AGC010H06DC

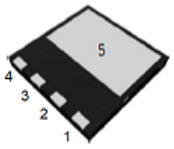
650V / 10A SiC Schottky Barrier Diode

ACTRON TECHNOLOGY CORP.

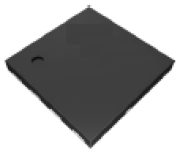
Features

- Shorter recovery time
- High speed switching
- Low forward voltage
- High surge current capability
- Low forward voltage

Outline (DFN 8x8)



(Bottom View)



(Top View)

Applications

- Power Factor Correction in SMPS
- Solar inverter
- Uninterruptible Power Supply
- Motor Drives
- Data Center

Circuit Diagram

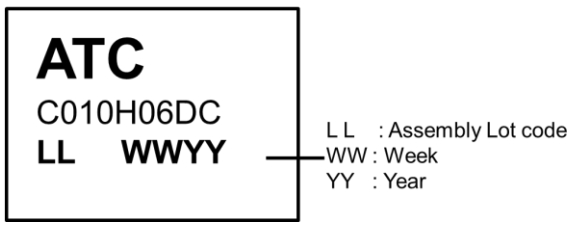
5: Cathode
3,4: Anode
1,2: NC

Mechanical Characteristics

- DFN 8*8 package
- Halogen Free
- Pb free lead plating ; RoHS compliant
- Packaging: Embossed Tape

Marking Diagram

Laser Mark



Parameter and Specification

Absolute Maximum Rating(1)

Parameter	Symbol	Condition	Value	Unit
Repetitive peak reverse voltage	V_{RM}	Tc=25℃	650	V
Continue forward current	I_F	Tc=135℃	10	A
Surge non-repetitive forward current , sine half-wave	I_{FSM}	Tc=25℃, tp=10ms, Sine half wave	90	A
		Tc=110℃, tp=10ms, Sine half wave	72	
Surge repetitive forward current	I_{FRM}	Tc=25℃, tp=10ms, Sine half wave	40	A
I^2t value	$\int I^2t$	Tc=25℃, tp=10ms, Sine half wave	40	A^2s
Total power dissipation	P_D	Tc=25℃	96	W
		Tc=110℃	42	
Junction temperature	T_j		175	℃
Storage temperature	T_{STG}		-55 ~ 175	℃

Note :

(1) Exceeding these ratings may damage the device.

Thermal Characteristics

Parameter	Symbol	Condition	Typ.	Unit
Thermal resistance	θ jc	Junction - Case	1.5	℃ / W

Electrical Characteristics

Characteristic	Symbol	Condition	MIN	TYP	MAX	Unit
DC reverse voltage	V_{DC}	T_j = 25℃, I_R = 50μA	650	-	-	V
Forward voltage	V_F	T_j = 25℃, I_F = 10A	-	1.35	1.5	V
		T_j = 150℃, I_F = 10A	-	1.6	-	
		T_j = 175℃, I_F = 10A	-	1.7	-	
Reverse current	I_R	T_j = 25℃, V_R = 650V	-	2	50	uA
		T_j = 150℃, V_R = 650V	-	8	-	
		T_j = 175℃, V_R = 650V	-	15	-	
Total capacity charge	Q_C	T_j = 25℃, V_R = 400V, di/dt = 350A/us	-	24	-	nC
Total capacitance	C_{TOT}	T_j = 25℃, V_R = 1V, F = 1MHz	-	410	-	pF
		T_j = 25℃, V_R = 400V, F = 1MHz	-	40	-	
		T_j = 25℃, V_R = 650V, F = 1MHz	-	39	-	
Capacitance Stored Energy	E_C	V_R = 400V	-	4	-	μJ

