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.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

SCS230KE2AHR

SiC Schottky Barrier Diode

Datasheet

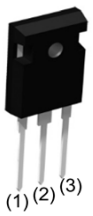
V_R	1200V
I_F	15A/30A*
Q_C	51nC(Per leg)

(*Per leg/ Both legs)

●**AEC-Q101 Qualified**

●**Outline**

TO-247



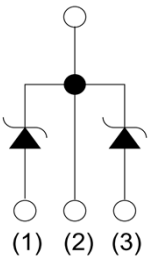
●**Features**

1) Shorter recovery time

2) Reduced temperature dependence

3) High-speed switching possible

●**Inner circuit**



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

●**Construction**

Silicon carbide epitaxial planar type

●**Packaging specifications**

Type	Packaging	Tube
	Reel size (mm)	-
	Tape width (mm)	-
	Basic ordering unit (pcs)	30
	Packing code	C
	Marking	SCS230KE2A

●**Absolute maximum ratings** (T_j = 25°C)

Parameter		Symbol	Value	Unit
Reverse voltage (repetitive peak)		V_{RM}	1200	V
Reverse voltage (DC)		V_R	1200	V
Continuous forward current *3 (T_c= 139°C)		I_F	15/30	A
Surge non-repetitive forward current *3	PW=10ms sinusoidal, T_j=25°C	I_{FSM}	62/120	A
	PW=10ms sinusoidal, T_j=150°C		46/92	A
	PW=10μs square, T_j=25°C		240/480	A
Repetitive peak forward current *3		I_{FRM}	67/130 *1	A
i^2t value *3	PW=10ms, T_j=25°C	$\int i^2dt$	19/77	A^2s
	PW=10ms, T_j=150°C		10/42	A^2s
Total power disspation *3		P_D	180/370 *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 *3 Per leg/ Both legs

●Electrical characteristics (T_j = 25°C) (Per Leg)

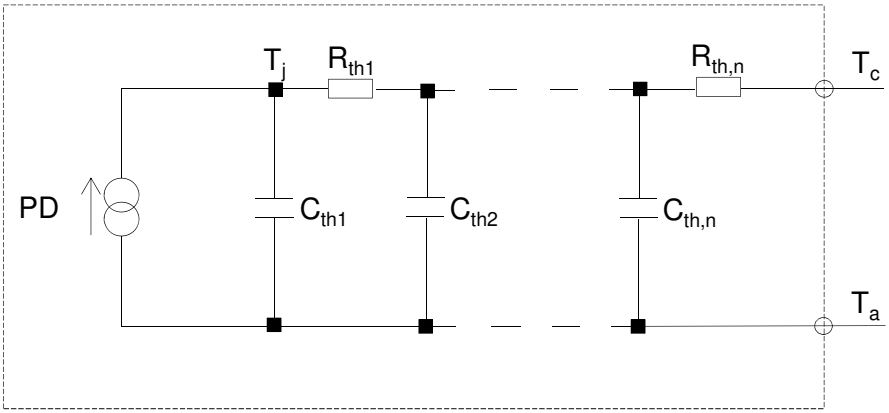
Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}	I_R =0.3mA	1200	-	-	V
Forward voltage	V_F	I_F=15A, T_j=25°C	-	1.4	1.6	V
		I_F=15A, T_j=150°C	-	1.8	-	V
		I_F=15A, T_j=175°C	-	1.9	-	V
Reverse current	I_R	V_R=1200V, T_j=25°C	-	15	300	μA
		V_R=1200V, T_j=150°C	-	120	-	μA
		V_R=1200V, T_j=175°C	-	195	-	μA
Total capacitance	C	V_R=1V, f=1MHz	-	790	-	pF
		V_R=600V, f=1MHz	-	64	-	pF
Total capacitive charge	Q_C	V_R=800V, di/dt=500A/μs	-	51	-	nC
Switching time	t_C	V_R=800V, di/dt=500A/μs	-	18	-	ns

