SiC Schottky Barrier Diode

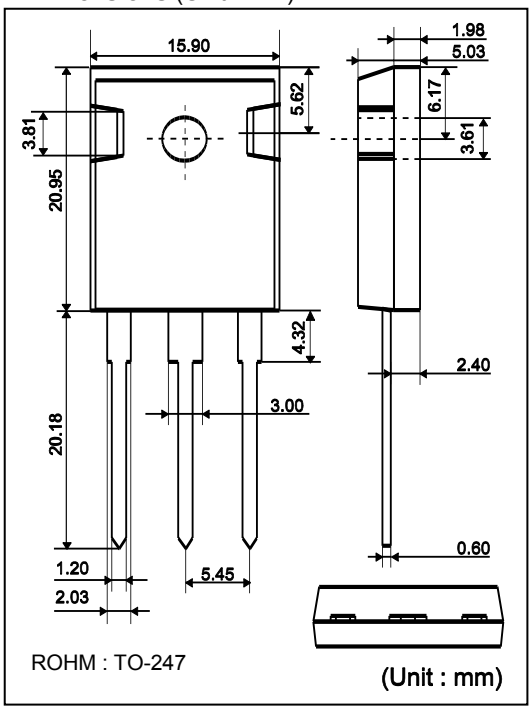
SCS140AE2

●**Applications**
Switching power supply

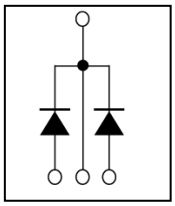
●**Features**
1) Shorter recovery time
2) Reduced temperature dependence
3) High-speed switching possible

●**Construction**
Silicon carbide epitaxial planer type

●**Dimensions** (Unit : mm)



●**Structure**



●**Absolute maximum ratings** (Tj=25°C)

Parameter	Symbol	Limits	Unit
Reverse voltage (repetitive peak)	V_{RM}	600	V
Reverse voltage (DC)	V_R	600	V
Continuous forward current*6	I_F	20 / 40*1	A
Surge no repetitive forward current*6	I_{FSM}	76 / 152*2	A
		300 / 600*3	A
Repetitive peak forward current*6	I_{FRM}	72 / 121*4	A
Total power disspation*6	P_D	120 / 210*5	W
Junction temperature	Tj	175	°C
Range of storage temperature	Tstg	−55 to +175	°C
Junction to case *6	Rth(j-c)	1.2 / 0.70	°C / W

(*1)Tc=121°C / Tc=112°C (*2)PW=8.3ms sinusoidal,Tj=25°C
(*3)PW=10μs square,Tj=25°C (*4)Tc=95°C,Tj=125°C,Duty cycle=10% (*5)Tc=25°C (*6)Per Leg / Per Device

●**Electrical characteristics** (Tj=25°C) [Per Leg]

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
DC blocking voltage	V_{DC}	600	-	-	V	I_R=0.4mA
Forward voltage	V_F	-	1.5	1.7	V	I_F=20A,Tj=25°C
		-	1.82	-	V	I_F=20A,Tj=175°C
Reverse current	I_R	-	4	400	μA	V_R=600V,Tj=25°C
			80	-	μA	V_R=600V,Tj=175°C
Total capacitance	C	-	860	-	pF	V_R=1V,f=1MHz
		-	93	-	pF	V_R=600V,f=1MHz
Total capacitive charge	Qc	-	35	-	nC	V_R=400V,di/dt=350A/μs
Switching time	tc	-	19	-	ns	V_R=400V,di/dt=350A/μs

Fig.1 V_F-I_F Characteristics (Per Leg)

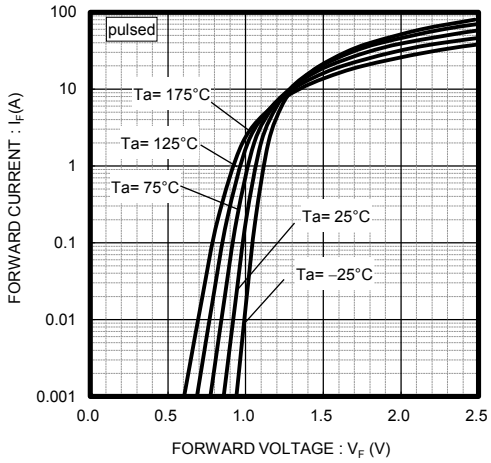


Fig.2 V_F-I_F Characteristics (Per Leg)

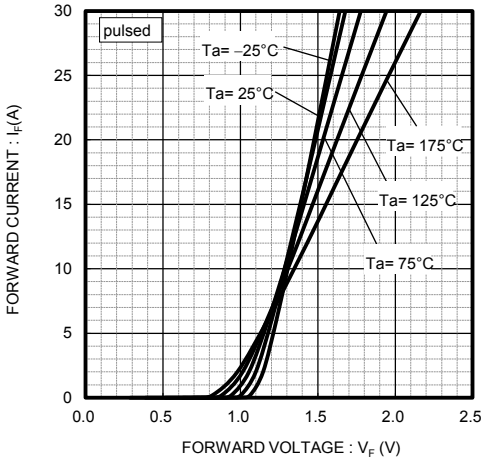


Fig.3 V_R-I_R Characteristics (Per Leg)

