

V_R	650V
I_F	10A
Q_C	15nC

●Features

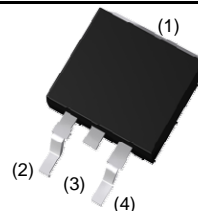
- 1) Shorter recovery time
- 2) Reduced temperature dependence
- 3) High-speed switching possible

●Construction

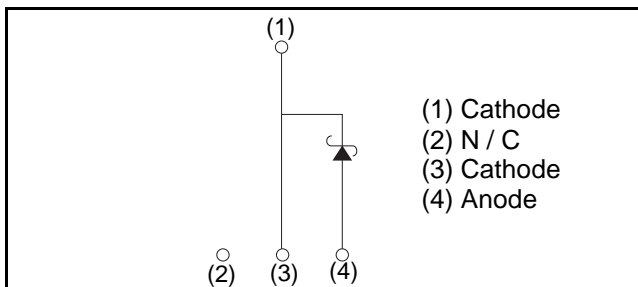
Silicon carbide epitaxial planer type

●Outline

LPT(L)
<TO-263AB>



●Inner circuit



●Packaging specifications

Type	Packaging	Embossed tape
	Reel size (mm)	330
	Tape width (mm)	24
	Basic ordering unit (pcs)	1,000
	Packing code	TLL
	Marking	SCS210AJ

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

Parameter	Symbol	Value	Unit
Reverse voltage (repetitive peak)	V_{RM}	650	V
Reverse voltage (DC)	V_R	650	V
Continuous forward current	I_F	10 ^{*1}	A
Surge no repetitive forward current	I_{FSM}	40 ^{*2}	A
		150 ^{*3}	A
		31 ^{*4}	A
Repetitive peak forward current	I_{FRM}	42 ^{*5}	A
Total power dissipation	P_D	83 ^{*6}	W
Junction temperature	T_j	175	°C
Range of storage temperature	T_{stg}	-55 to +175	°C

*1 $T_c=137^\circ\text{C}$ *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 $PW=8.3\text{ms}$ sinusoidal, $T_j=150^\circ\text{C}$

*5 $T_c=100^\circ\text{C}$, $T_j=150^\circ\text{C}$, Duty cycle=10% *6 $T_c=25^\circ\text{C}$

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

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}	$I_R = 0.2\text{mA}$	600	-	-	V
Forward voltage	V_F	$I_F = 10\text{A}, T_j = 25^\circ\text{C}$	-	1.35	1.55	V
		$I_F = 10\text{A}, T_j = 150^\circ\text{C}$	-	1.55	-	V
		$I_F = 10\text{A}, T_j = 175^\circ\text{C}$	-	1.63	-	V
Reverse current	I_R	$V_R = 600\text{V}, T_j = 25^\circ\text{C}$	-	2	200	μA
		$V_R = 600\text{V}, T_j = 150^\circ\text{C}$	-	30	-	μA
		$V_R = 600\text{V}, T_j = 175^\circ\text{C}$	-	70	-	μA
Total capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$	-	365	-	pF
		$V_R = 600\text{V}, f = 1\text{MHz}$	-	37	-	pF
Total capacitive charge	Qc	$V_R = 400\text{V}, di/dt = 350\text{A}/\mu\text{s}$	-	15	-	nC
Switching time	tc	$V_R = 400\text{V}, di/dt = 350\text{A}/\mu\text{s}$	-	15	-	ns

●Thermal characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Thermal resistance	$R_{th(j-c)}$	-	-	1.5	1.8	$^\circ\text{C}/\text{W}$