●Thermal characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th(j-c)}$	Per Leg	-	0.67	0.81	°C/W
		Both Legs	-	0.34	0.41	°C/W

●Typical Transient Thermal Characteristics (Per Leg)

Symbol	Value	Unit	Symbol	Value	Unit
R_{th1}	1.25E-01	K/W	C_{th1}	3.81E-03	Ws/K
R_{th2}	4.03E-01		C_{th2}	4.54E-03	
R_{th3}	1.43E-01		C_{th3}	7.59E-02	



●Electrical characteristic curves

Fig.1 V_F - I_F Characteristics (Per Leg)

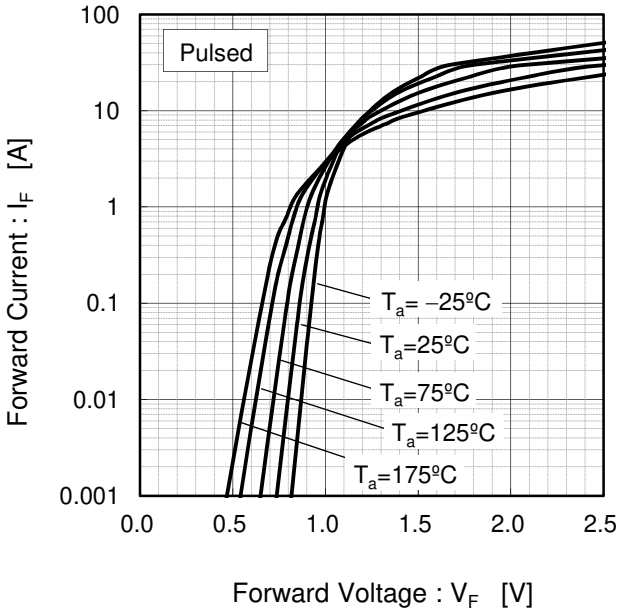


Fig.2 V_F - I_F Characteristics (Per Leg)

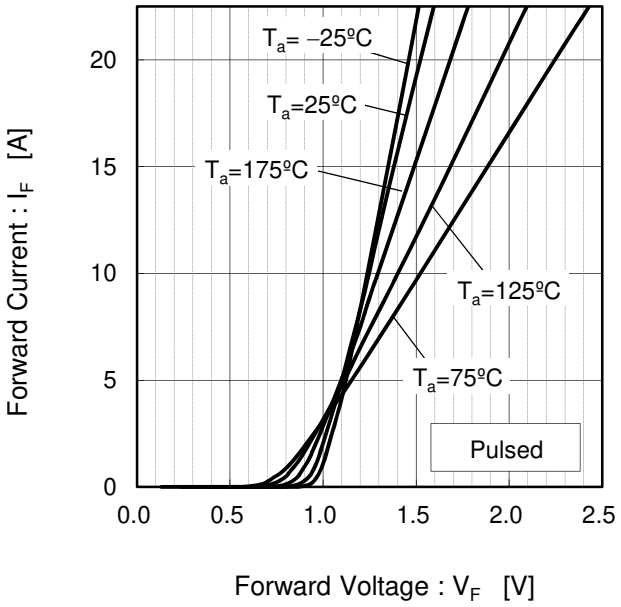


Fig.3 V_R - I_R Characteristics (Per Leg)

