

V_R	1200V
I_F	10A/20A*
Q_C	34nC(Per leg)

*(Per leg / Both legs)

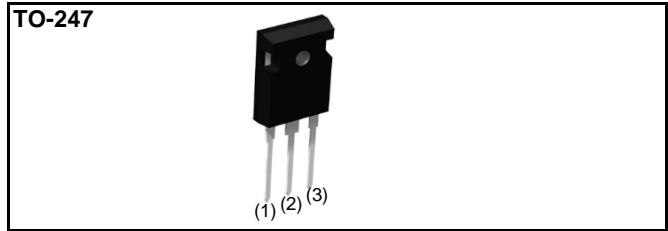
●Features

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

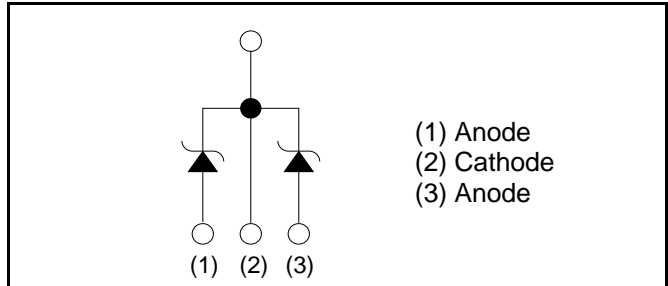
●Construction

Silicon carbide epitaxial planer type

●Outline



●Inner circuit



●Packaging specifications

Type	Packaging	Tube
	Reel size (mm)	-
	Tape width (mm)	-
	Basic ordering unit (pcs)	30
	Packing code	C
	Marking	SCS220KE2

●Absolute maximum ratings (Tj = 25°C)

Parameter	Symbol	Value	Unit
Reverse voltage (repetitive peak)	V_{RM}	1200	V
Reverse voltage (DC)	V_R	1200	V
Continuous forward current ^{*7}	I_F	10/20 ^{*1}	A
Surge no repetitive forward current ^{*7}	I_{FSM}	44/88 ^{*2}	A
		170/340 ^{*3}	A
		33/66 ^{*4}	A
Repetitive peak forward current ^{*7}	I_{FRM}	43/89 ^{*5}	A
Total power dissipation ^{*7}	P_D	130/280 ^{*6}	W
Junction temperature	T_j	175	°C
Range of storage temperature	T_{stg}	-55 to +175	°C

*1 Tc=143°C/Tc=144°C *2 PW=8.3ms sinusoidal, Tj=25°C *3 PW=10μs square, Tj=25°C

*4 PW=8.3ms sinusoidal, Tj=150°C *5 Tc=100°C, Tj=150°C, Duty cycle=10%

*6 Tc=25°C *7 Per leg / Both legs

●Electrical characteristics ($T_j = 25^\circ\text{C}$) (Per leg)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}	$I_R=0.2\text{mA}$	1200	-	-	V
Forward voltage	V_F	$I_F=10\text{A}, T_j=25^\circ\text{C}$	-	1.4	1.6	V
		$I_F=10\text{A}, T_j=150^\circ\text{C}$	-	1.8	-	V
		$I_F=10\text{A}, T_j=175^\circ\text{C}$	-	1.9	-	V
Reverse current	I_R	$V_R=1200\text{V}, T_j=25^\circ\text{C}$	-	10	200	μA
		$V_R=1200\text{V}, T_j=150^\circ\text{C}$	-	80	-	μA
		$V_R=1200\text{V}, T_j=175^\circ\text{C}$	-	130	-	μA
Total capacitance	C	$V_R=1\text{V}, f=1\text{MHz}$	-	550	-	pF
		$V_R=800\text{V}, f=1\text{MHz}$	-	42	-	pF
Total capacitive charge	Q_C	$V_R=800\text{V}, di/dt=500\text{A}/\mu\text{s}$	-	34	-	nC
Switching time	t_c	$V_R=800\text{V}, di/dt=500\text{A}/\mu\text{s}$	-	15	-	ns

●Thermal characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th(j-c)}$	Per Leg	-	0.9	1.1	$^\circ\text{C}/\text{W}$
		Both Legs	-	0.45	0.53	$^\circ\text{C}/\text{W}$

●Electrical characteristic curves

Fig.1 $V_F - I_F$ Characteristics (Per leg)

