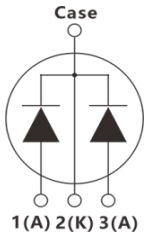
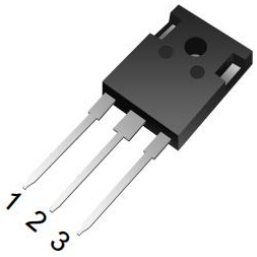
Silicon Carbide Schottky Diode 650V/30A

Parameter	Value	Unit
V_{RRM}	650	V
$I_{F\ (TC = 150°C)}$	30	A
Q_C	41	nC





TO-247-3L

Features

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

Applications

- SMPS, PFC
- Solar application, UPS, EV/HEV
- Motor drives, Wind turbine, Rail traction

Maximum Rated Values (at TJ = 25°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Test Conditions	Note
Repetitive Peak Reverse Voltage	V_{RRM}	650	V		
Surge Peak Reverse Voltage	V_{RSM}	650	V		
DC Blocking Voltage	V_{DC}	650	V		
Continuous Forward Current (Per Leg/Per Device)	I_F	15/30	A	Tc=150℃	Fig.7
Repetitive Peak Forward Surge Current	I_{FRM}	105*	A	Tc=25℃,tp=10 ms,Half Sine Wave	
Non-Repetitive Peak Forward Surge Current	I_{FSM}	135*	A	Tc=25℃,tp=10ms,Half Sine Wave	
Non-Repetitive Peak Forward Surge Current	$I_{F\ Max}$	1200*	A	Tc=25℃,tp=10μs,Pulse	
Power Dissipation	P_{tot}	159* 68*	W	Tc=25℃ ,Tc=110℃	Fig.6
Operating Junction and Storage Temperature	T_J,T_{stg}	-55 to+175	℃		

Electrical Characteristics (at T_J = 25°C unless otherwise specified)

Parameter	Symbol	Typ.	Max.	Unit	Test Conditions	Note
Forward Voltage	V_F	1.45 1.75	1.8 3.0	V	I_F=15A T_j=25℃ I_F=15A T_j=175℃	Fig.1
Reverse Current	I_R	4 40	20 200	μA	V_R=650V, T_j=25℃ V_R=650V, T_j=175℃	Fig.2
Total Capacitive Charge	Q_C	41		nC	V_R=400V, T_j=25℃ $Q_C=\int_0^{VR} C(V)dV$	Fig.4
Total Capacitance	C	860 85 60		pF	V_R=0V,T_j=25℃,f=1MHz V_R=200V,T_j=25℃,f=1MHz V_R=400V,T_j=25℃,f=1MHz	Fig.3
Capacitance Stored Energy	E_C	8.2		μJ	VR=400V	Fig.5

Thermal Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
Thermal Resistance, junction-case	$R_{th(j-c)}$		-	0.94	-	°C/W

