



650V/1A Silicon Carbide Power Schottky Barrier Diode

Features

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

Benefits

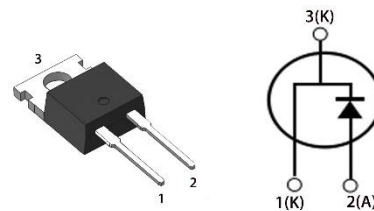
- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Applications

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

产品概览

V_{RRM}	650	V
$I_F (T_C \leq 163.5^\circ\text{C})$	1	A
Q_c	3.2	nC



Part No.	Package Type	Marking
GRS06501AT	TO-220AC	GRS06501AT

Maximum Ratings

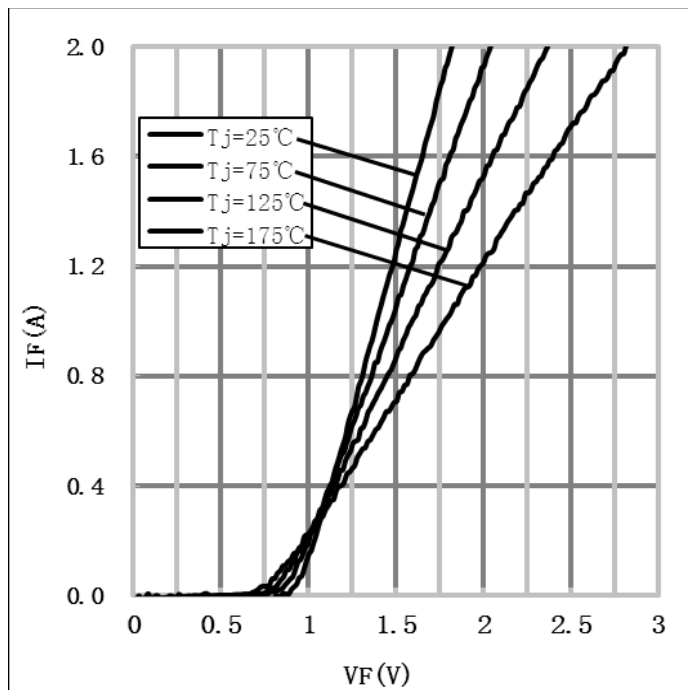
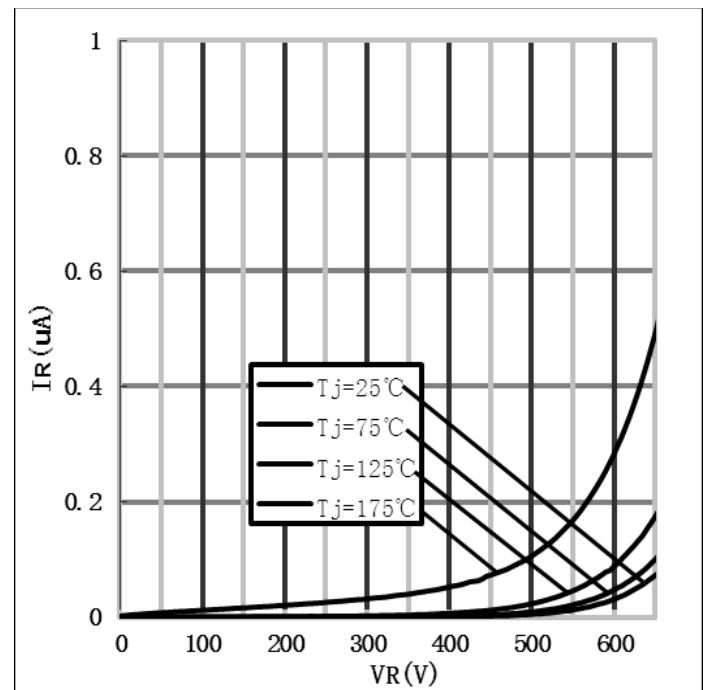
Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		650	V
Surge Peak Reverse Voltage	V_{RSM}		650	
DC Blocking Voltage	V_{DC}		650	
Continuous Forward Current	I_F	$T_C=25^{\circ}\text{C}$ $T_C=125^{\circ}\text{C}$ $T_C=163.5^{\circ}\text{C}$	4.4 2.4 1	A
Repetitive Peak Forward Surge Current	I_{FRM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave, $D=0.3$	5	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	12	A
Power Dissipation	P_{TOT}	$T_C=25^{\circ}\text{C}$	23	W
		$T_C=110^{\circ}\text{C}$	10	
Operating Junction	T_j		-55°C to 175°C	$^{\circ}\text{C}$
Storage Temperature	T_{stg}		-55°C to 175°C	
Mounting Torque		M3 Screw 6-32 Screw	1 8.8	Nm lbf-in

