

$V_R$	1200V
$I_F$	20A
$Q_C$	70nC

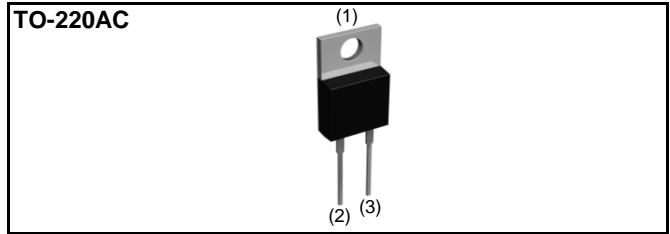
### ●Features

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

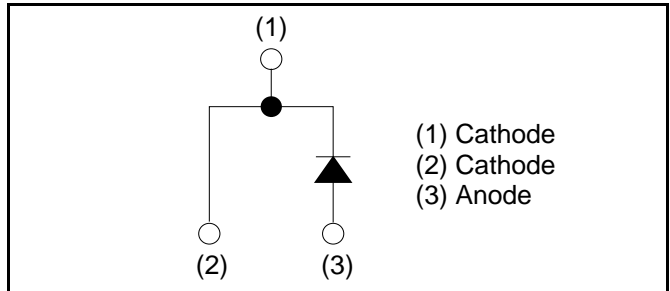
### ●Construction

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	SCS120KG

### ●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	$I_F$	20 <sup>*1</sup>	A
Surge no repetitive forward current	$I_{FSM}$	84 <sup>*2</sup>	A
		358 <sup>*3</sup>	A
Repetitive peak forward current	$I_{FRM}$	60 <sup>*4</sup>	A
Total power dissipation	$P_D$	130 <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	$R_{th(j-c)}$	1.1	$^\circ\text{C/W}$

\*1  $T_c=108^\circ\text{C}$  \*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 (Tj = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	$V_{DC}$	$I_R=0.4mA$	1200	-	-	V
Forward voltage	$V_F$	$I_F=20A, T_j=25^\circ C$	-	1.5	1.75	V
		$I_F=20A, T_j=175^\circ C$	-	2.0	-	V
Reverse current	$I_R$	$V_R=1200V, T_j=25^\circ C$	-	20	400	$\mu A$
		$V_R=120V, T_j=175^\circ C$	-	240	-	$\mu A$
Total capacitance	C	$V_R=1V, f=1MHz$	-	1300	-	pF
		$V_R=800V, f=1MHz$	-	100	-	pF
Total capacitive charge	Qc	$V_R=800V, di/dt=500A/\mu s$	-	70	-	nC
Switching time	tc	$V_R=800V, di/dt=500A/\mu s$	-	18	-	ns