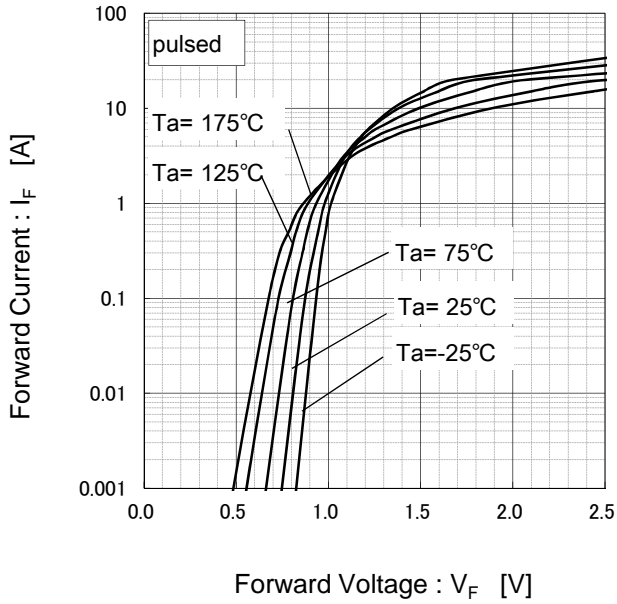


Fig.2 $V_F - I_F$ Characteristics (Per leg)

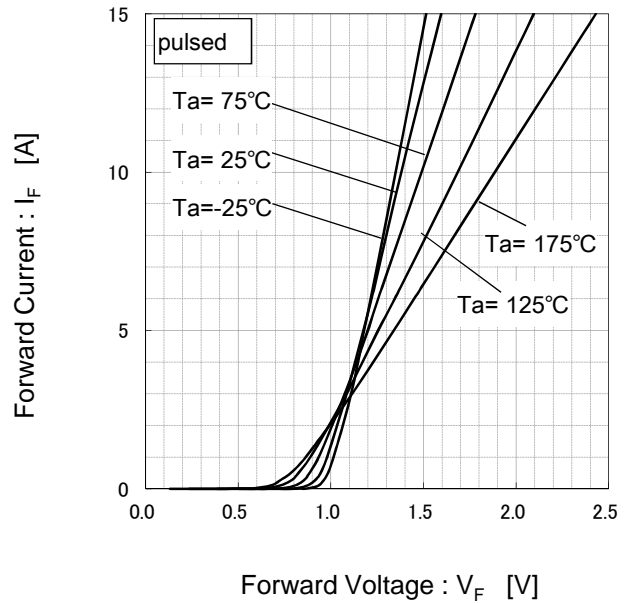


Fig.3 $V_R - I_R$ Characteristics (Per leg)

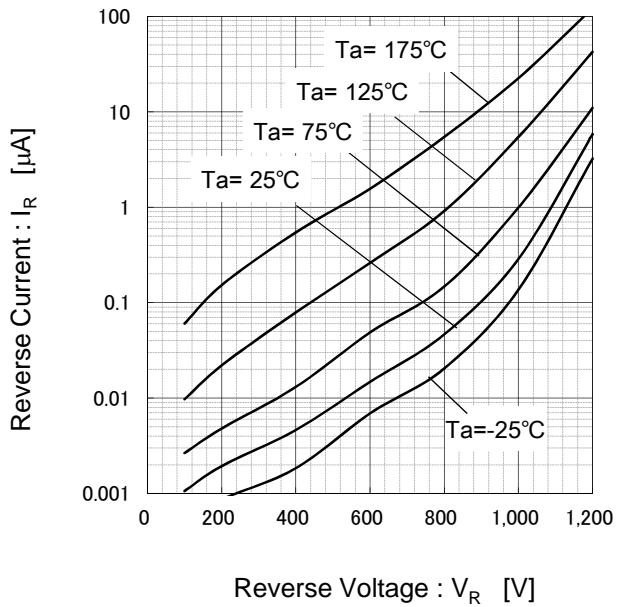
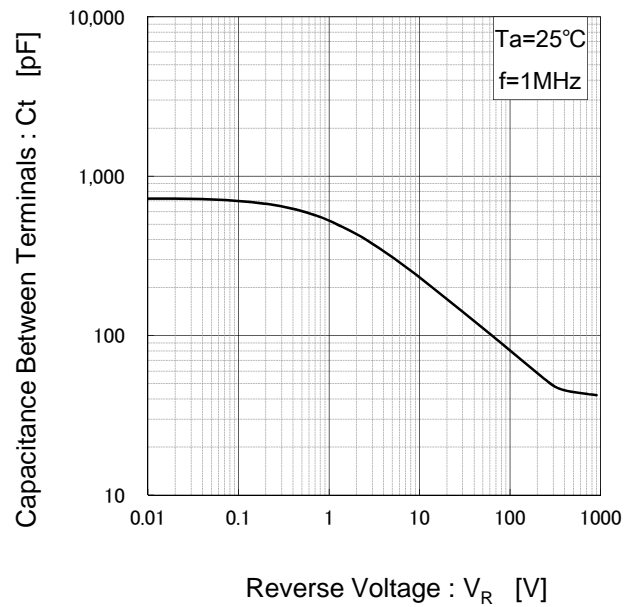


Fig.4 $V_R - C_t$ Characteristics (Per leg)



●Electrical characteristic curves

Fig.5 Thermal Resistance vs. Pulse Width (Per leg)

