



6A 650V SiC Schottky Diode

Applications

- Switch Mode Power Supply
- Power Factor Correction
- Solar Inverter
- Uninterruptible Power Supply

Features

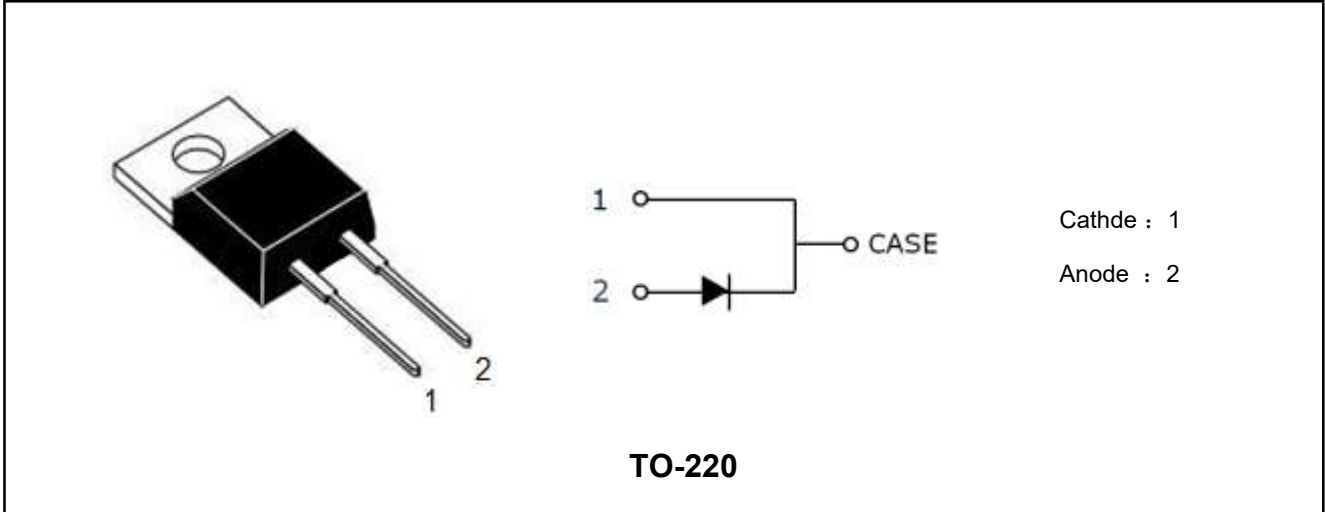
- No Reverse Recovery/ No Forward Recovery
- Temperature Independent Switching Behavior
- Positive Temperature Coefficient on  $V_F$
- Fast Reverse Recovery
- High Surge Current Capability
- 100% UIS and RG Tested

Product Summary

$V_{RRM}$	650	V
$I_F@T_c=150^\circ C$	6	A
$V_{F,TYP}@T_c=25^\circ C$	1.5	V
$V_{F,TYP}@T_c=175^\circ C$	1.9	V
$Q_c$	15	nC

Benefits

- Higher System Efficiency
- System Cost and Size Savings
- High Frequency Operation
- Higher System Reliability
- Reduced EMI



Marking	Package	Packaging	Min. package quantity
MC3S06C065	TO-220	Tube	1000





### ■ Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	650	V
Surge Peak Reverse Voltage	$V_{RSM}$	650	V
DC Peak Blocking Voltage	$V_R$	650	V
Continuous Forward Current	$I_F$	6	A
Tc=150°C			
Non-Repetitive Peak Forward Surge Current	$I_{FSM}$	55	A
Power Dissipation	$P_D$	75	W
Junction Temperature	$T_J$	175	°C
Storage Temperature	$T_{stg}$	-55-175	°C

### ■ Thermal Characteristics

Parameter	Symbol	Max	Unit
Maximum Junction-to-Case	$R_{\theta JC}$	2	°C/W
Maximum Junction-to-Ambient	$R_{\theta JA}$	60	°C/W

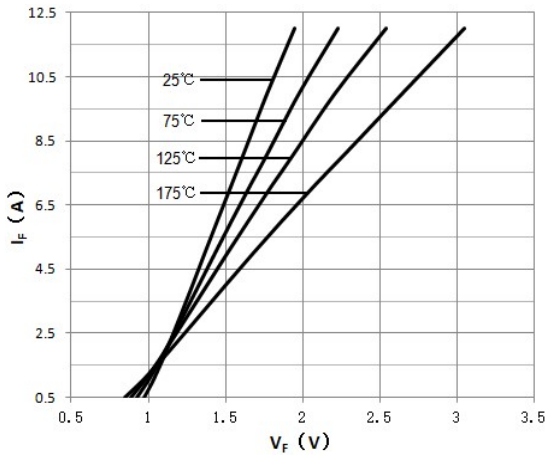
### ■ Electrical Characteristics (Tc=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static Parameters</b>						
DC Blocking Voltage	$V_{DC}$	$I_R=100\mu A$	650	-	-	V
Forward Voltage	$V_F$	$I_F=6A$	-	1.5	1.7	V
		$I_F=6A, T_J=175^\circ C$	-	1.9	2.2	V
Reverse Current	$I_R$	$V_R=650V$	-	0.3	10	$\mu A$
		$V_R=650V, T_J=175^\circ C$	-	15	100	$\mu A$
<b>AC Parameters</b>						
Total Capacitive Charge	$Q_C$	$I_F=6A, di/dt=200A/\mu s, V_R=400V, T_J=25^\circ C$	-	15	-	nC
Total Capacitive	C	$V_R=1V, f=1MHz$	-	195	-	pF
		$V_R=300V, f=1MHz$	-	25	-	
		$V_R=600V, f=1MHz$	-	24	-	