Thermal Characteristics

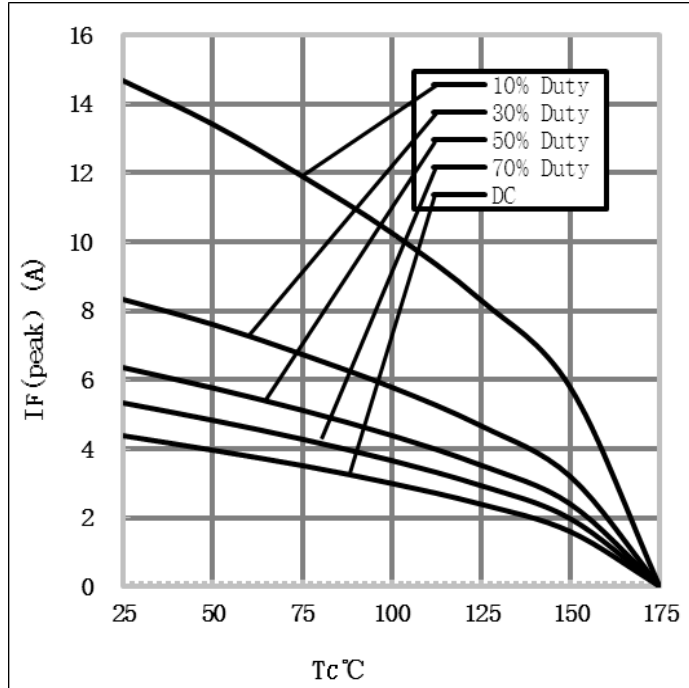
Parameter	Symbol	Test Condition	Value (typ.)	Unit
Thermal resistance from junction to case	$R_{th\ JC}$		6.5	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

