



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!



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$V_R$	1200V
$I_F$	5A
$Q_C$	20nC

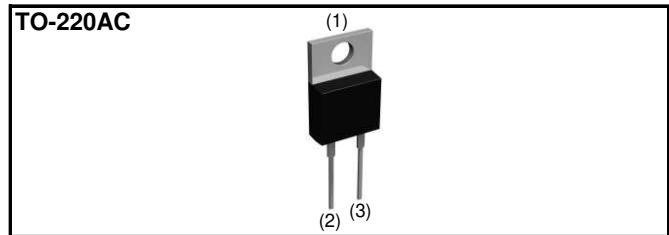
#### ●Features

- 1) Shorter recovery time
- 2) Reduced temperature dependence
- 3) High-speed switching possible

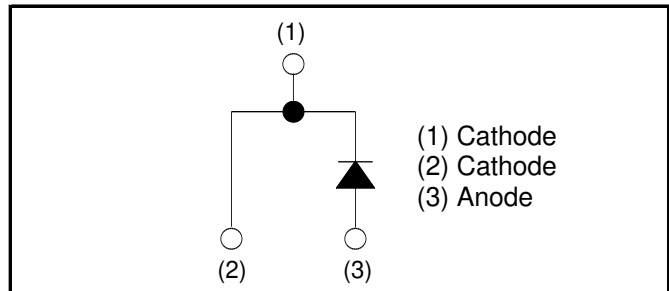
#### ●Construction

Silicon carbide epitaxial planer type

#### ●Outline



#### ●Inner circuit



#### ●Packaging specifications

Type	Packaging	Tube
	Reel size (mm)	-
	Tape width (mm)	-
	Basic ordering unit (pcs)	50
	Taping code	-
	Marking	SCS105KG

#### ●Absolute maximum ratings ( $T_j = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Reverse voltage (repetitive peak)	$V_{RM}$	1200	V
Reverse voltage (DC)	$V_R$	1200	V
Continuous forward current	$I_F$	5 <sup>*1</sup>	A
Surge no repetitive forward current	$I_{FSM}$	21 <sup>*2</sup>	A
		97 <sup>*3</sup>	A
Repetitive peak forward current	$I_{FRM}$	24 <sup>*4</sup>	A
Total power dissipation	$P_D$	83 <sup>*5</sup>	W
Junction temperature	$T_j$	175	$^\circ\text{C}$
Range of storage temperature	$T_{stg}$	-55 to +175	$^\circ\text{C}$
Thermal resistance, junction to case	$R_{th(j-c)}$	1.8	$^\circ\text{C/W}$

\*1  $T_c=148^\circ\text{C}$  \*2  $PW=8.3\text{ms}$  sinusoidal,  $T_j=25^\circ\text{C}$

\*3  $PW=10\mu\text{s}$  square,  $T_j=25^\circ\text{C}$  \*4  $T_c=100^\circ\text{C}$ ,  $T_j=150^\circ\text{C}$ , Duty cycle=10% \*5  $T_c=25^\circ\text{C}$

●Electrical characteristics (T<sub>j</sub> = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V <sub>DC</sub>	I <sub>R</sub> =0.1mA	1200	-	-	V
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =5A, T <sub>j</sub> =25°C	-	1.5	1.75	V
		I <sub>F</sub> =5A, T <sub>j</sub> =175°C	-	2.0	-	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> =1200V, T <sub>j</sub> =25°C	-	5	100	μA
		V <sub>R</sub> =1200V, T <sub>j</sub> =175°C	-	60	-	μA
Total capacitance	C	V <sub>R</sub> =1V, f=1MHz	-	325	-	pF
		V <sub>R</sub> =800V, f=1MHz	-	25	-	pF
Total capacitive charge	Q <sub>C</sub>	V <sub>R</sub> =800V, di/dt=500A/μs	-	20	-	nC
Switching time	t <sub>c</sub>	V <sub>R</sub> =800V, di/dt=500A/μs	-	15	-	ns