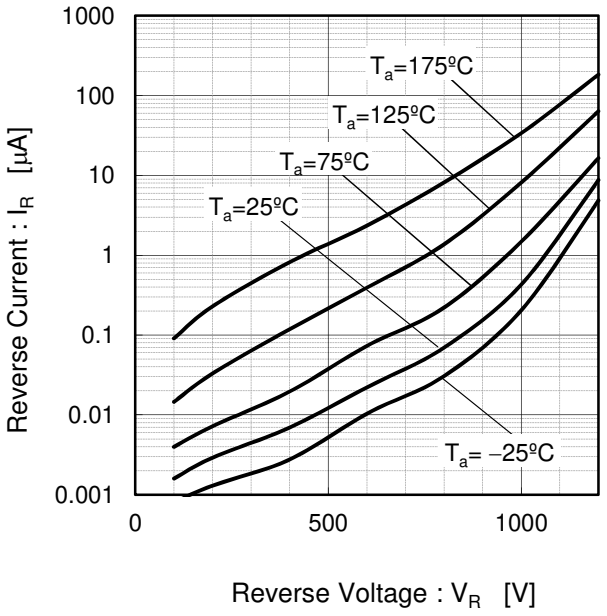
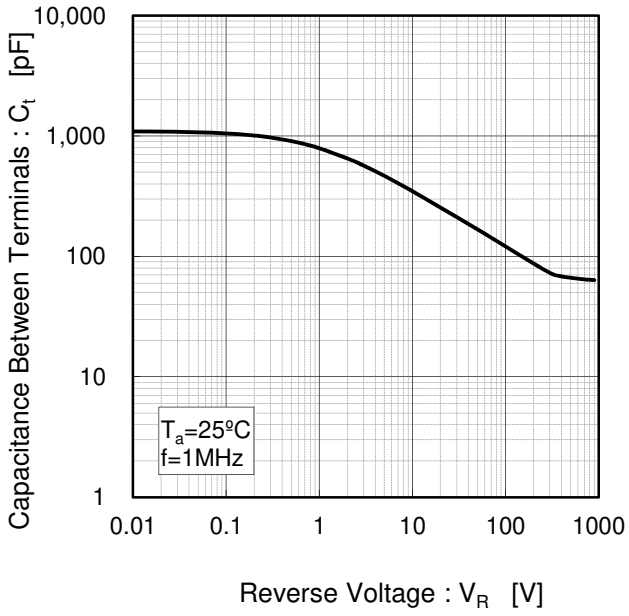


Fig.4 V_R-C_t Characteristics (Per Leg)



●Electrical characteristic curves

Fig.5 Typical Transient Thermal Resistance vs. Pulse Width (Per Leg)

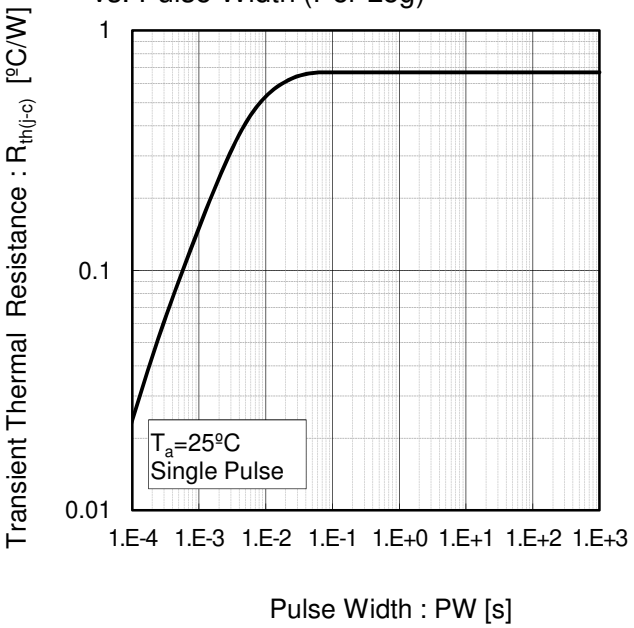


Fig.6 Power Dissipation (Per Leg)