●Electrical characteristic curves

Fig.1  $V_F - I_F$  Characteristics

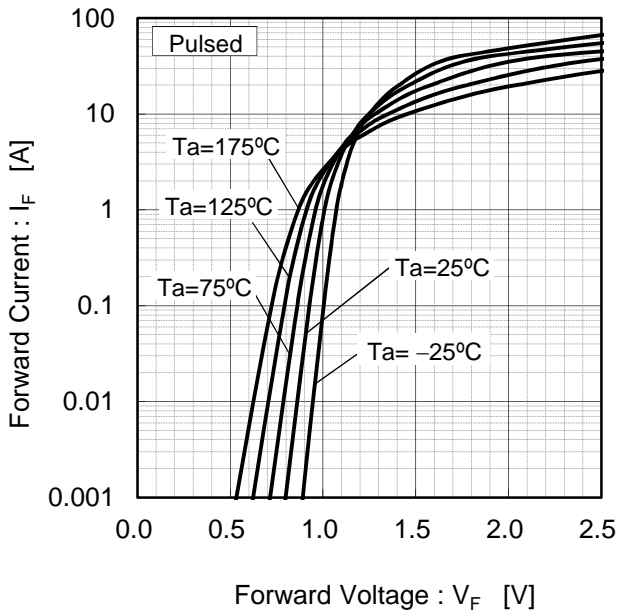


Fig.2  $V_F - I_F$  Characteristics

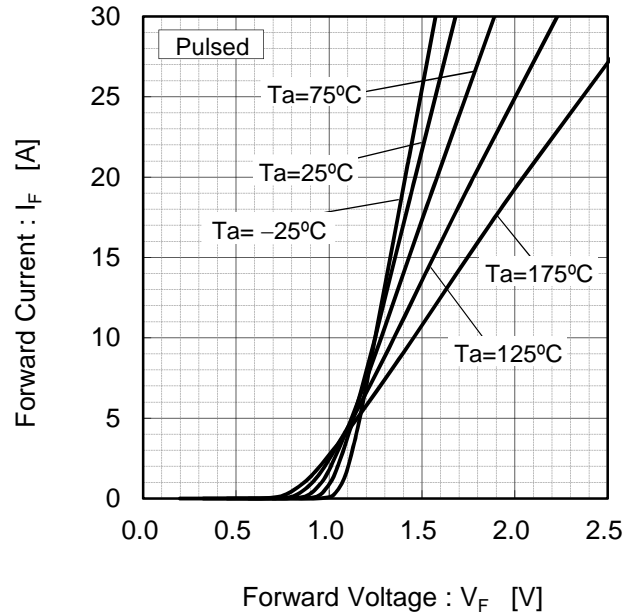


Fig.3  $V_R - I_R$  Characteristics

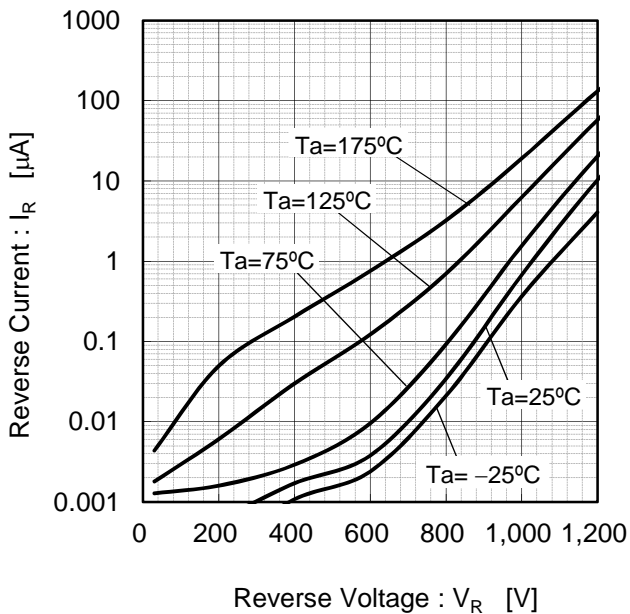
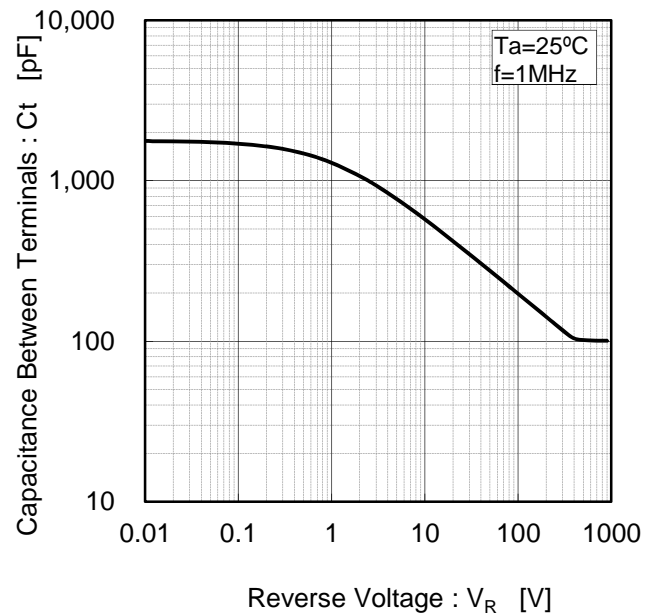