●Electrical characteristic curves

Fig.1  $V_F - I_F$  Characteristics

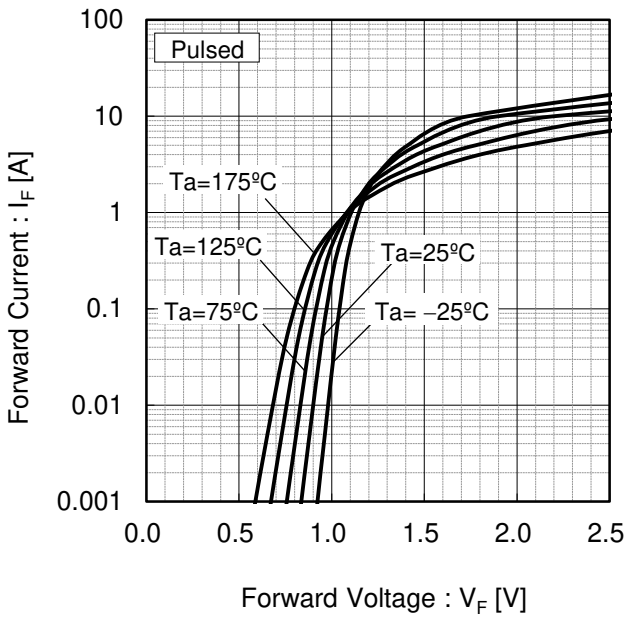


Fig.2  $V_F - I_F$  Characteristics

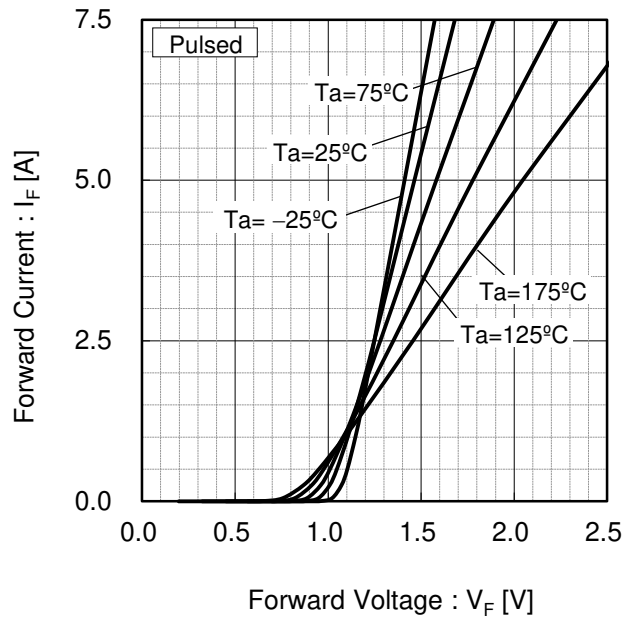


Fig.3  $V_R - I_R$  Characteristics

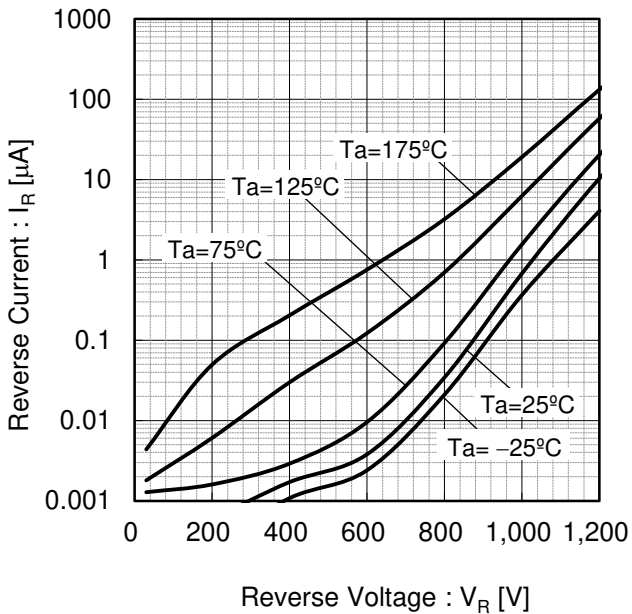
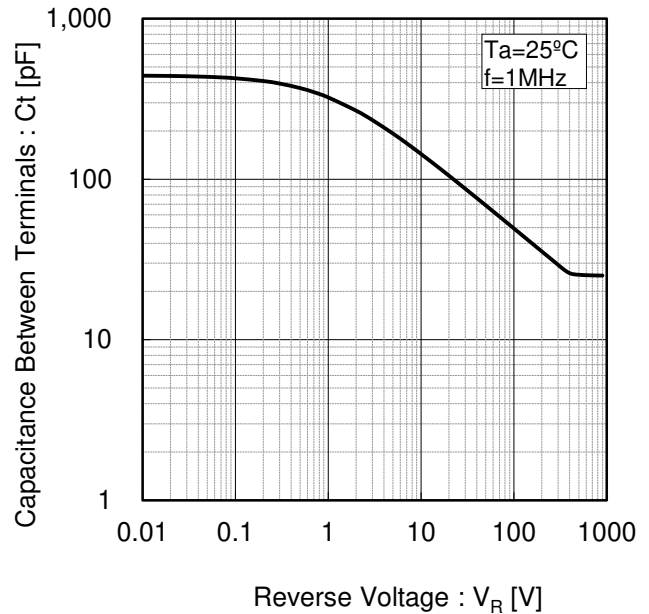


