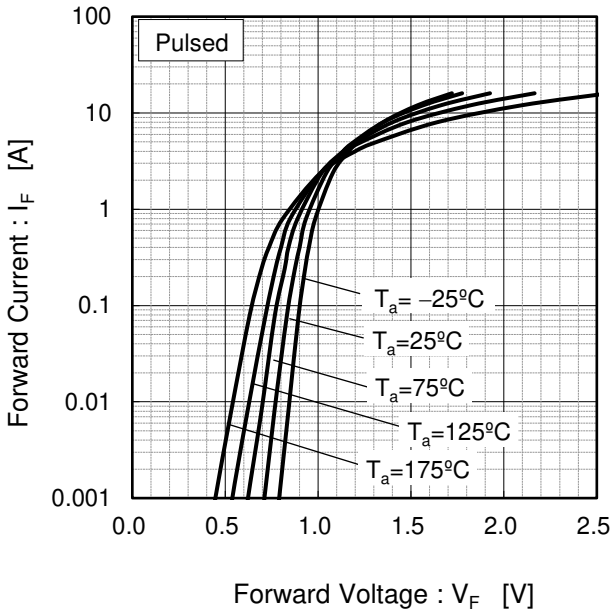


Fig.2 V_F - I_F Characteristics

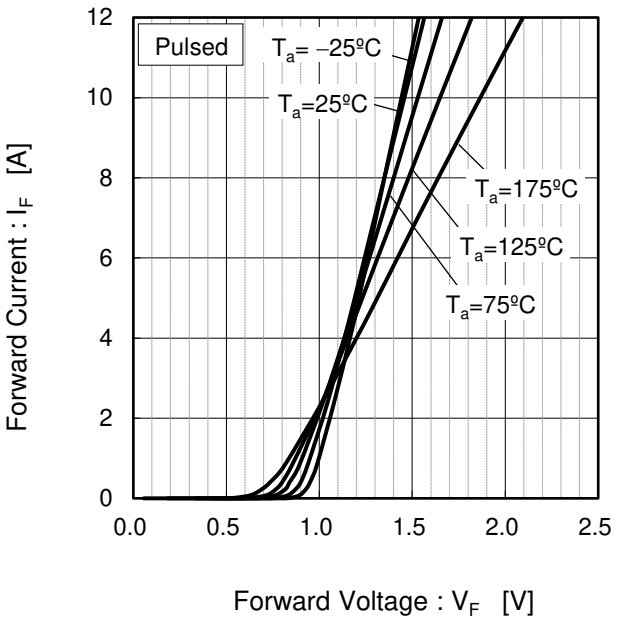


Fig.3 V_R - I_R Characteristics

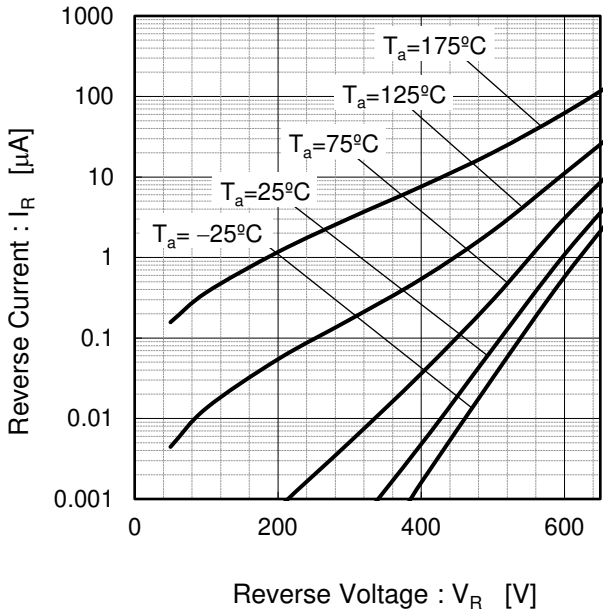
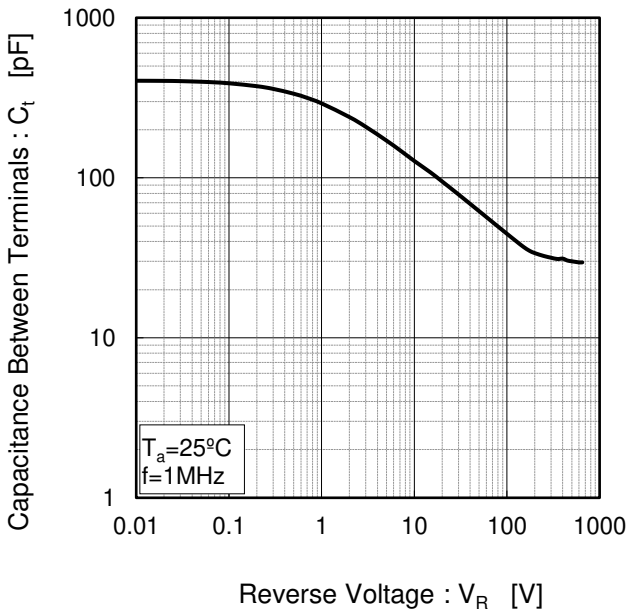


