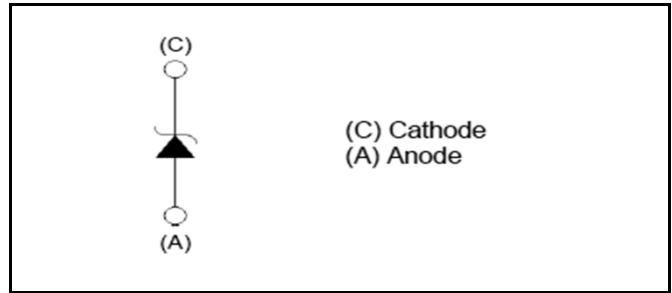


V_R	1200V
I_F	30A ^{*1}
Q_C	82nC

●Features

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

●Inner Circuit



●Construction

Silicon carbide epitaxial planar type
Schottky diode

●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	30	A
Surge non-repetitive forward current	I_{FSM}^{*2}	PW=10ms sinusoidal, $T_j=25^\circ\text{C}$	190 A
		PW=10ms sinusoidal, $T_j=150^\circ\text{C}$	140 A
		PW=10μs square, $T_j=25^\circ\text{C}$	780 A
i^2t value	$\int i^2 dt^{*2}$	$1 \leq PW \leq 10\text{ms}$, $T_j=25^\circ\text{C}$	195 A^2s
		$1 \leq PW \leq 10\text{ms}$, $T_j=150^\circ\text{C}$	109 A^2s
Junction temperature	T_j	175	$^\circ\text{C}$
Range of storage temperature	T_{stg}	-55 to +175	$^\circ\text{C}$

*1 Limited by T_j *2 Assumes $Z_{th(j-a)}$ of 0.36 $^\circ\text{C}/\text{W}$ or less. (Pulse Width = 8.3ms)

●Electrical characteristics (T_j = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V _{DC}	I _R =0.6mA	1200	-	-	V
Forward voltage	V _F	I _F =30A, T _j =25°C	-	1.4	1.6	V
		I _F =30A, T _j =150°C	-	1.8	-	V
		I _F =30A, T _j =175°C	-	1.9	-	V
Reverse current	I _R	V _R =1200V, T _j =25°C	-	30	600	μA
		V _R =1200V, T _j =150°C	-	240	-	μA
		V _R =1200V, T _j =175°C	-	390	-	μA
Total capacitance	C	V _R =1V, f=1MHz	-	1600	-	pF
		V _R =800V, f=1MHz	-	130	-	pF
Total capacitive charge	Q _C	V _R =800V, di/dt=500A/μs	-	82	-	nC
Switching time	t _C	V _R =800V, di/dt=500A/μs	-	27	-	ns