Electrical Characteristic Curves

V_F – I_F Characteristics

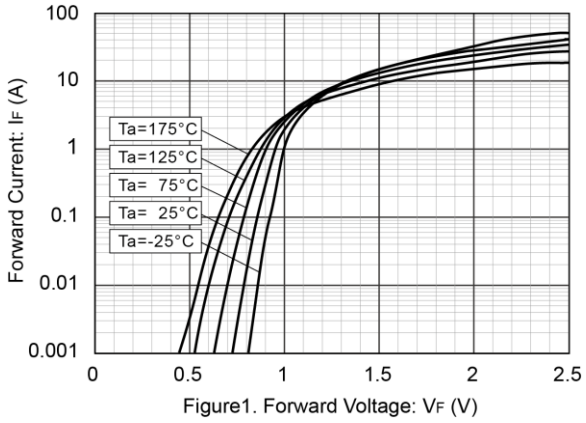


Figure1. Forward Voltage: V_F (V)

V_F – I_F Characteristics

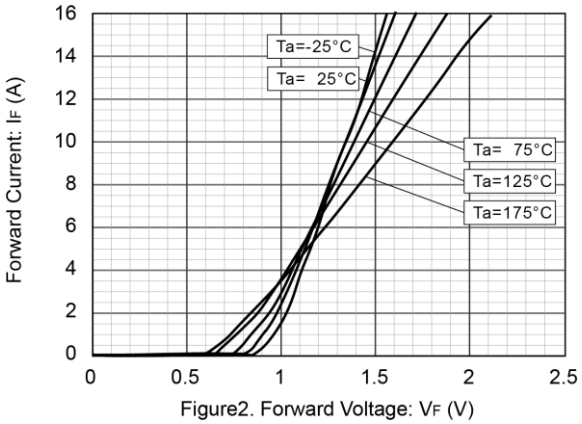


Figure2. Forward Voltage: V_F (V)

V_R – I_R Characteristics

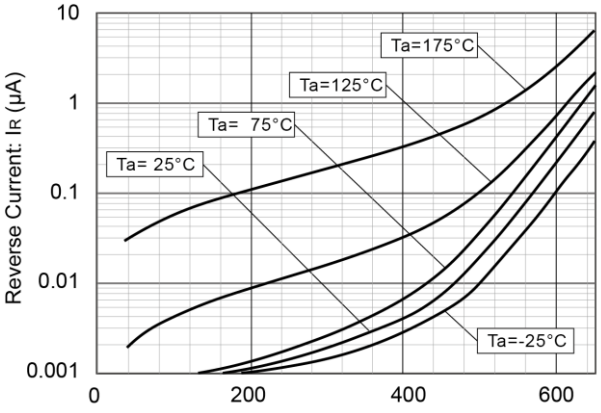


Figure3. Reverse Voltage: V_R (V)

V_R – C_t Characteristics

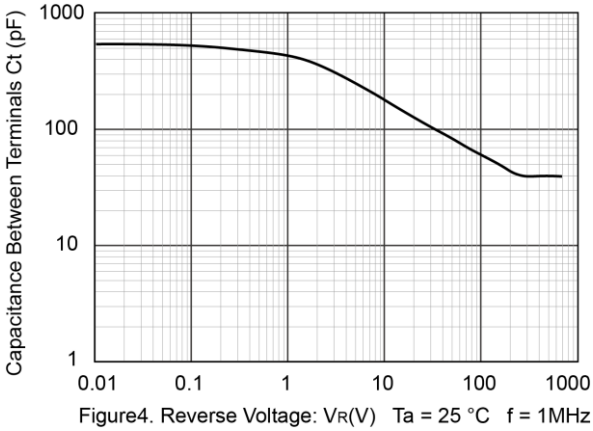


Figure4. Reverse Voltage: V_R(V) Ta = 25 °C f = 1MHz

Maximum I_P –T_C Characteristics

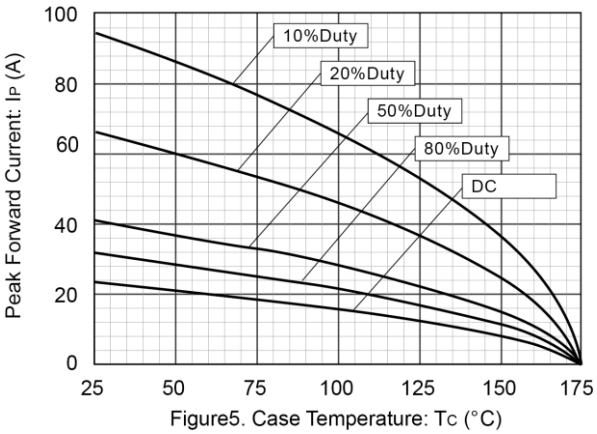


Figure5. Case Temperature: T_C (°C)