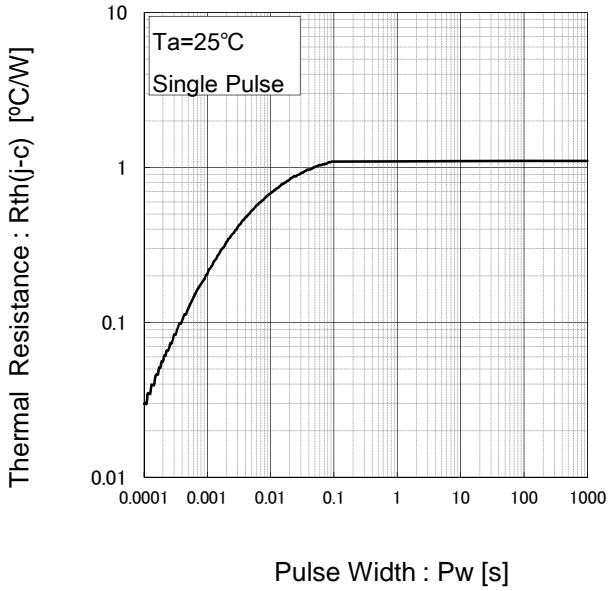


Fig.6 Power Dissipation (Per leg)

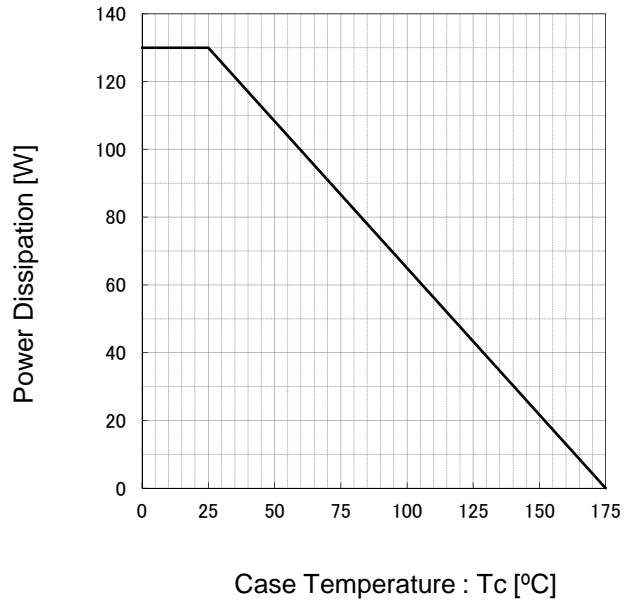


Fig.7 Derating Curve Ip-Tc (Per leg)

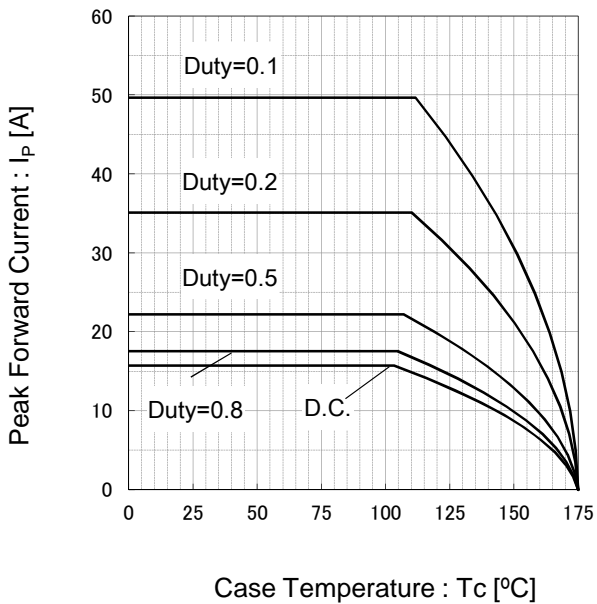
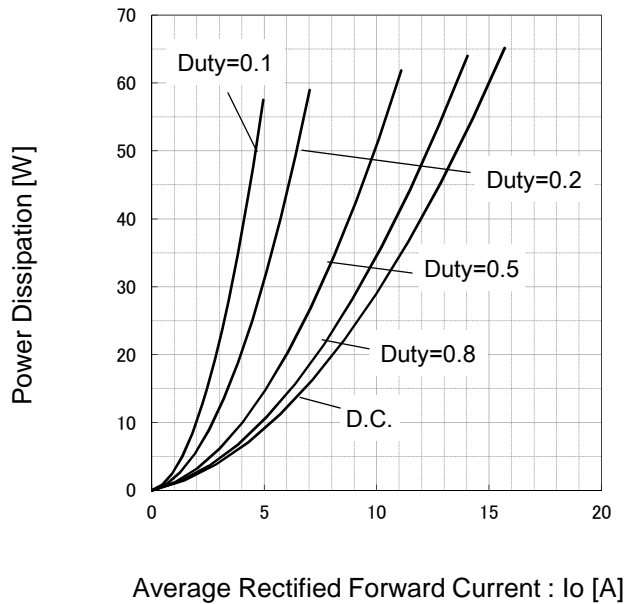


Fig.8 Io-Pf Characteristics (Per leg)



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