●Electrical characteristic curves

Fig.1 $V_F - I_F$ Characteristics

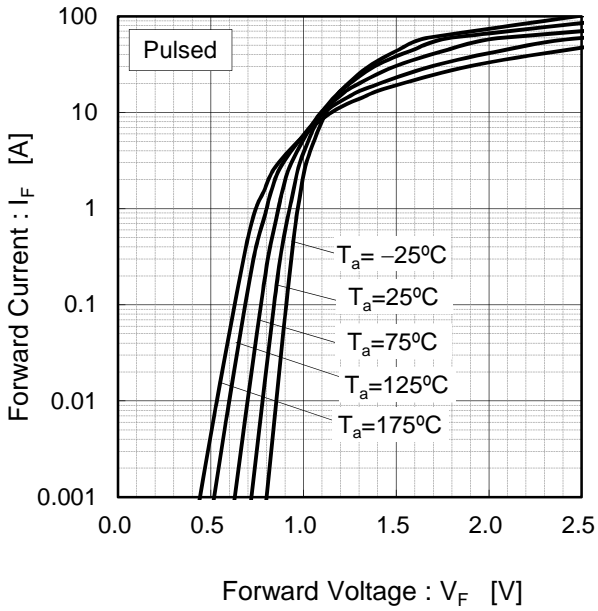


Fig.2 $V_F - I_F$ Characteristics

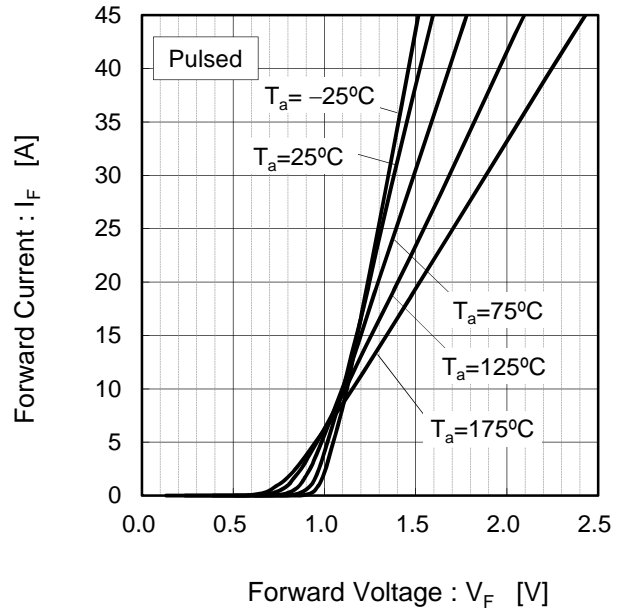


Fig.3 $V_R - I_R$ Characteristics

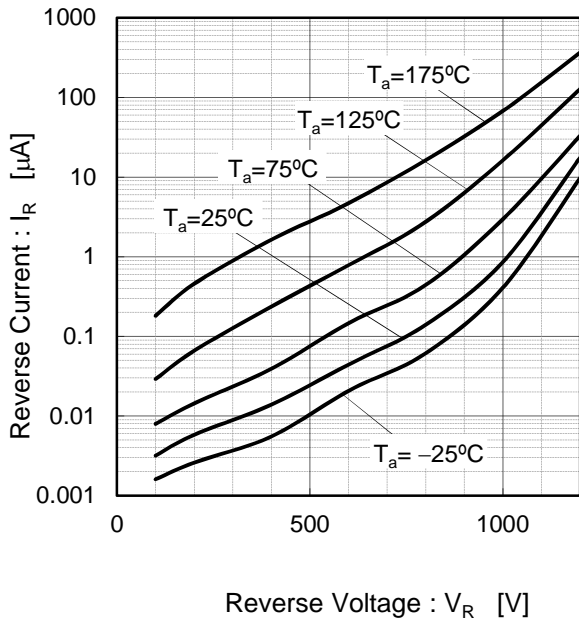
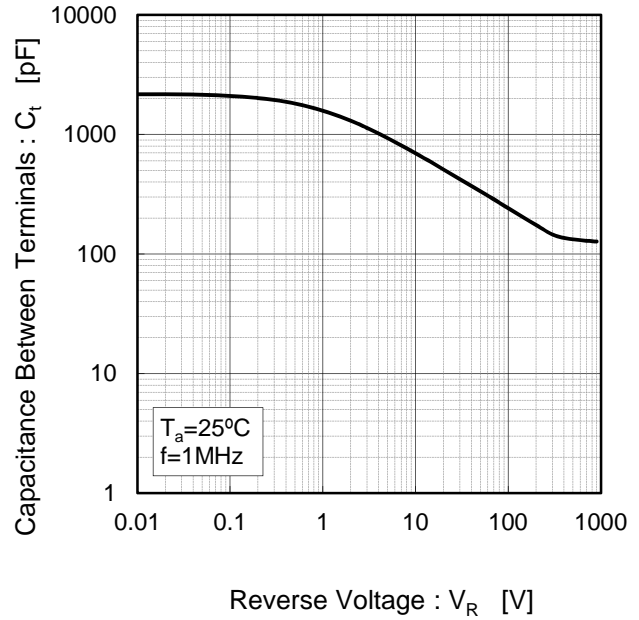


Fig.4 $V_R - C_t$ Characteristics



●Electrical characteristic curves

Fig.5 Surge non-repetitive forward current vs. Pulse width (Sinusoidal waveform)

