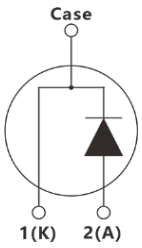
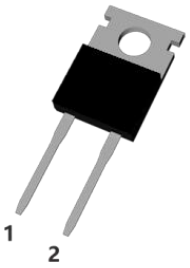
Silicon Carbide Schottky Diode

Parameter	Value	Unit
V_{RRM}	650	V
I_F	20	A
Q_C	52	nC





TO-220AC

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

Applications

- Switched-Mode Power Supply
- Power Factor Correction
- Uninterruptible Power Supply
- Boost Converter

Maximum Ratings (at T_J=25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
Maximum DC Blocking Voltage	V_{DC}	650	V
Continuous Forward Current T_C = 25℃ T_C = 135℃ T_C = 153.5℃	I_F	 42.5 24.8 20	A
Non-Repetitive Forward Surge Current T_C = 25℃,tp =8.3ms,Half Sine Pulse	I_{FSM}	100	A
Power dissipation T_C = 25℃ T_C = 110℃	P_{tot}	 115 50	W
Operating junction Range	T_j	-55 to +175	℃
Storage temperature Range	T_{stg}	-55 to +175	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	1.3	℃/W

Electrical Characteristics(at T_J=25℃ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Instantaneous forward voltage per leg	V_F	I_F=20A ,T_J=25℃ I_F=20A ,T_J= 175℃		1.55 2.0	1.7 2.1	V
Reverse current per leg	I_R	V_R=650V,T_J=25℃ V_R=650V,T_J= 175℃		0.35 2.4	50 100	uA
Total Capacitance	C	V_R=0V,T_J=25℃ f = 1MHZ		1037		pF
Total Capacitive Charge	Q_C	V_R=400V, I_F=20A di/dt =200A/us T_J=25℃		52		nC