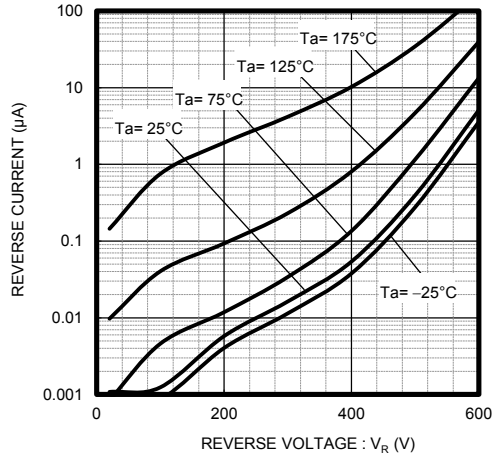


Fig.4 V_R-Ct Characteristics (Per Leg)

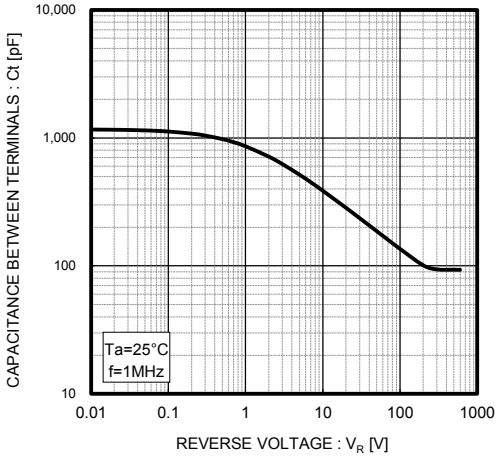


Fig.5 Thermal Resistance vs. Pulse Width

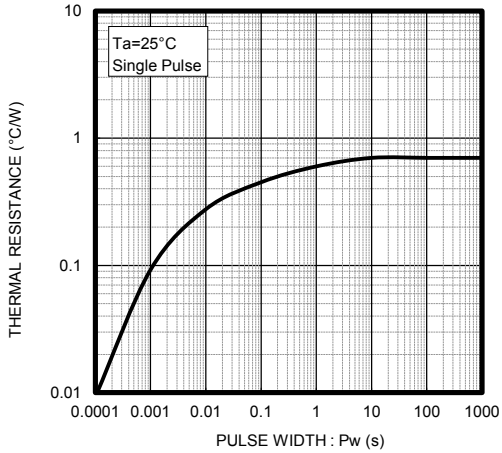


Fig.6 Power Dissipation

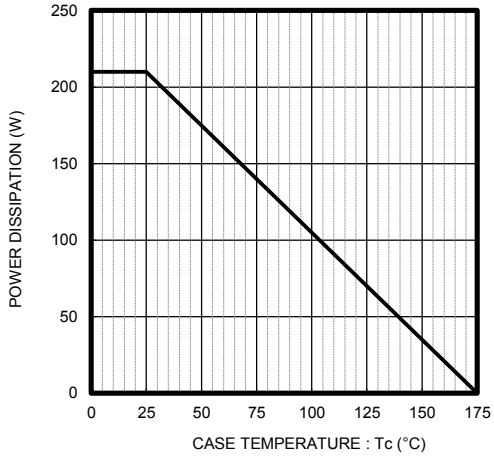


Fig.7 Derating Curve Ip-Tc

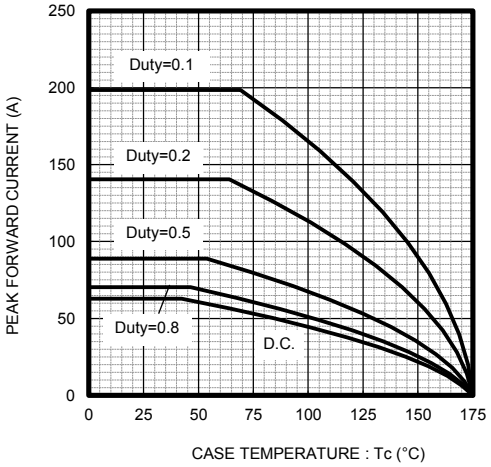
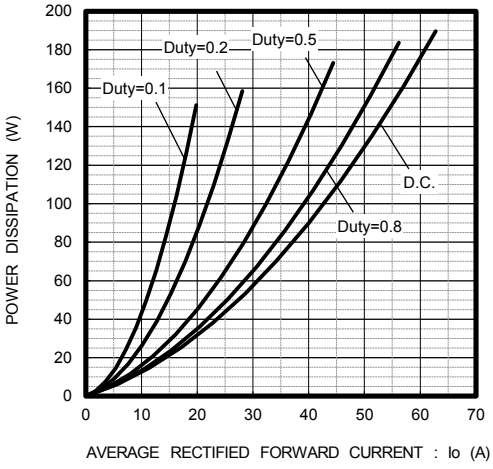


Fig.8 Io-Pf Characteristics



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