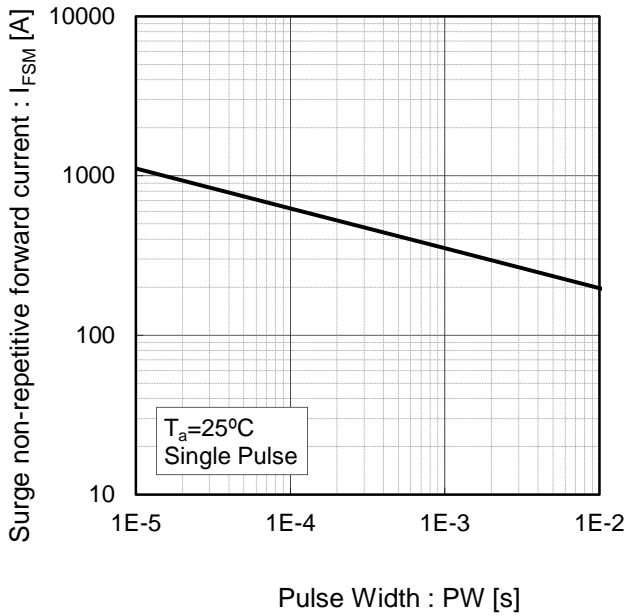


Fig.6 Typical capacitance store energy

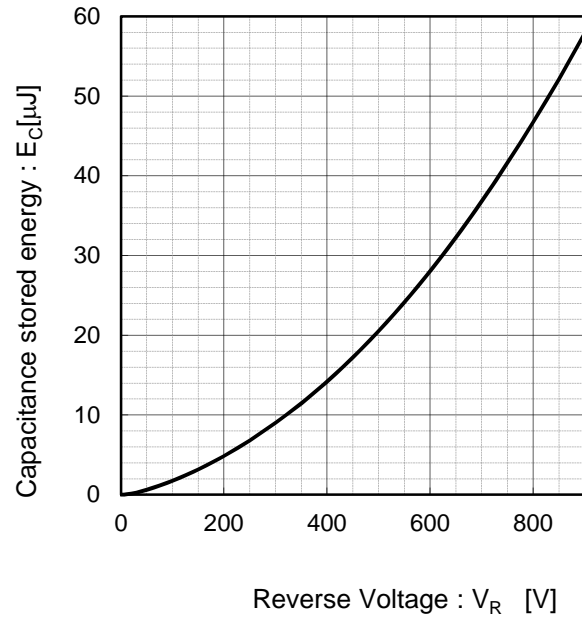
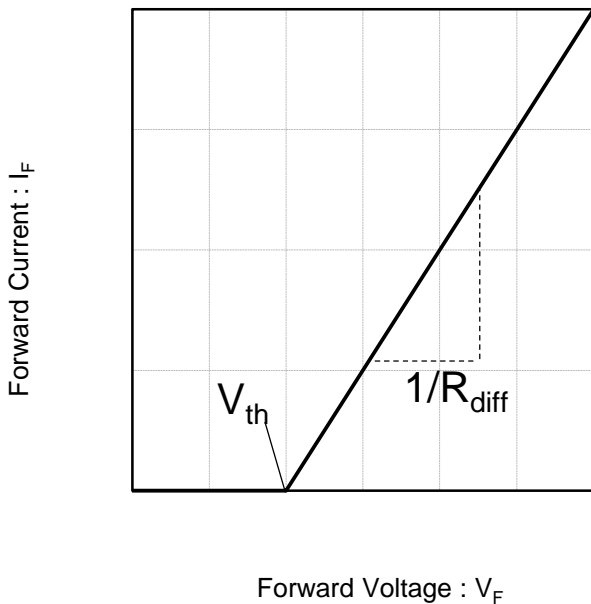


Fig.7 Equivalent forward current curve



$$V_F = V_{th} + R_{diff} I_F$$

$$V_{th} (T_j) = a_0 + a_1 T_j$$

$$R_{diff} (T_j) = b_0 + b_1 T_j + b_2 T_j^2$$

Symbol	Typical Value	Unit
a_0	9.93E-01	V
a_1	-1.27E-03	V/°C
b_0	1.22E-02	Ω
b_1	6.87E-05	Ω/°C
b_2	4.43E-07	Ω/°C ²

T_j in °C; -55 °C < T_j < °C ; I_F < 60A

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