Fig.4 V_R - C_t Characteristics



●Electrical characteristic curves

Fig.5 Typical Transient Thermal Resistance vs. Pulse Width

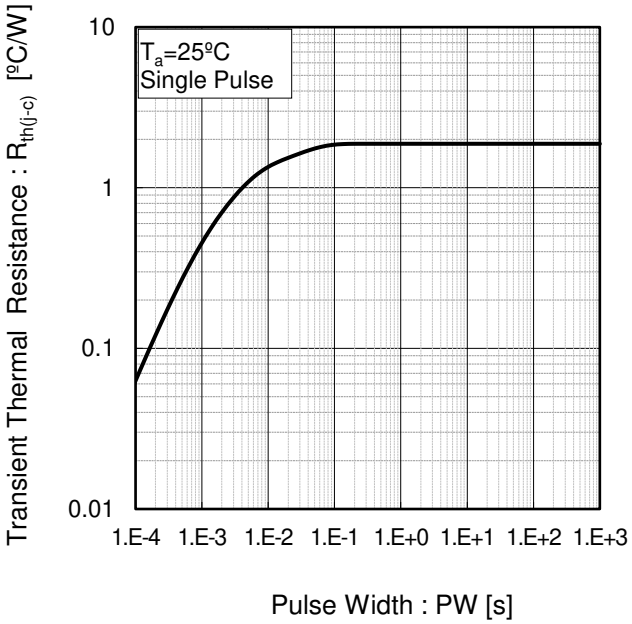


Fig.6 Power Dissipation

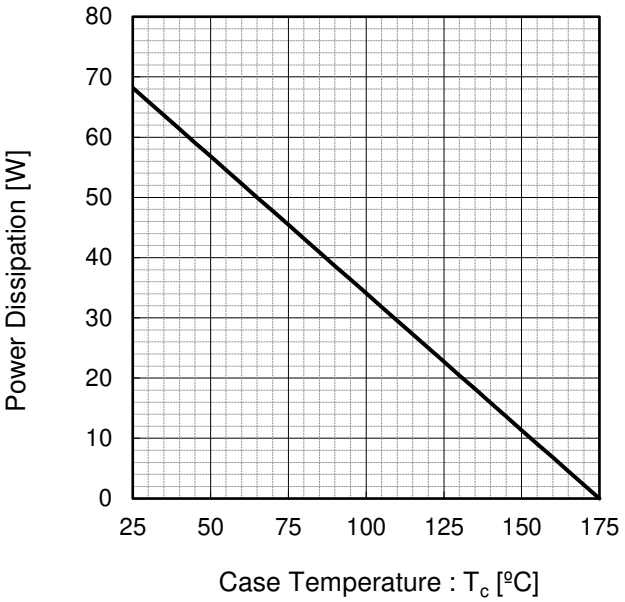
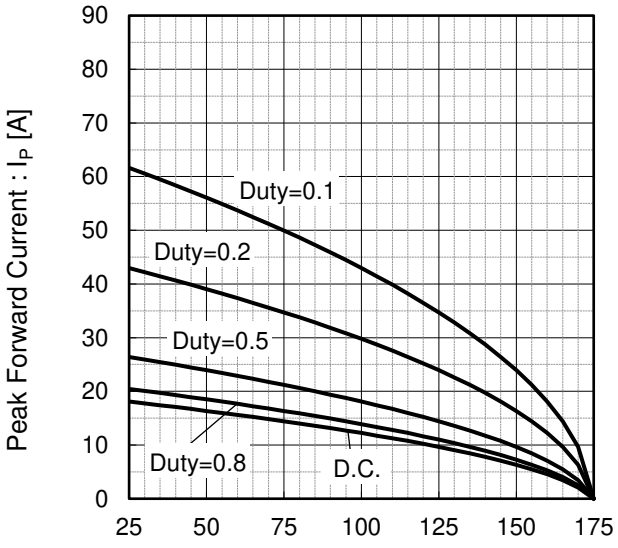
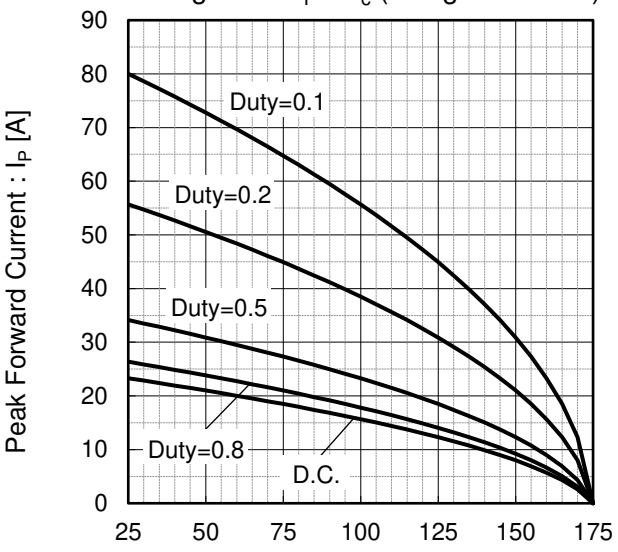


Fig.7*3 Maximum peak forward current derating curve I_P - T_c



*3 Based on max Vf, max $R_{th(j-c)}$
Valid for switching of above 10kHz, excluding D.C. curve.

Fig.8*4 Typical peak forward current derating curve I_P - T_c (Not guaranteed)



*4 Based on typ Vf, typ $R_{th(j-c)}$
Typical value, not guaranteed
Valid for switching of above 10kHz, excluding D.C. curve

●Electrical characteristic curves

Fig.9 Surge non-repetitive forward current vs. Pulse width (Sinusoidal waveform)