Typical Characteristics

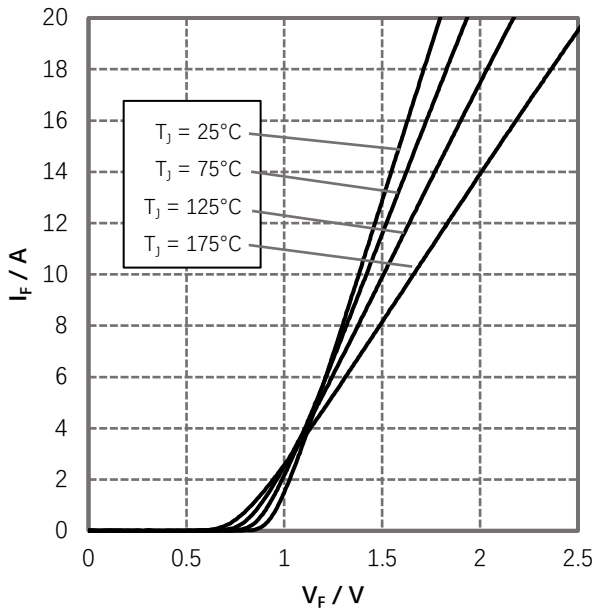


Fig 1. Typical forward characteristics

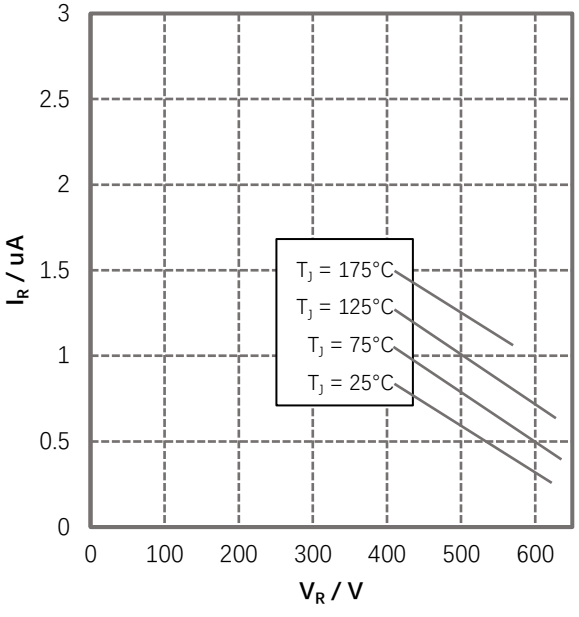


Fig 2.Typical reverse current as function of reverse voltage

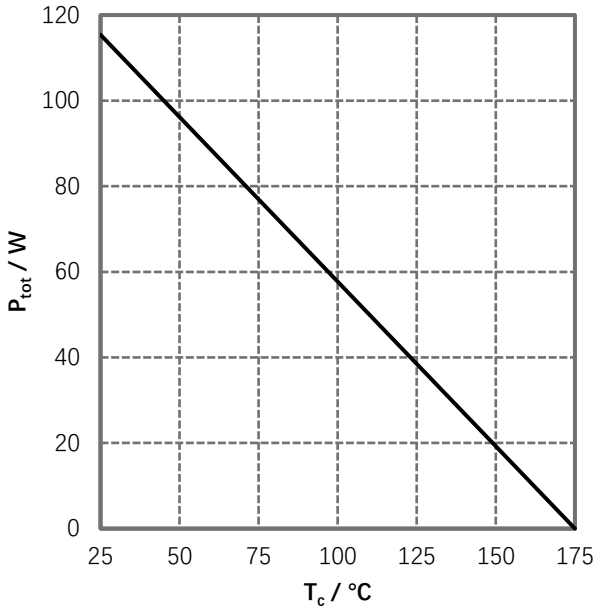


Fig 3. Power Derating

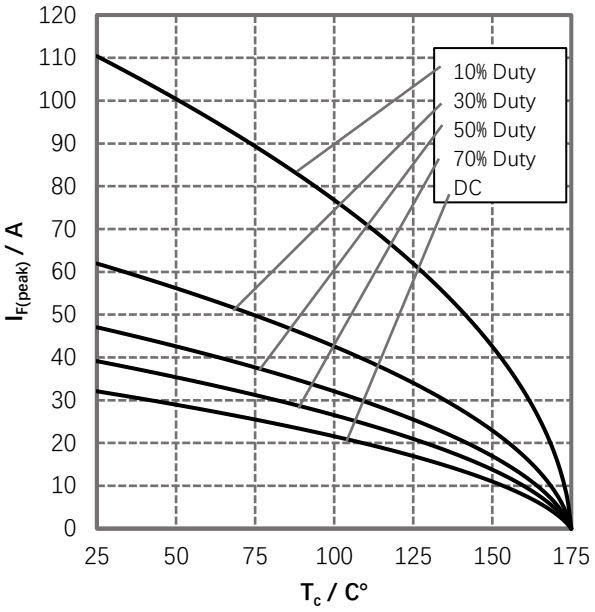


Fig 4. Current Derating

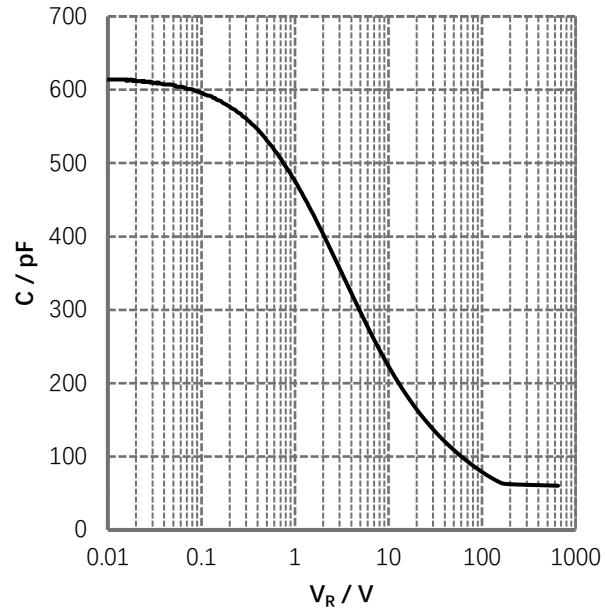