Power Dissipation

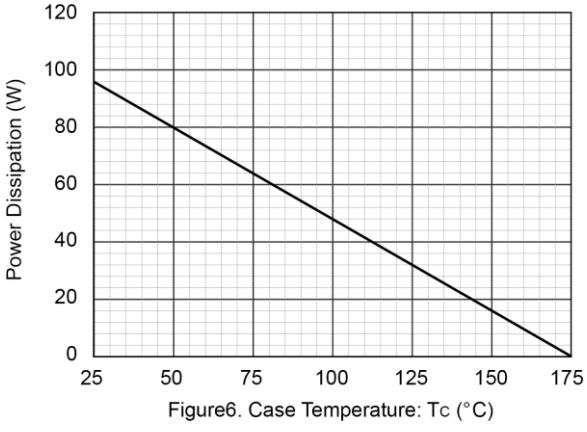


Figure6. Case Temperature: T_C (°C)

I_{FSM} – PW Characteristics

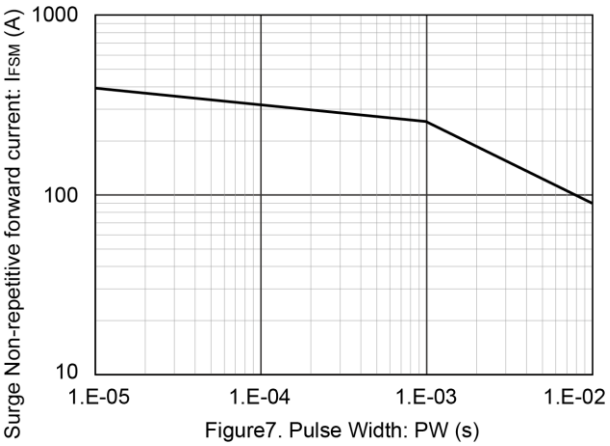


Figure7. Pulse Width: PW (s)

E_C – V_R Characteristics

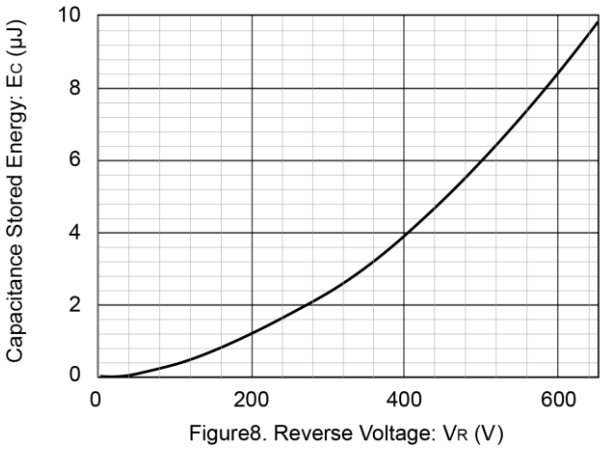


Figure8. Reverse Voltage: VR (V)