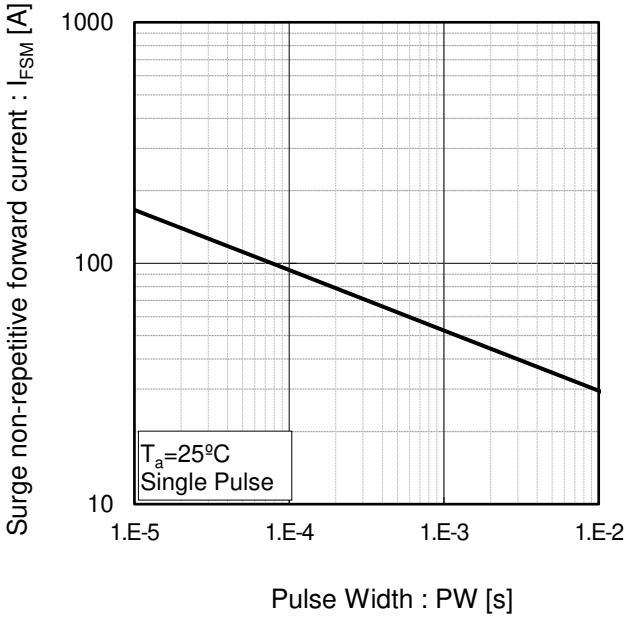
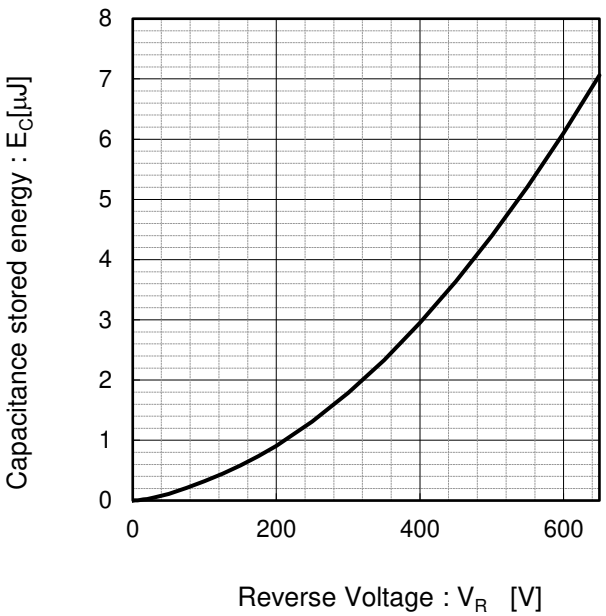
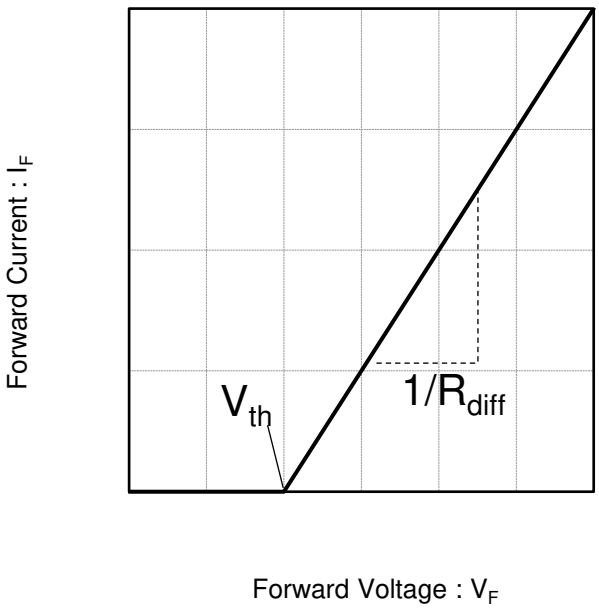


Fig.10 Typical capacitance store energy



●Symplified forward characteristic model

Fig.11 Equivalent forward current curve



$$V_F = V_{th} + R_{diff} I_F$$

$$V_{th}(T_j) = a_0 + a_1 T_j$$
$$R_{diff}(T_j) = b_0 + b_1 T_j + b_2 T_j^2$$

Symbol	Typical Value	Unit
a_0	9.35E-01	V
a_1	-1.12E-03	V/°C
b_0	4.98E-02	Ω
b_1	1.28E-04	Ω/°C
b_2	1.35E-06	Ω/°C^2

T_j in ºC; -55 ºC < T_j < ºC ; I_F < 16 A

Notes

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SCS208AGHR - Web Page

Distribution Inventory

Part Number	SCS208AGHR
Package	TO-220AC
Unit Quantity	1000
Minimum Package Quantity	50
Packing Type	Tube
Constitution Materials List	inquiry
RoHS	Yes