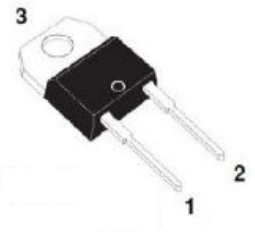
Silicon Carbide Power Schottky Barrier Diode

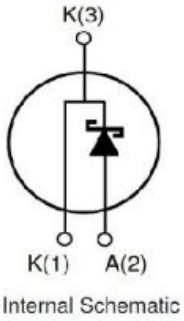
Lead Free

Applications:

- Power factor correction
- Solar wind inverters
- Industrial motor drivers
- Charge block for electrical cars
- Electrical household appliances
- Uninterruptible Power System(UPS)

I_F, Tc≤135℃	Qc	V_{RRM}
8.5A	16 nC	600V





Internal Schematic

Features:

- Rated to 600V at 5 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behaviour
- High temperature operation
- High frequency operation
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Ordering Information

Part Number	Package	Marking
RSS05060A	TO-220-2	RSS05060A

Maximun Ratings

Symbol	Parameter	Value	Units	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	600	V	Tj=25℃
V_{RSM}	Surge Peak Reverse Voltage	600	V	Tj=25℃
V_{DC}	DC Blocking Voltage	600	V	Tj=25℃
I_F	Continuous Forward Current	19 8.5 5	A	Tj=25℃ Tj=135℃ Tj=158℃
I_{FRM}	Repetitive Peak Forward Surge Current	25	A	Tc=25℃, Tp=10mS, Half Sine Wave, D=0.3
I_{FSM}	Non-repetitive Peak Forward Surge Current	35	A	Tc=25℃, Tp=10mS, Half Sine Wave
P_{TOT}	Power Dissipation	77 35	W	Tc=25℃ Tc=110℃
Tc	Tc	135	℃	
Tj	Maximum Case Temperature	-55 to 175	℃	
Tstg	Operating Junction	-55 to 175	℃	
TL TPKG	Maximum Temperature for Soldering Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds	300 260	℃	
Mounting Torque		1 8.8	Nm lbf-in	M3 Screw 6-32 Screw

Thermal Resistance

Symbol	Parameter	Value	Units	Test Conditions
Rth JC	Junction-to-Case	1.95	℃/W	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Units	Test Conditions
VF	Forward Voltage	1.4	1.7	V	IF=5A Tj=25℃
		1.75	2.5		IF=5A Tj=175℃
IR	Reverse Current	5	100	μA	VR=600V Tj=25℃
		20	200		VR=600V Tj=175℃
Qc	Total Capacitive	16	--	nC	VR=600V, IF=5A, di/dt=500A/us, Tj=25℃
C	Total Capacitance	304	320	pF	VR=0V, Tj=25℃, f=1MHZ
		32	34		VR=200V, Tj=25℃, f=1MHZ
		31.4	32		VR=400V, Tj=25℃, f=1MHZ

Performance Graphs

Figure1. Forward IV characteristics as a function of Tj

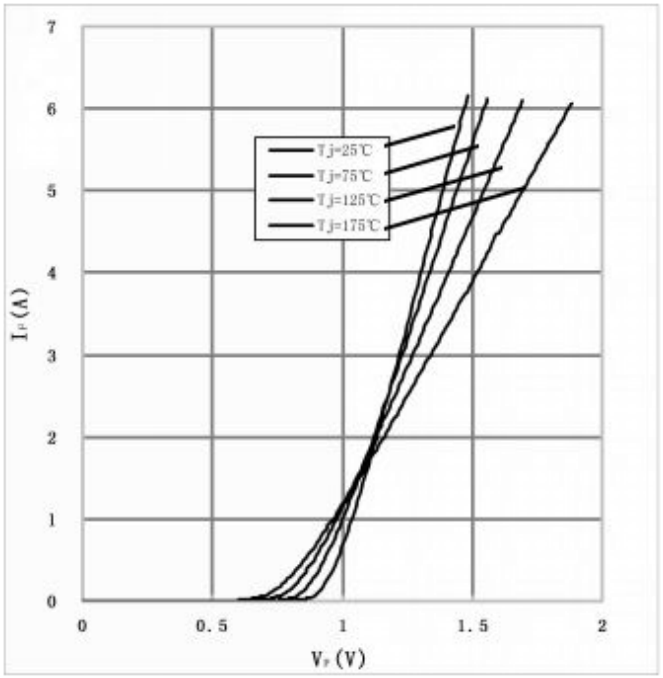
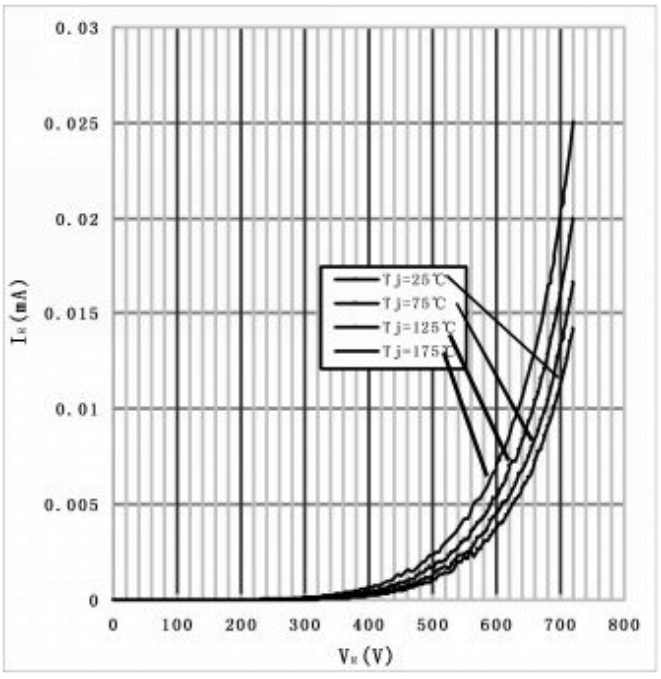