●Electrical characteristic curves

Fig.1 $V_F - I_F$ Characteristics

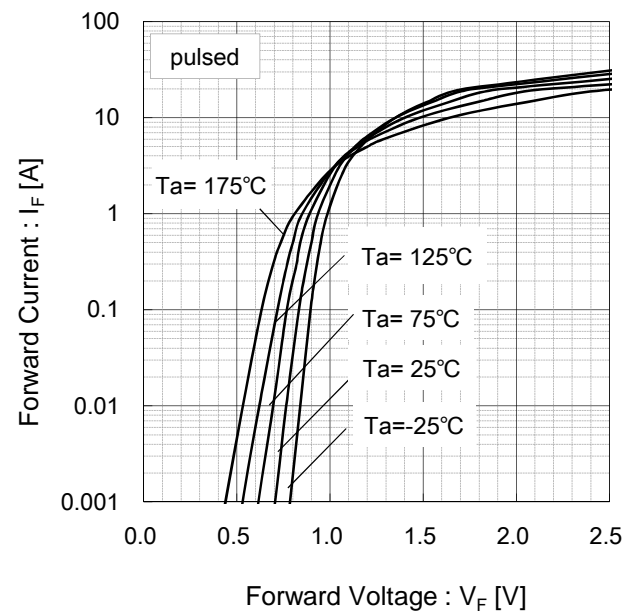


Fig.2 $V_F - I_F$ Characteristics

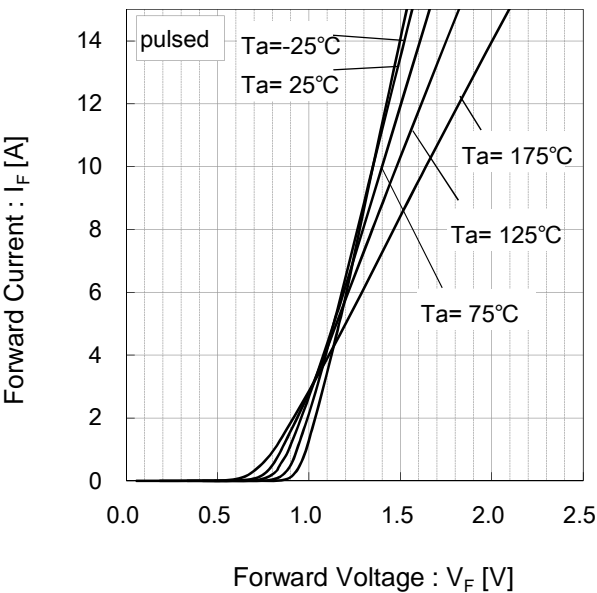


Fig.3 $V_R - I_R$ Characteristics

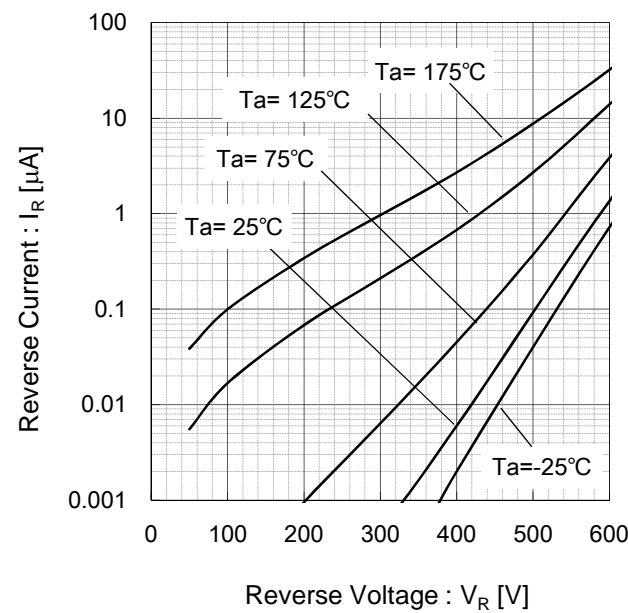
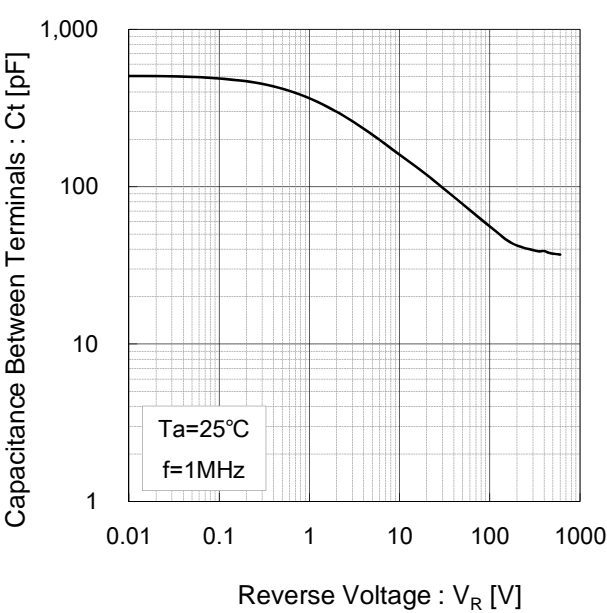