Fig.4  $V_R - C_t$  Characteristics



●Electrical characteristic curves

Fig.5 Thermal Resistance vs. Pulse Width

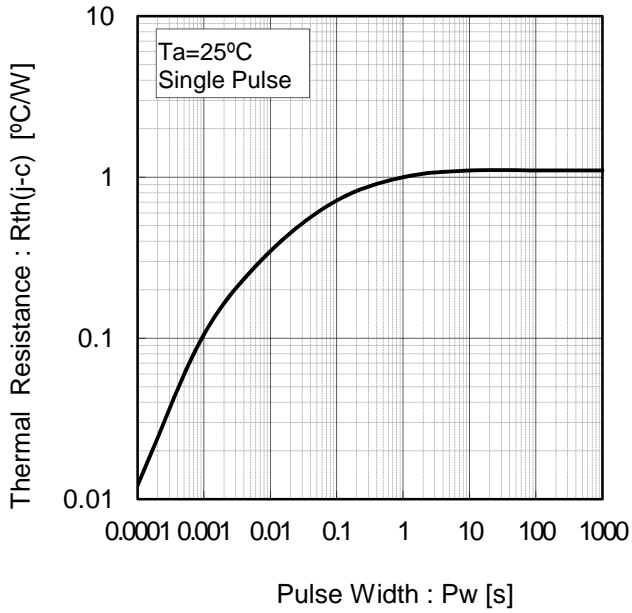


Fig.6 Power Dissipation

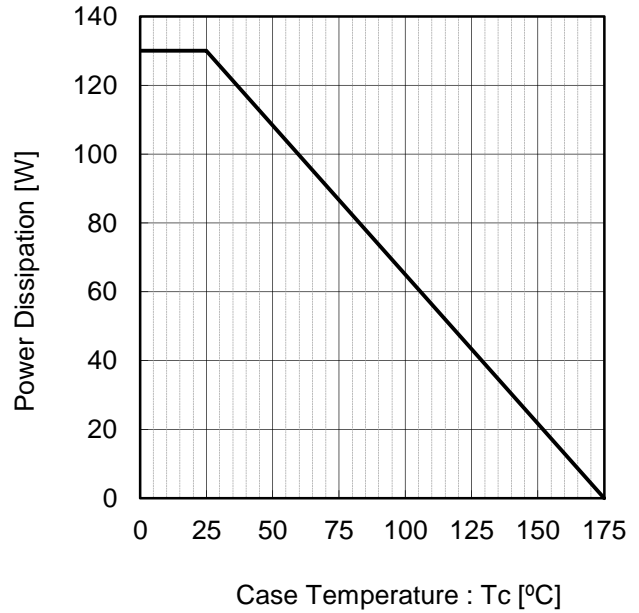


Fig.7 Derating Curve  $I_p$ - $T_c$