Fig.4  $V_R - C_t$  Characteristics



●Electrical characteristic curves

Fig.5 Thermal Resistance vs. Pulse Width

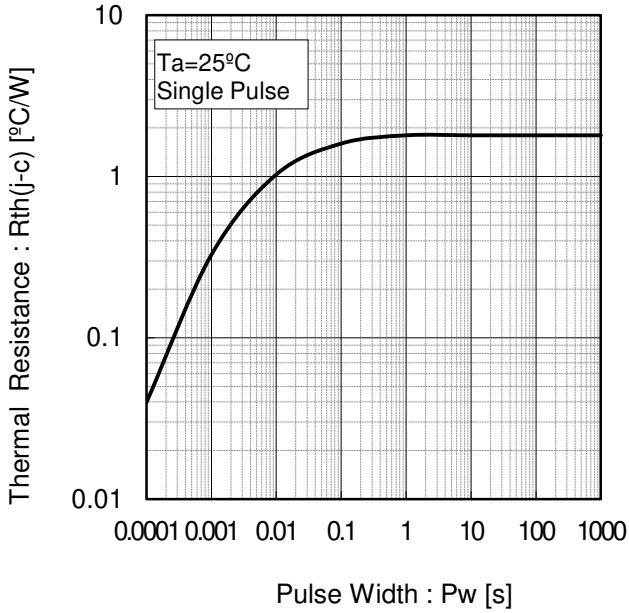


Fig.6 Power Dissipation

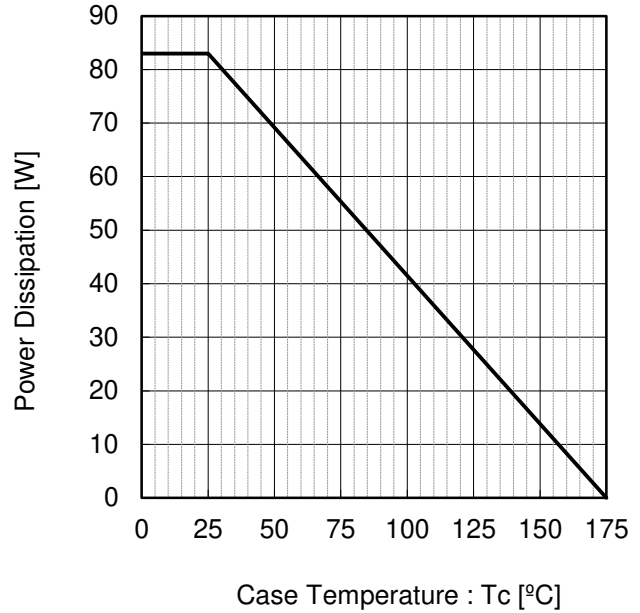


Fig.7 Derating Curve  $I_p$ - $T_c$