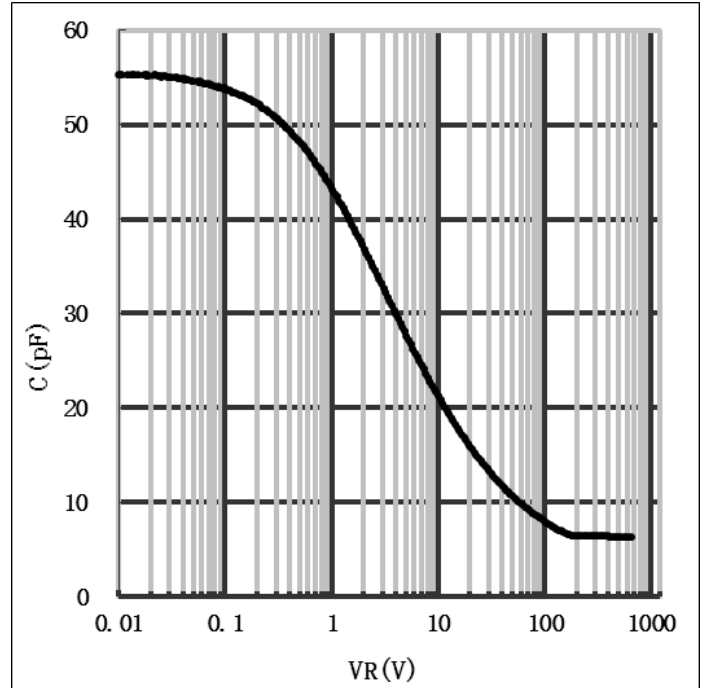
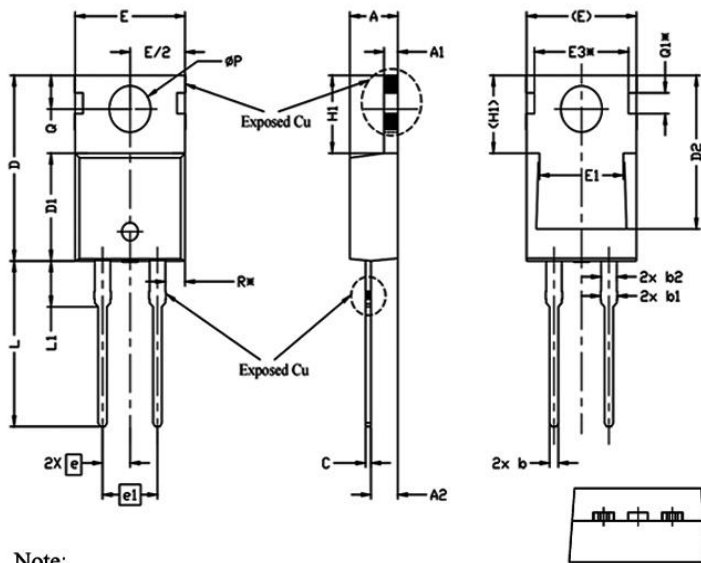
Parameter	Symbol	Test Conditions	Value		Unit
			Typ.	Max.	
Forward Voltage	V_F	$I_F=1A, T_J=25^{\circ}C$	1.39	1.7	V
		$I_F=1A, T_J=175^{\circ}C$	1.78	2	
Reverse Current	I_R	$V_R=650V, T_J=25^{\circ}C$	0.09	50	μA
		$V_R=650V, T_J=175^{\circ}C$	0.49	100	
Total Capacitive Charge	Q_C	$V_R=400V, T_J=150^{\circ}C$ $Q_C = \int_0^{V_R} C(V) dV$	3.2	-	nC
Total Capacitance	C	$V_R=0V, T_J=25^{\circ}C, f=1MHz$	55	-	pF
		$V_R=200V, T_J=25^{\circ}C, f=1MHz$	6.5	-	
		$V_R=400V, T_J=25^{\circ}C, f=1MHz$	6.4	-	

Performance Graphs1) Forward IV characteristics as a function of T_J 2) Reverse IV characteristics as a function of T_J 

3) Current Derating



4) Capacitance vs. reverse voltage

**Package TO-220AC**

Note:

1. Package Reference: JEDEC TO220, Variation AB.
2. All Dimensions Are In mm.
3. Slot Required, Notch May Be Rounded
4. Dimension D & E Do Not Include Mold Flash. Mold Flash Shall Not Exceed 0.127mm Pre Side. These Dimensions Are Measured At The Outermost Extreme Of The Plastic Body.
5. Thermal Pad Contour Optional Within Dimensions E, H1, D2 & E1.
6. Dimension E2 & H1 Define A Zone Where Stamping And Singulation Irregularities Are Allowed.
7. "*" is reference .

单位: mm

SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.24	4.44	4.64	
A1	1.15	1.27	1.40	
A2	2.30	2.48	2.70	
b	0.70	0.80	0.90	
b1	1.20	1.55	1.75	
b2	1.20	1.45	1.70	
c	0.40	0.50	0.60	
D	14.70	15.37	16.00	4
D1	8.82	8.92	9.02	
D2	12.63	12.73	12.83	5
E	9.96	10.16	10.36	4,5
E1	6.86	7.77	8.89	5
E3*	8.70REF.			
e	2.54BSC			
e1	5.08BSC			
H1	6.30	6.45	6.60	5,6
L	13.47	13.72	13.97	
L1	3.60	3.80	4.00	
ØP	3.75	3.84	3.93	
Q	2.60	2.80	3.00	
Q1*	1.73REF.			
R*	1.82REF.			

Notes

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