Typical Characteristics Curves

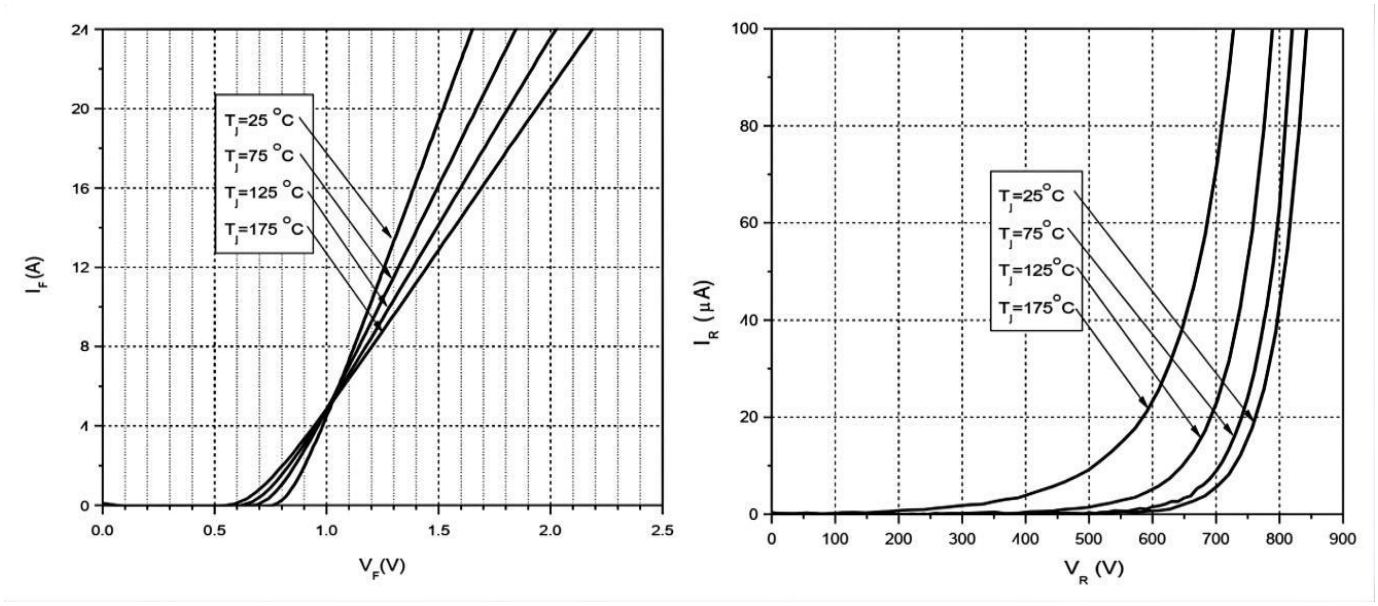


Fig 1. Forward Characteristics

Fig 2. Reverse Characteristics

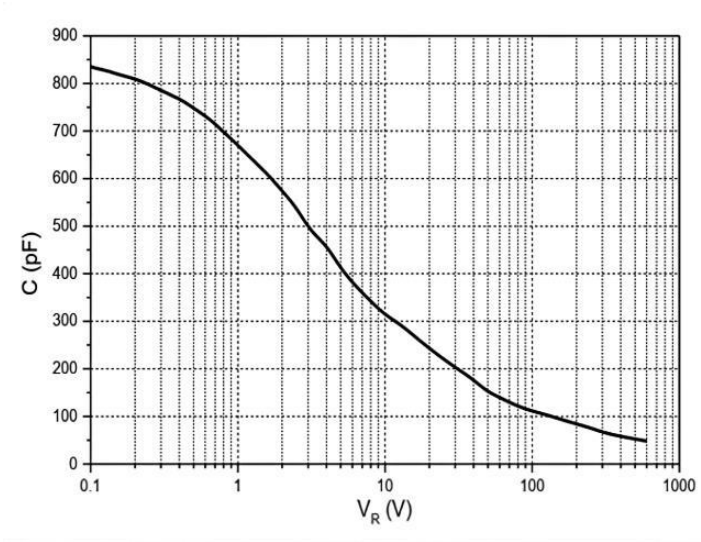