Figure2. Reverse IV characteristics as a function of Tj



Performance Graphs

Figure3. Current Derating

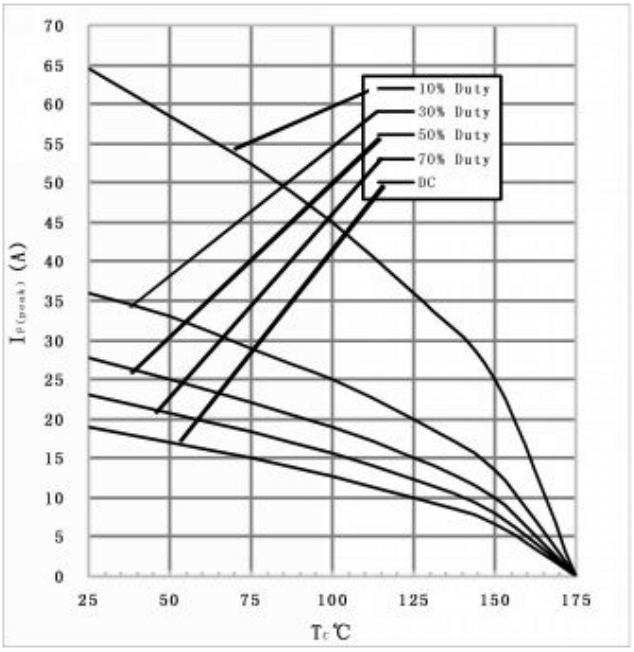
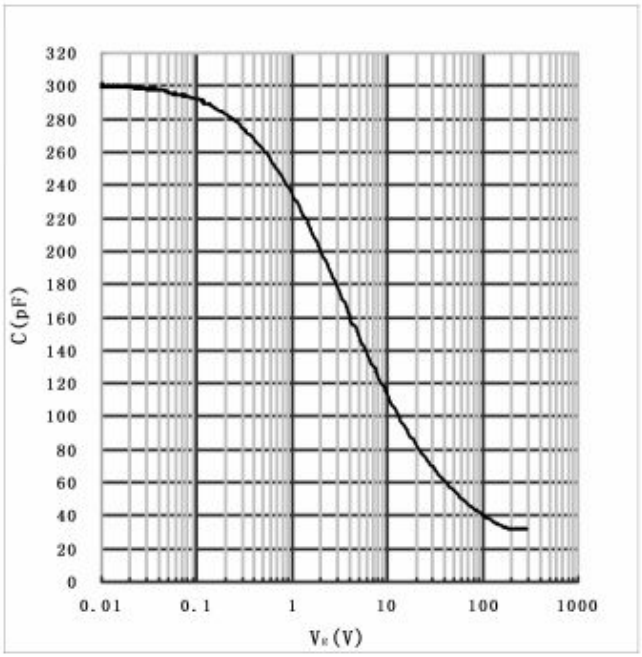
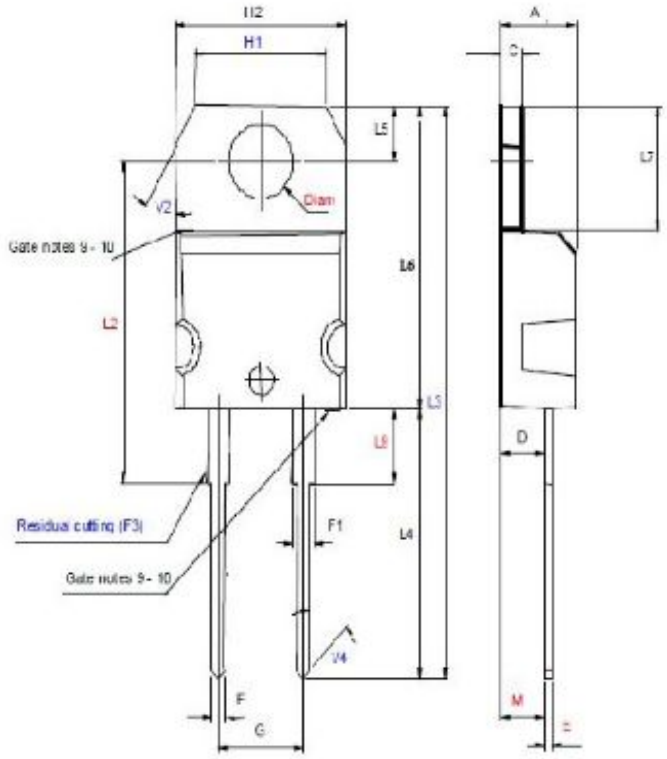


Figure4. Capacitance vs. reverse voltage



Package TO-220-2



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
C	1.23	1.32	0.048	0.052
D	2.4	2.72	0.094	0.107
E	0.49	0.7	0.019	0.028
F	0.61	0.88	0.024	0.035
F1	1.14	1.7	0.045	0.067
F3		1		0.039
G	4.95	5.15	0.195	0.203
H1	7.7	7.9	0.303	0.311
H2	10	10.4	0.394	0.409
L2	16.4		0.646	
L3	28.9		1.138	
L4	13	14	0.512	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.2	6.6	0.244	0.260
L9	3.5	3.93	0.138	0.155
M	2.6			
V	5°			
V2	30°			
V4	45°			
diam	3.75	3.85	0.148	0.152

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