Fig 5. Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25°C; f=1 MHz

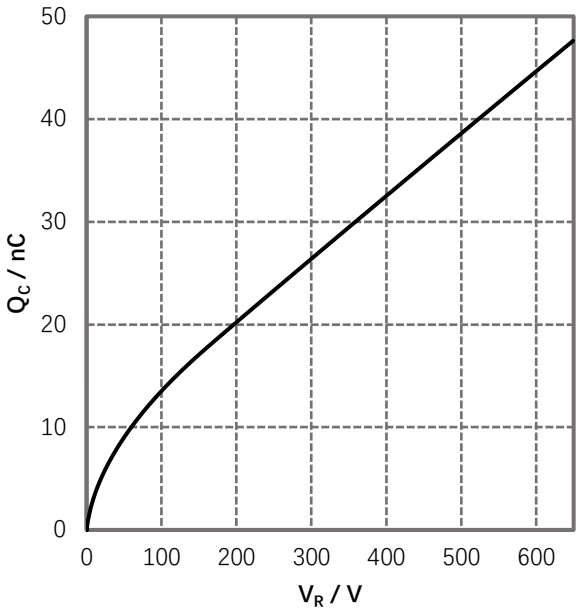


Fig 6.Typical reverse chargeasfunction of reverse voltage

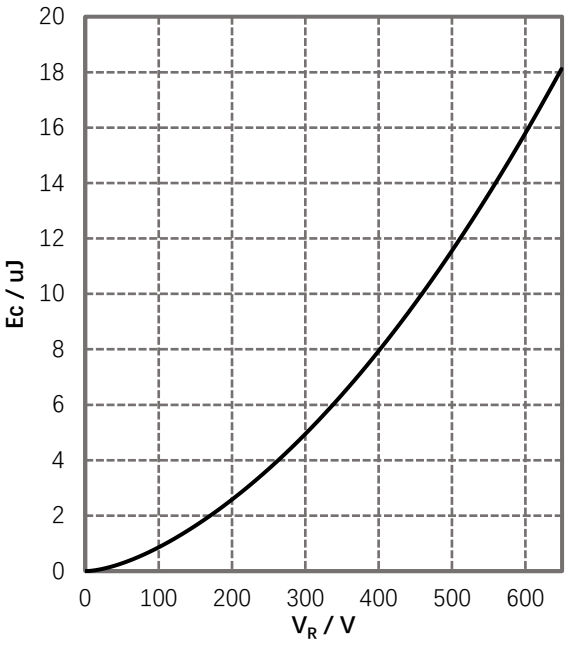


Fig 7.Capacitance Stored Energy

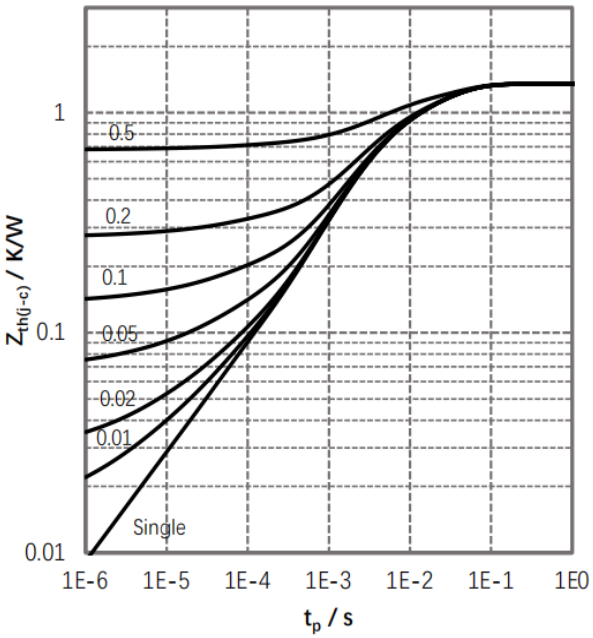
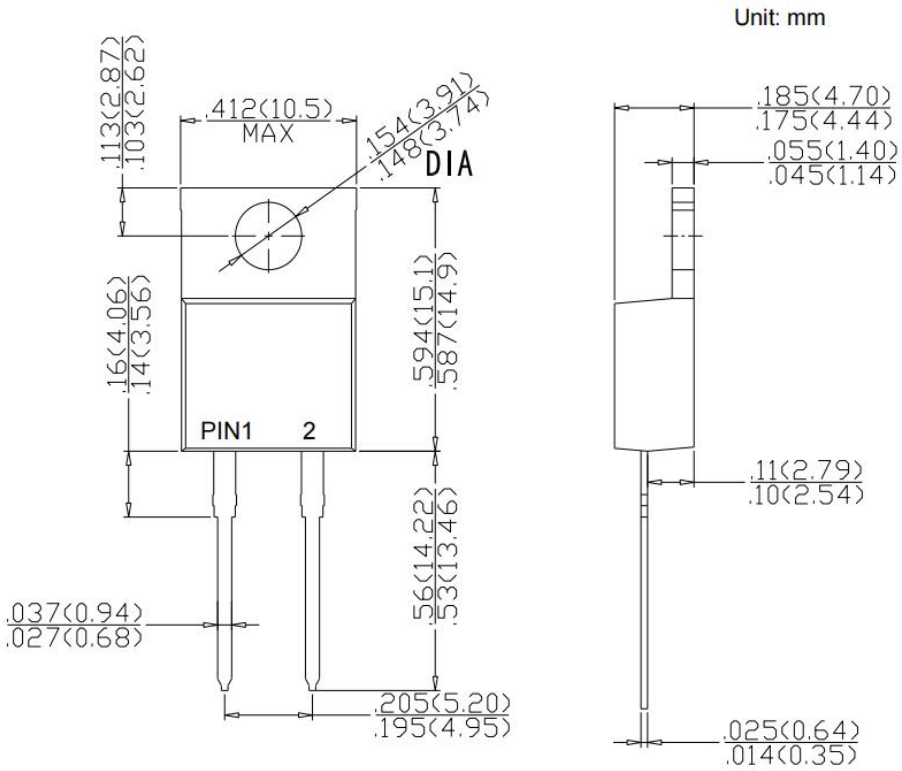


Fig 8. Transient Thermal Impedance

Package Outlines(Unit:mm)

TO-220AC



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