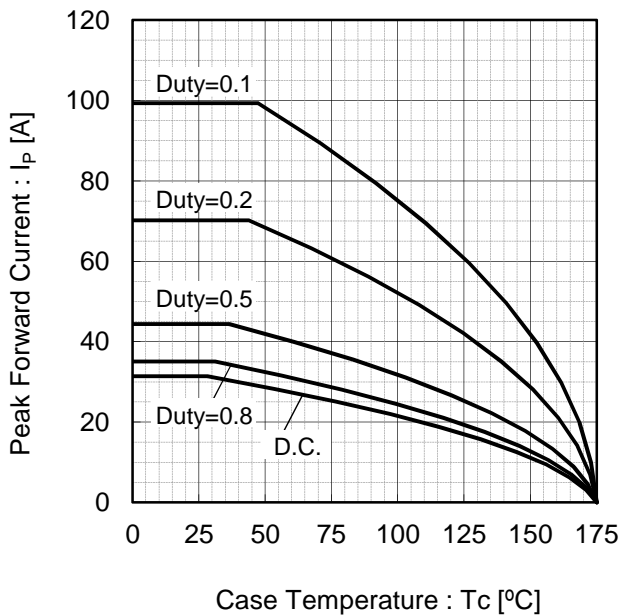
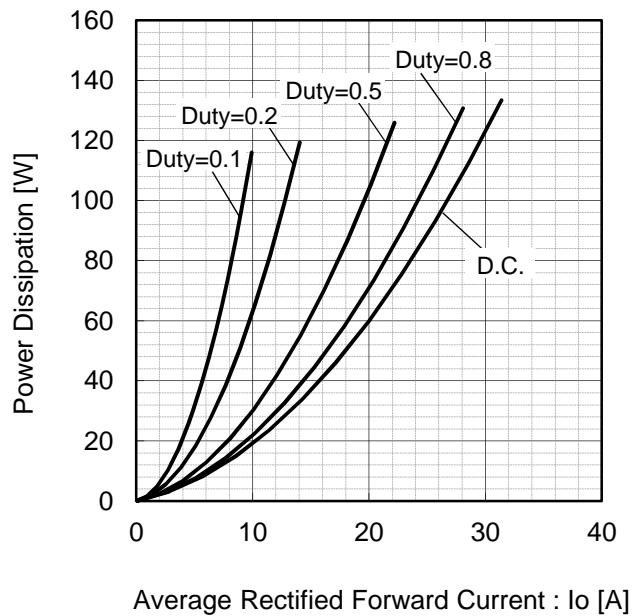
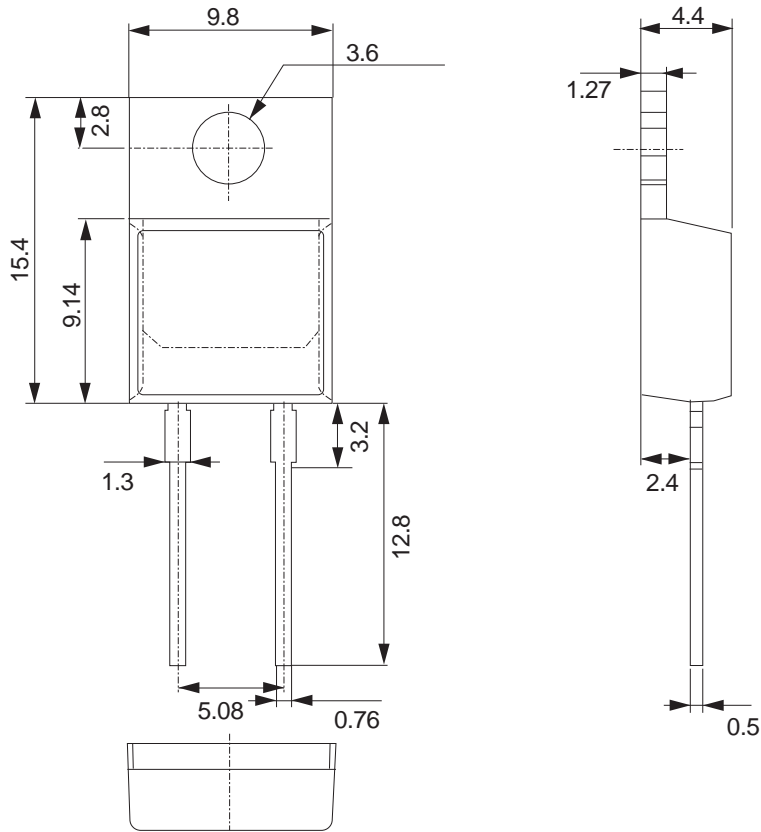


Fig.8  $I_o$ - $P_f$  Characteristics



## ●Dimensions (Unit : mm)

## TO-220AC



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