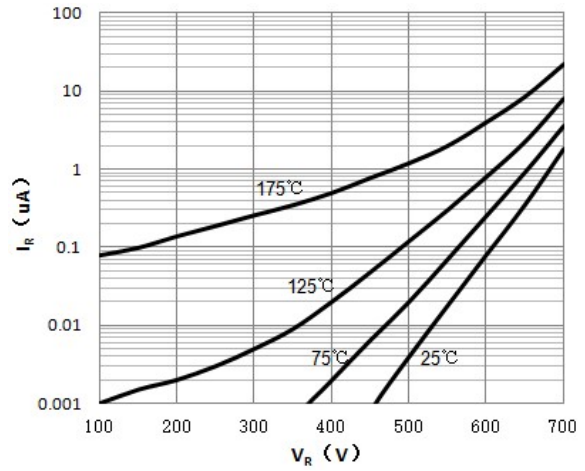




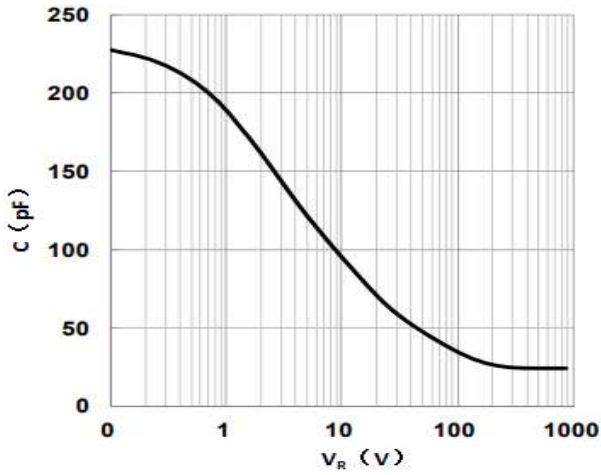
### ■ Characteristics Curves



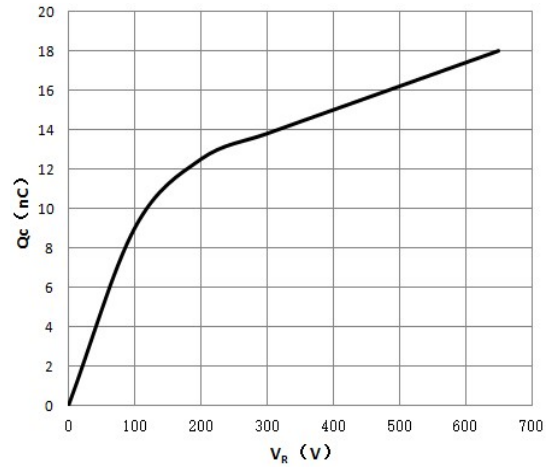
Forward Characteristics



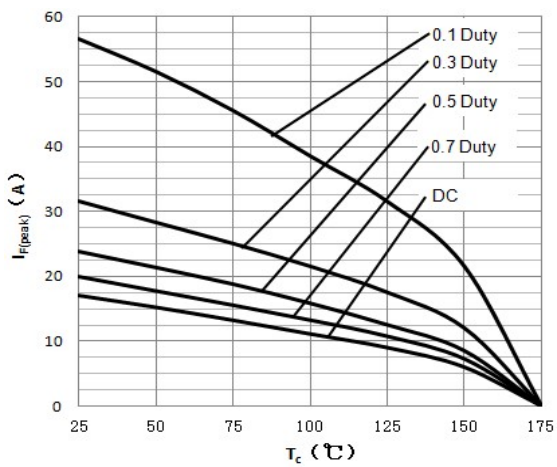
Reverse Characteristics



Capacitance



Recovery Charge vs. Reverse Voltage



Current Derating





■ TO-220 Package Dimensions

Unit: mm

Symbol	Min	Nom	Max	Symbol	Min	Nom	Max
A	4		4.8	e		2.54	
B	1.2		1.4	e1	1		1.5
B1	1		1.4	F	1.1		1.4
b1	0.65		1	L	12.5		14.5
c	0.4		0.55	LI	3	3.5	4
D	15		16.5	ΦP		3.8	
D1	5.9		6.9	Q	2.5		3
E	9.9		10.7	Q1	2		2.9