Fig.4 $V_R - C_t$ Characteristics



●Electrical characteristic curves

Fig.5 Thermal Resistance vs. Pulse Width

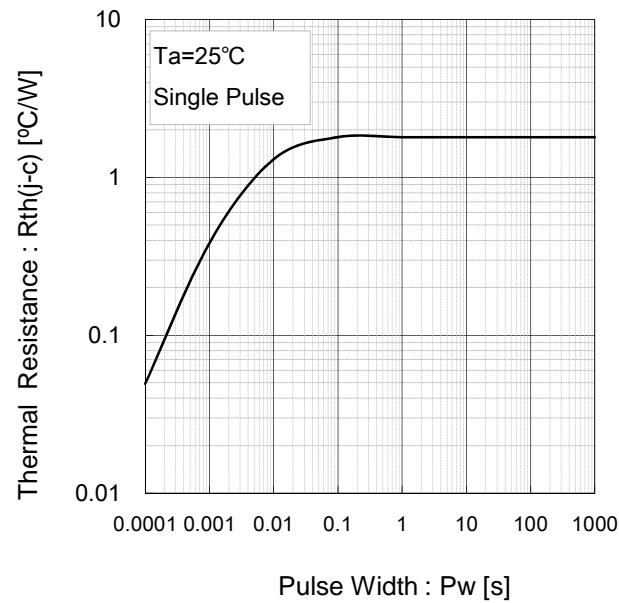


Fig.6 Power Dissipation

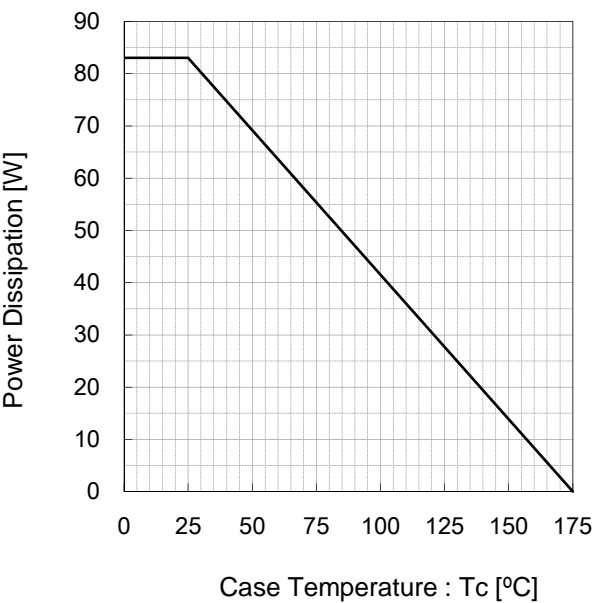


Fig.7 Derating Curve I_p - T_c

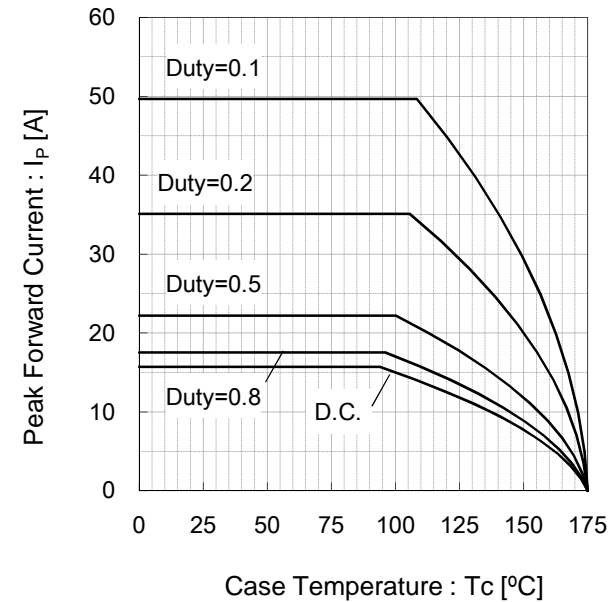
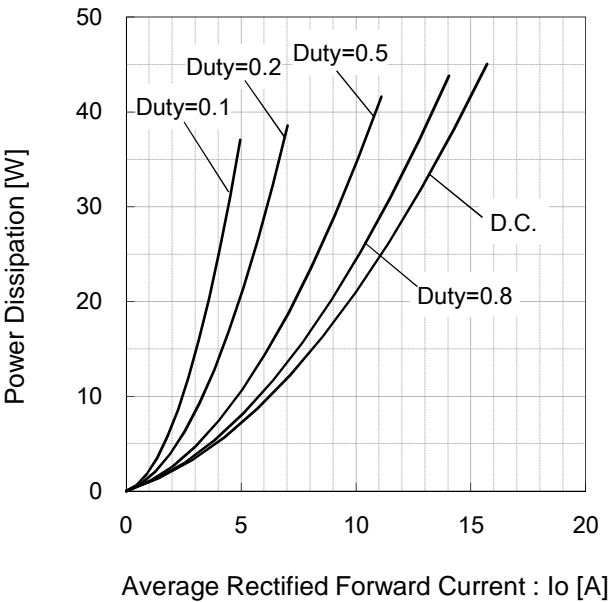


Fig.8 I_o - P_f Characteristics



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