Fig 3.Capacitance vs.Reverse Voltage

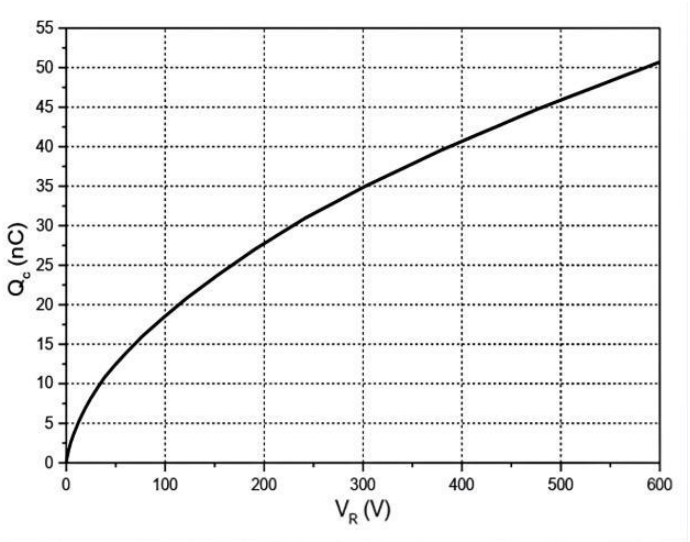


Fig 4.Total Capacitance Charge vs.Reverse Voltage

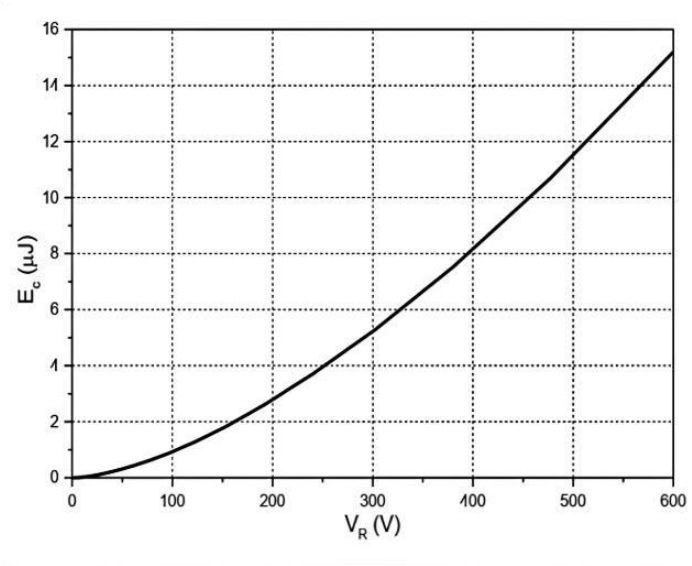
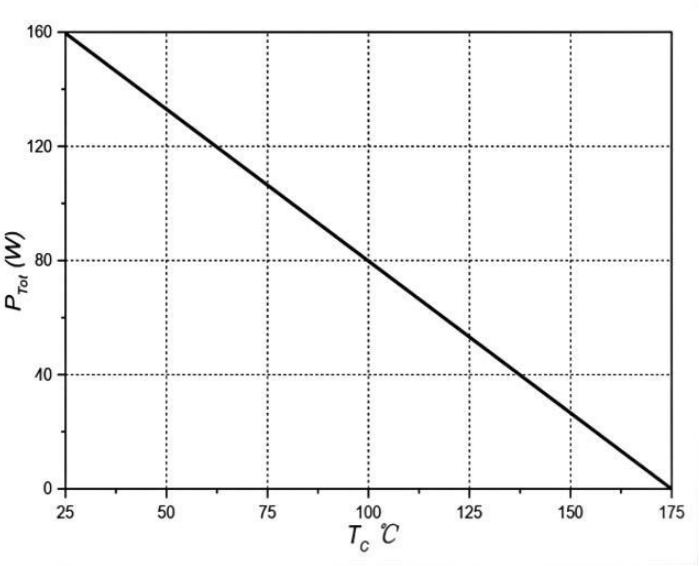