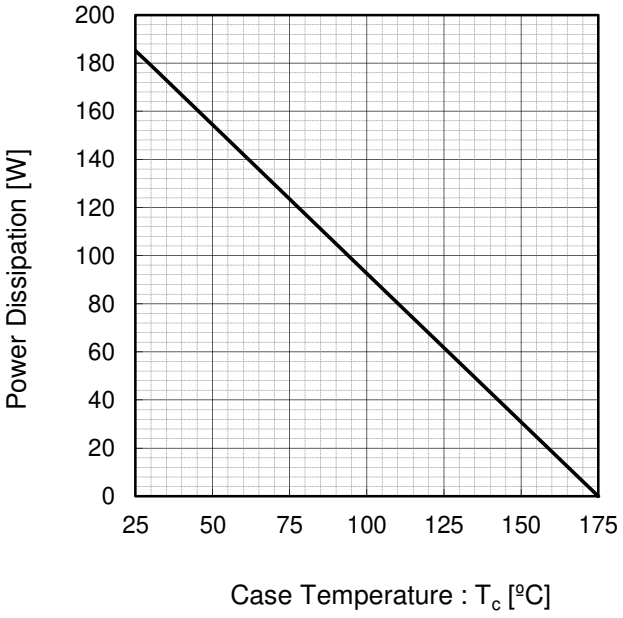
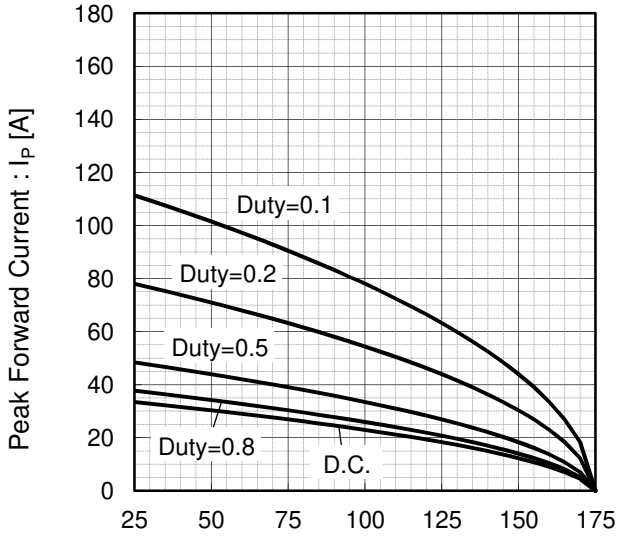
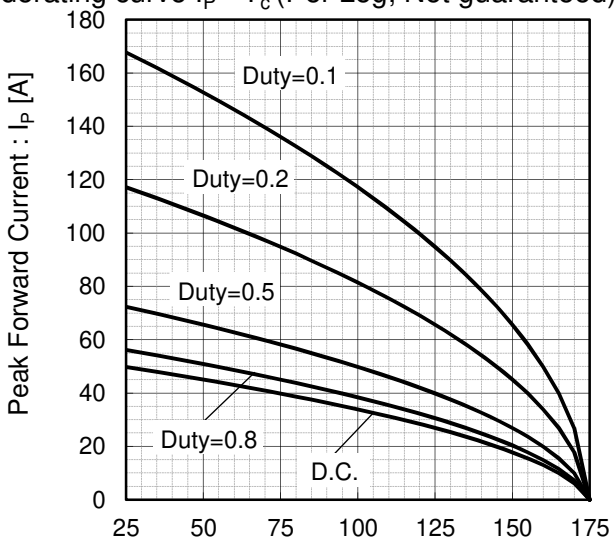


Fig.7*3 Maximum peak forward current derating curve I_P - T_c (Per Leg)



*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 (Per Leg, 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) (Per Leg)

