昌福半導體 ®
CHANG FU BAN DAO TI

## SiC Schottky Barrier Rectifier

Features

• Reverse withstand voltage 650V

• Zero reverse recovery current

• High working frequency

• Switch characteristics are not affected by temperature

• Fast switching speed

• Positive temperature coefficient of positive pressure drop

Advantages

• Very low switching loss

• Higher efficiency

• Low dependence of the system on the heat sink

• No thermal collapse in parallel devices

Application

• Switching mode power supply, AC/DC converter

• Power factor correction

• Motor drive

• PV inverter and wind turbine

TO-220AC
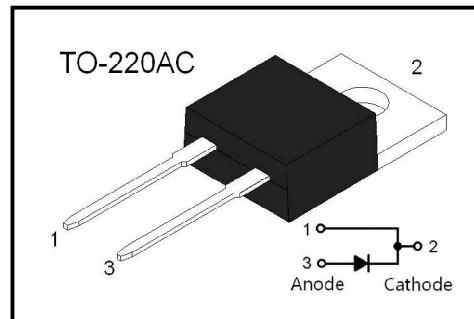
Absolute Maximum Rating (Ta=25℃)

Parameter	Symbol	Test conditions	Value	Unit
Peak repetitive reverse voltage	V_{RRM}		650	V
Working Peak Reverse voltage	V_{RWM}		650	V
DC Blocking Voltage	V_{DC}		650	V
Average rectified output current	$I_{F(AV)}$	Ta=25℃ Ta=125℃ Ta=150℃	55 24 20	A
Forward repetitive peak current	I_{FRM}	T_C=25℃, tp=10ms,Half Sine Wave T_C=110℃,tp=10ms,Half Sine Wave	76 50	A
Forward surge current	I_{FSM}	T_C=25℃, tp=10ms,Half Sine Wave T_C=110℃,tp=10ms,Half Sine Wave	162 150	A
Power dissipation	P_{tot}	Ta=25℃ Ta=110℃	120 55	W
Junction temperature	T_j		-55 ~ +175	℃
Storage temperature	T_{stg}		-55 ~ +175	℃
Mounting Torque			1 8.8	Nm lbf-in

Thermal characteristics

Parameter	Symbol	Vaule	Unit
Thermal Resistance - Junction to Case	$R_{\theta JC}$	1	℃/ W

Electrical Characteristics (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward voltage	V_F	I_F = 20 A, T_j=25℃ I_F = 20 A, T_j=175℃		1.5 2.0	1.8 2.4	V
Reverse current	I_R	V_R = 650V, T_j=25℃ V_R = 650V, T_j=175℃			60 220	μA
Total capacitive charge	Q_C	V_R = 400V, I_F = 10A di/dt=500A/μs, ,T_j=25℃		45		nC
Total capacitance	C	V_R = 0V, T_j=25℃, f=1MHz V_R = 200V, T_j=25℃, f=1MHz V_R = 400V, T_j=25℃, f=1MHz		877 85 65		pF

Typical Characteristics
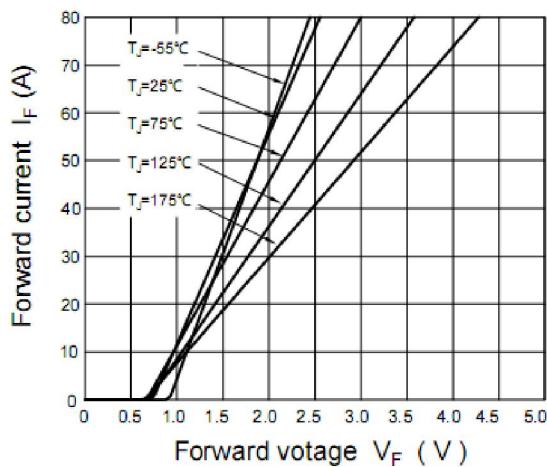
Figure 1. Forward Characteristics
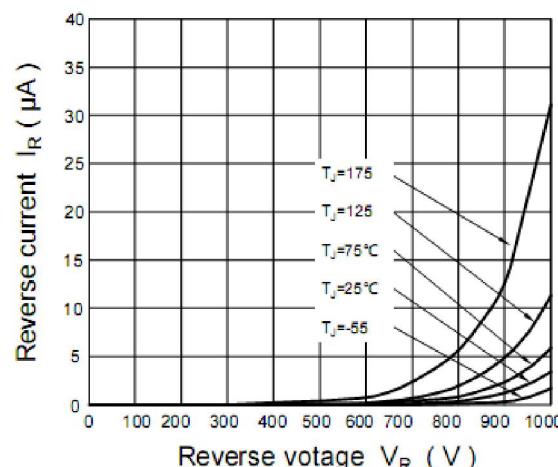
Figure 2. Reverse Characteristics
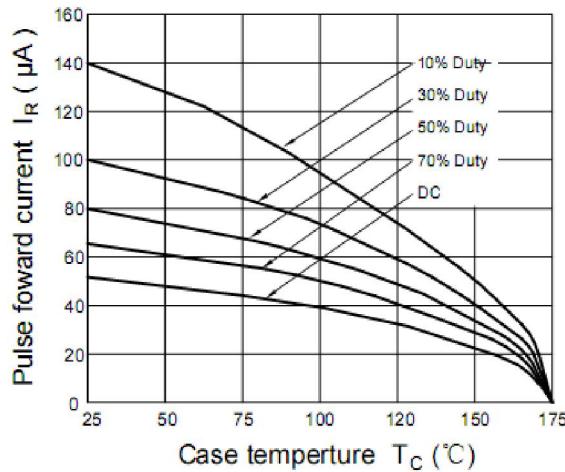
Figure 3. Current Derating
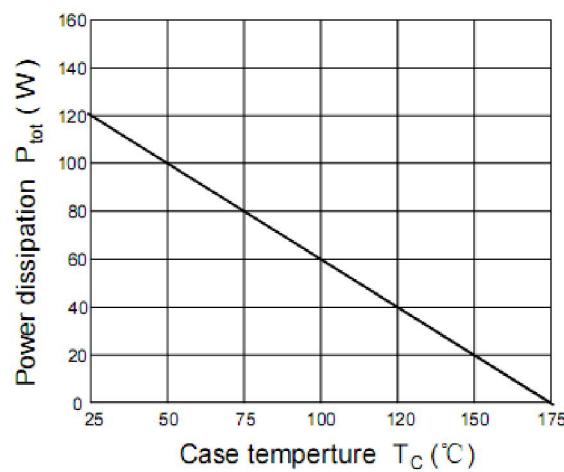
Figure 4. Power Derating

