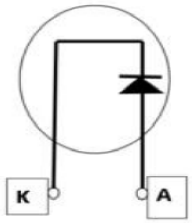
ASD465F

650V,4A Silicon Carbide Schottky Diode

Features

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

Key Characteristics		
V_{RRM}	650	V
I_F, T_c=141℃	4	A
Q_C	9	nC



Benefits

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

Applications

- Switch Mode Power Supplies (SMPS)
- Boost diodes in PFC or DC/DC stages
- Motor drives
- Solar application,UPS
- Power Switching Circuits

Part No.	Package Type	Marking
ASD465F	TO-220-2F	ASD465F

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Maximum Ratings

Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		650	V
Surge Peak Reverse Voltage	V_{RSM}		650	V
DC Blocking Voltage	V_{DC}		650	V
Continuous Forward Current	I_F	T_C=25℃ T_C=135℃ T_C=141℃	11 4.9 4	A
Repetitive Peak Forward Surge Current	I_{FRM}	T_C=25℃, tp=10ms， Half Sine Wave，D=0.3	21	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	T_C=25℃, tp=10ms， Half Sine Wave	33	A
Power Dissipation	P_{TOT}	T_C=25℃	50	W
		T_C=110℃	22	W
Operating Junction	T_j		-55℃ to 175℃	℃
Storage Temperature	T_{stg}		-55℃ to 175℃	℃
Mounting Torque		M3 Screw 6-32 Screw	1 8.8	Nm lbf-in

Thermal Characteristics

Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{th\ JC}$		4.7	℃/W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	I_F=4A, T_j=25℃	1.4	1.65	V
		I_F=4A, T_j=175℃	1.7	2.3	
Reverse Current	I_R	V_R=650V, T_j=25℃	1	10	μA
		V_R=650V, T_j=175℃	2	50	
Total Capacitive Charge	Q_C	VR=400V, Tj=25℃ $Qc = \int_0^{VR} C(V)dV$	9	-	nC
Total Capacitance	C	V_R=0V, T_j=25℃, f=1MHZ	230	260	pF
		V_R=200V, T_j=25℃, f=1MHZ	24	26	
		V_R=400V, T_j=25℃, f=1MHZ	20	21	

Performance Graphs

1) Forward IV characteristics as a function of Tj :

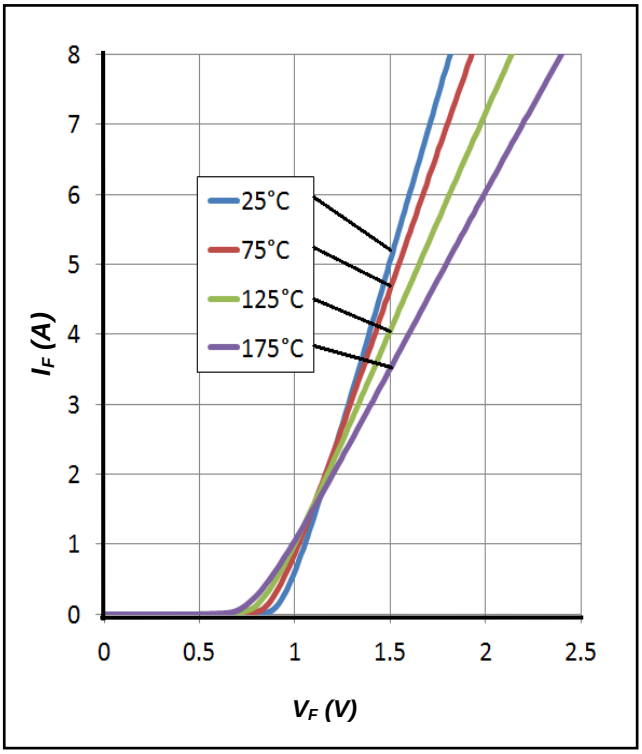


Figure 1. Forward Characteristics

2) Reverse IV characteristics as a function of Tj :