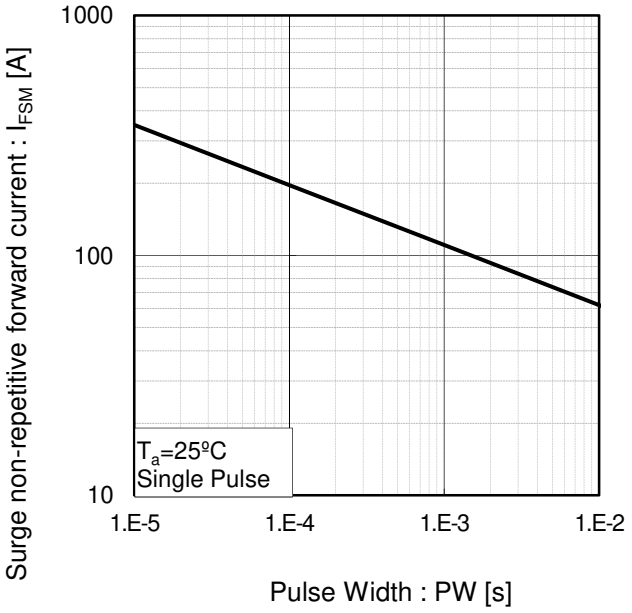
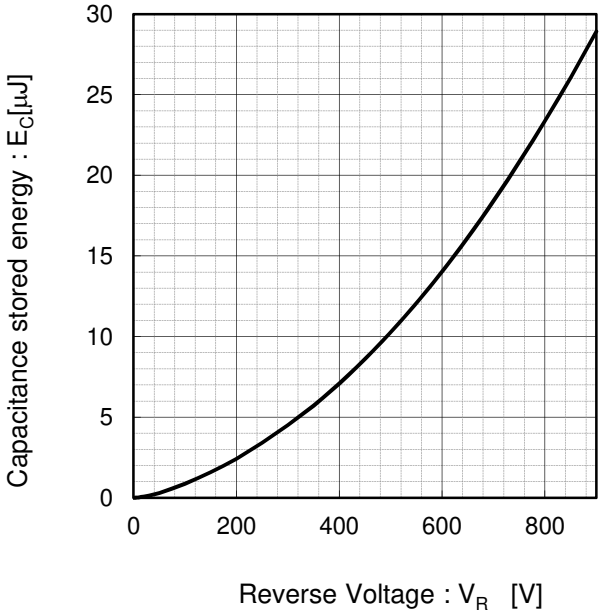
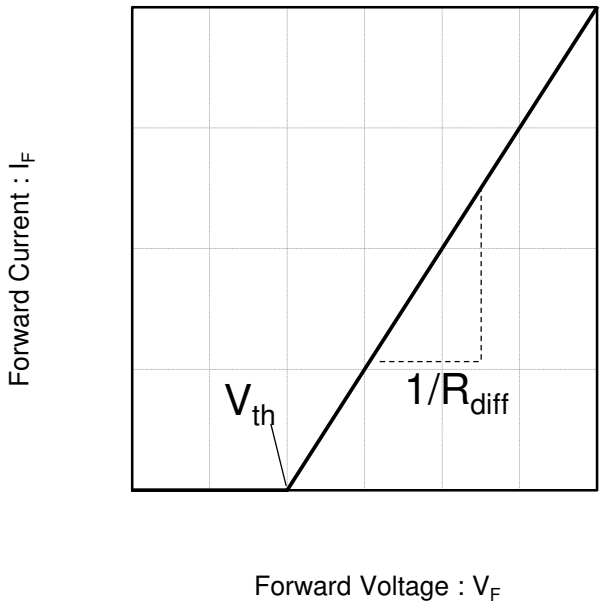


Fig.10 Typical capacitance store energy (Per Leg)



●Symplified forward characteristic model (Per Leg)

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	9.93E-01	V
a_1	-1.27E-03	V/°C
b_0	2.43E-02	Ω
b_1	1.37E-04	Ω/°C
b_2	8.87E-07	Ω/°C^2

T_j in ºC; –55 ºC < T_j < 175ºC ; I_F < 30A

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SCS230KE2AHR - Web Page

Part Number	SCS230KE2AHR
Package	TO-247
Unit Quantity	360
Minimum Package Quantity	30
Packing Type	Tube
Constitution Materials List	inquiry
RoHS	Yes