Fig 5.Capacitance Stored Energy Figure



6.Power Derating

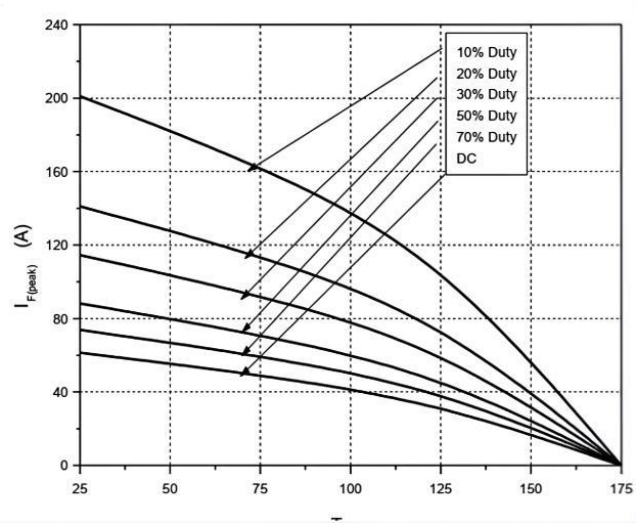


Fig 7.Current Derating

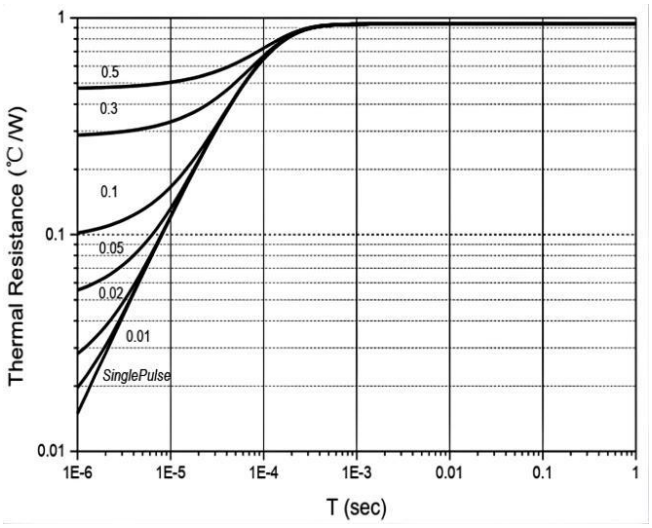
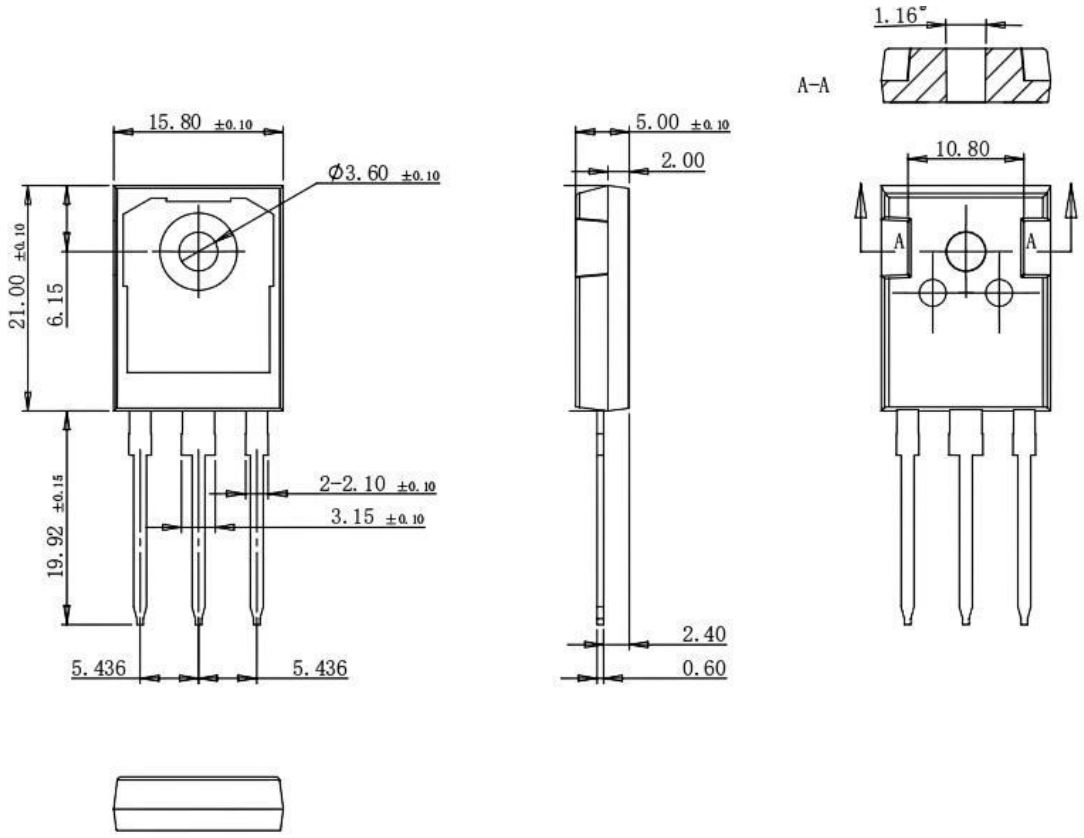


Fig 8.Transient Thermal Impedance

Package Outlines(Unit: mm)



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