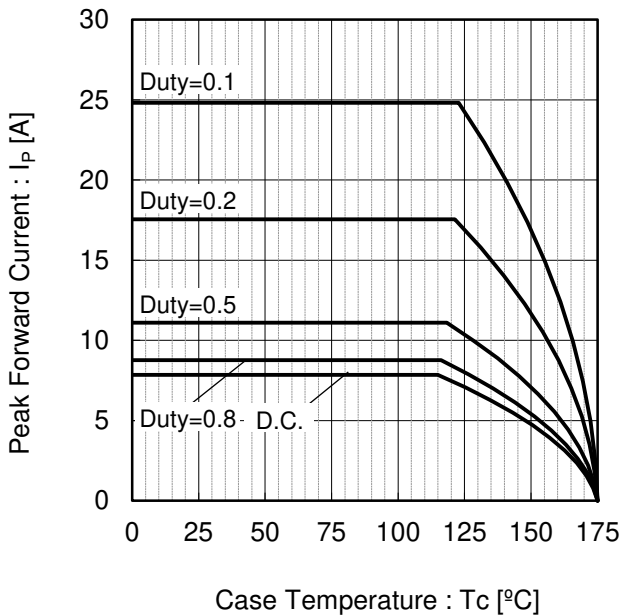
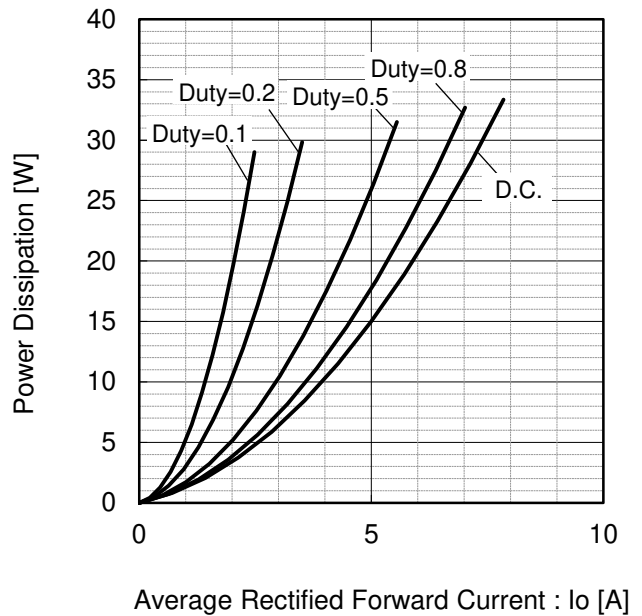
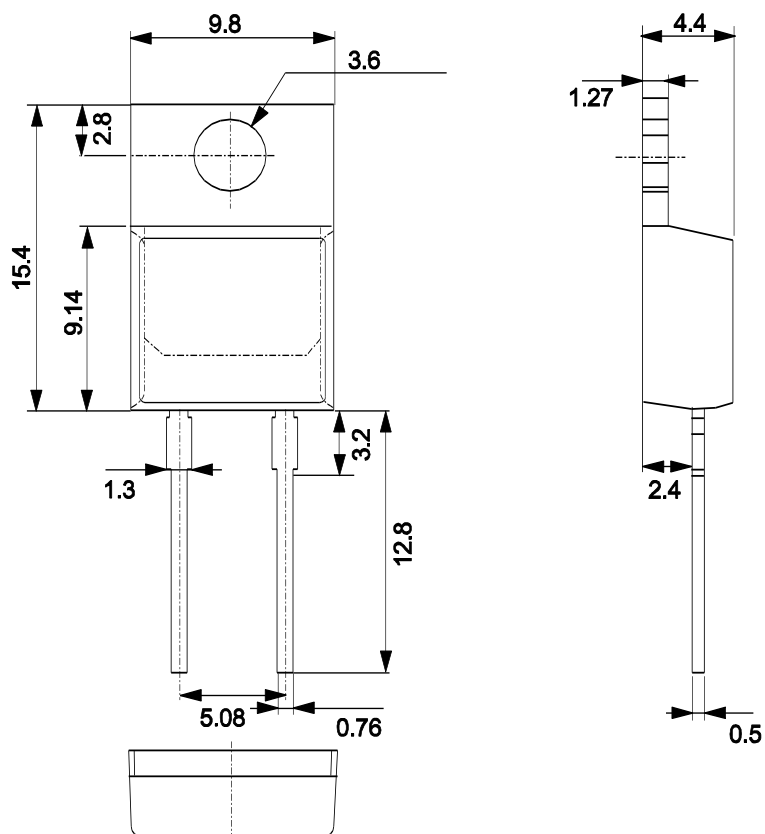


Fig.8  $I_o$ - $P_f$  Characteristics



## ●Dimensions (Unit : mm)

## TO-220AC



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