Typical Transient Thermal Resistance vs. Pulse Width

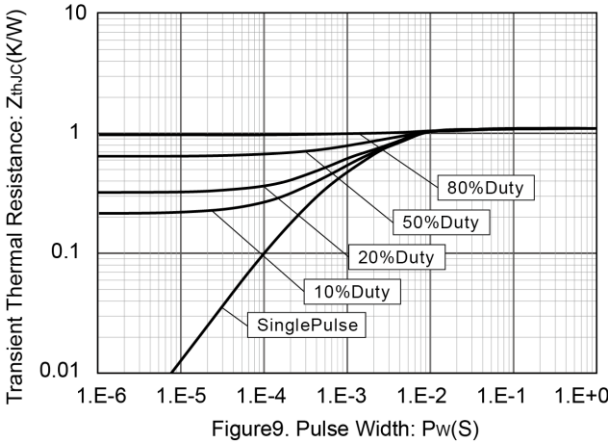
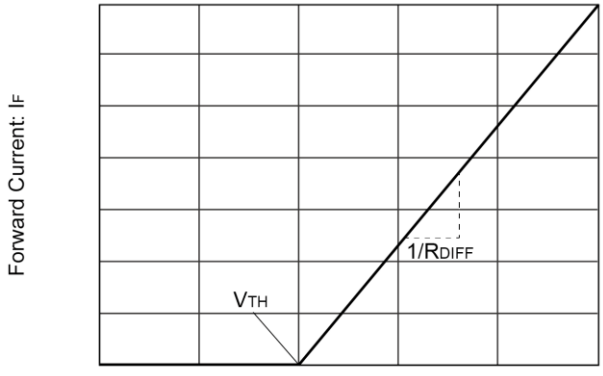


Figure9. Pulse Width: PW(S)

Simplified Forward Characteristic



Forward Voltage: VF
Figure10. Equivalent forward current curve

$V_F=V_{TH}+R_{DIFF}\times I_F$

Threshold Voltage(V_{TH}):

$V_{TH}(T_j)=-0.0019\times T_j+0.78$[V]

Differential Resistance(R_{DIFF}):

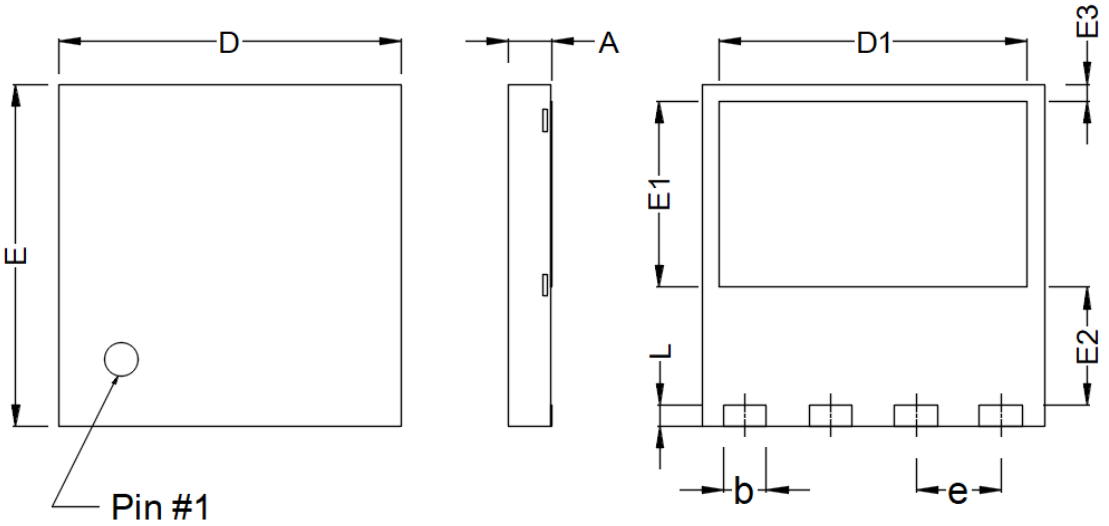
$R_{DIFF}(T_j)=A\times T_j^2+B\times T_j+C$[Ω]

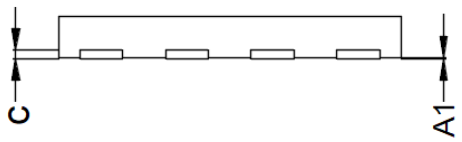
$A=2.0\times10^{-6}$

$B=1.0\times10^{-4}$

$C=4.21\times10^{-2}$

Package Outline





Unit : mm

SYMBOL	DIMENSIONS		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0.00	---	0.05
b	0.90	1.00	1.10
c	0.10	0.20	0.30
D	7.90	8.00	8.10
D1	7.10	7.20	7.30
E	7.90	8.00	8.10
E1	4.25	4.35	4.45
E2	2.65	2.75	2.85
E3	0.30	0.40	0.50
e	2.00 BSC		
L	0.40	0.50	0.60