Typical Characteristics
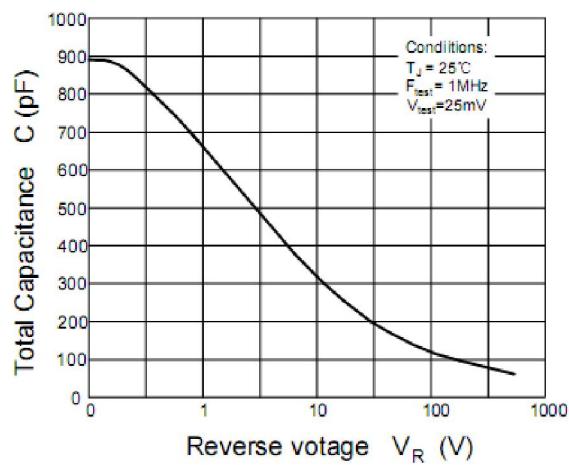
Figure 5. Capacitance vs reverse voltage
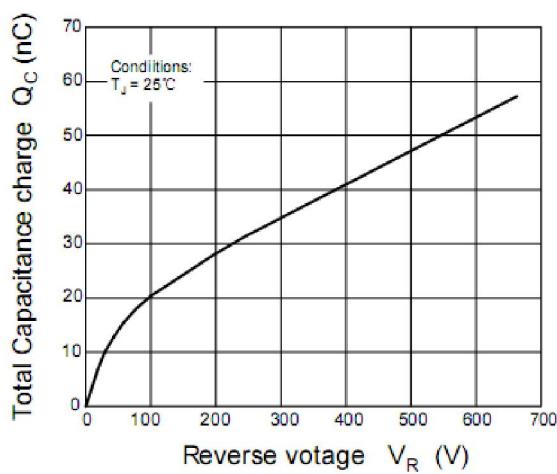
Figure 6. Total Capacitance charge vs. reverse voltage

Package Dimensions
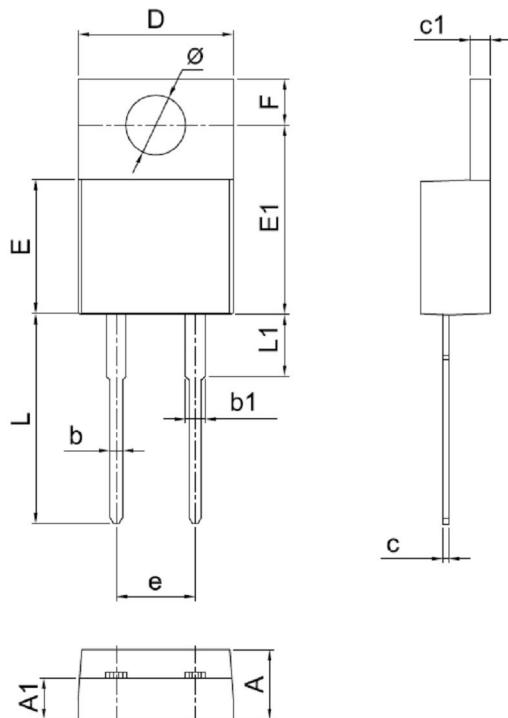
Symbol	Millimeter		Inches	
	Min.	**Max.**	**Min.**	**Max.**
A	4.34	4.67	0.171	0.184
A1	2.52	2.82	0.099	0.111
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.30	0.50	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
E1	12.00	12.50	0.472	0.492
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	2.60	2.80	0.102	0.110
L	13.20	13.80	0.520	0.543
L1	3.80	4.20	0.150	0.165
Φ	3.60	3.96	0.142	0.156