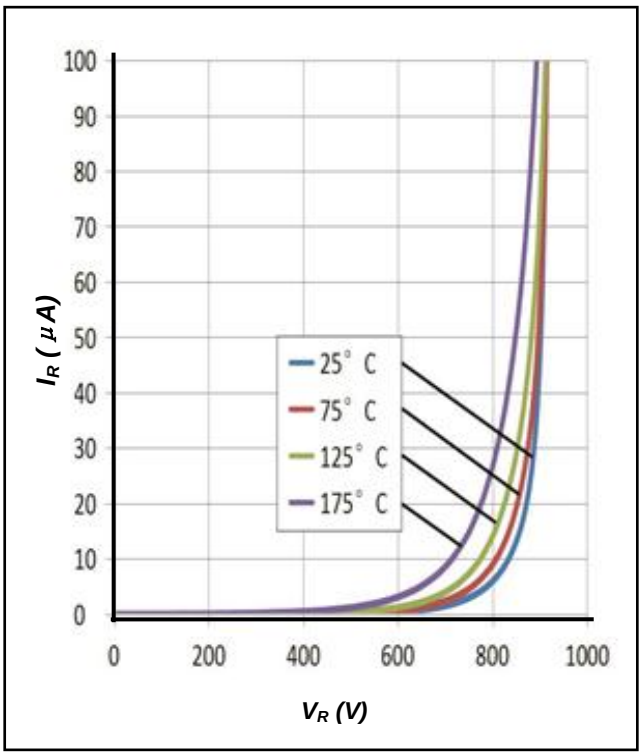


Figure 2. Reverse Characteristics

3)Current Derating

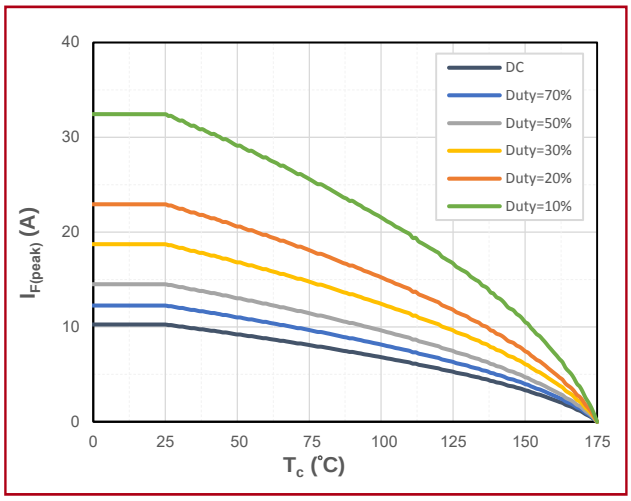


Figure 3. Current Derating

4)Capacitance vs. reverse voltage :

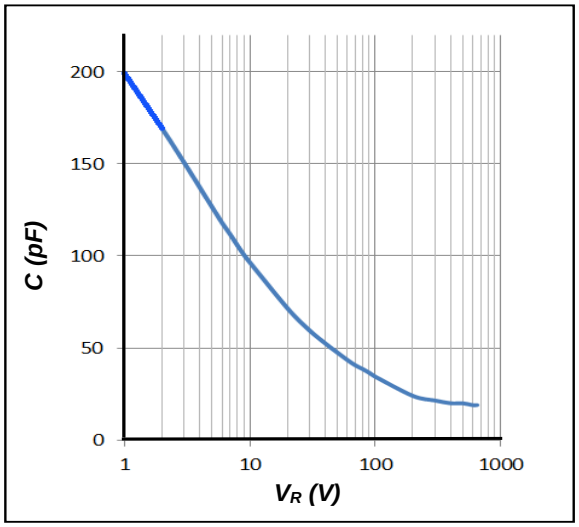
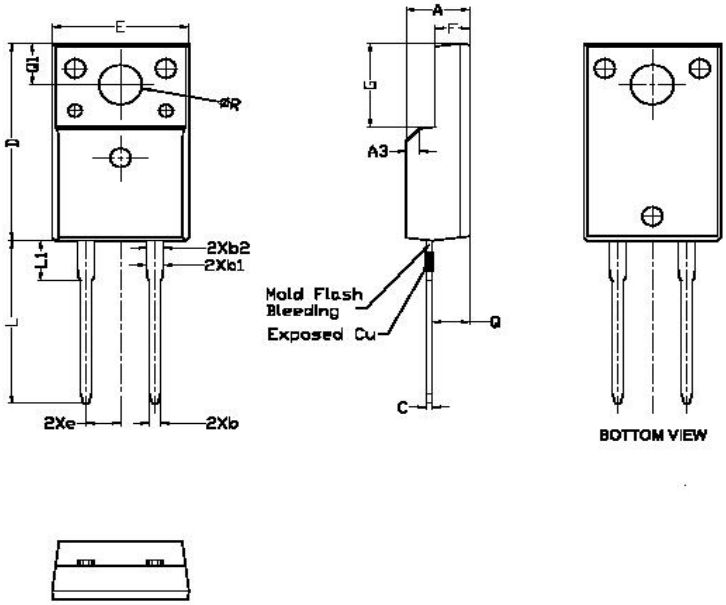


Figure 4. Capacitance vs. Reverse Voltage

Package TO-220-2F



SYMBOL	DIMENSIONS		
	Min.	Nom.	Max.
A	4.60	4.70	4.80
b	0.70	0.80	0.91
b1	1.20	1.30	1.47
b2	1.10	1.20	1.30
C	0.45	0.50	0.63
D	15.80	15.87	15.97
e		2.54	
E	10.00	10.10	10.30
F	2.44	2.54	2.64
G	6.50	6.70	6.90
L	12.90	13.10	13.30
L1	3.13	3.23	3.33
Q	2.65	2.75	2.85
Q1	3.20	3.30	3.40
ΦR	3.08	3.18	3.28

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