

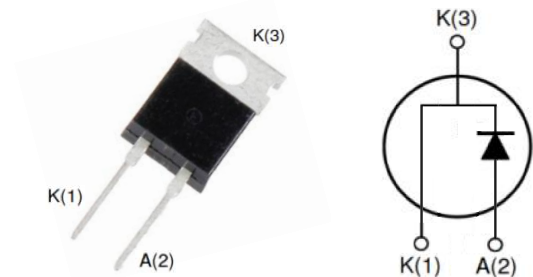
Features

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

Key Characteristics		
V_{RRM}	650	V
$I_F, T_c \leq 147^\circ\text{C}$	20	A
Q_c	37	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
ASD2065A	TO-220-2	ASD2065A

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	$T_C=25^{\circ}\text{C}$ $T_C=135^{\circ}\text{C}$ $T_C=147^{\circ}\text{C}$	56 25 20	A
Repetitive Peak Forward Surge Current	I_{FRM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave, $D=0.3$	95	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	170	A
Power Dissipation	P_{TOT}	$T_C=25^{\circ}\text{C}$	187	W
		$T_C=110^{\circ}\text{C}$	82	W
Operating Junction	T_j		-55°C to 175°C	$^{\circ}\text{C}$
Storage Temperature	T_{stg}		-55°C to 175°C	$^{\circ}\text{C}$
Mounting Torque		M3 Screw	1	Nm
		6-32 Screw	8.8	lbf-in

Thermal Characteristics

Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	R_{thJC}		0.85	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	$I_F=20A, T_j=25^{\circ}C$	1.45	1.7	V
		$I_F=20A, T_j=175^{\circ}C$	1.7	2.3	
Reverse Current	I_R	$V_R=650V, T_j=25^{\circ}C$	2	20	μA
		$V_R=650V, T_j=175^{\circ}C$	10	100	
Total Capacitive Charge	Q_C	$V_R=400V, T_j=150^{\circ}C$ $Q_C = \int_0^{V_R} C(V)dV$	37	-	nC
Total Capacitance	C	$V_R=0V, T_j=25^{\circ}C, f=1MHz$	1170	1300	pF
		$V_R=200V, T_j=25^{\circ}C, f=1MHz$	110	120	
		$V_R=400V, T_j=25^{\circ}C, f=1MHz$	96	108	

Performance Graphs

1) Forward IV characteristics as a function of T_j :

2) Reverse IV characteristics as a function of T_j :

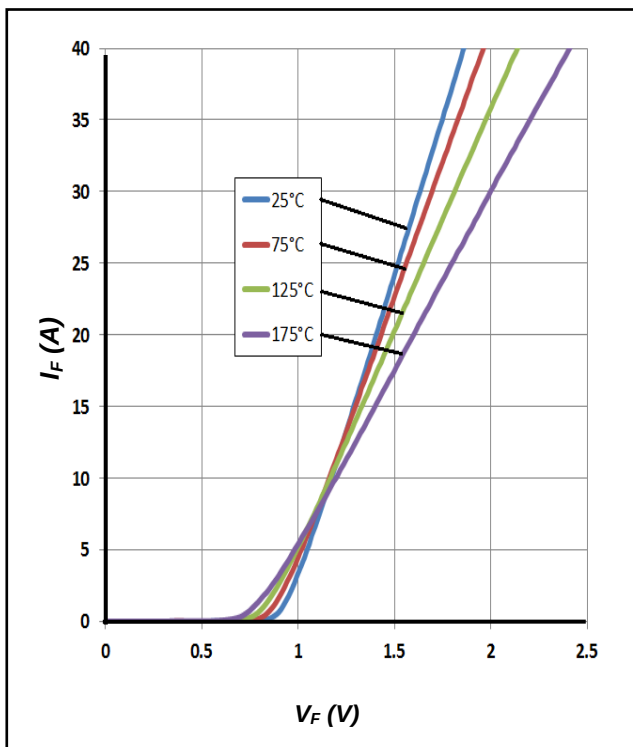


Figure 1. Forward Characteristics

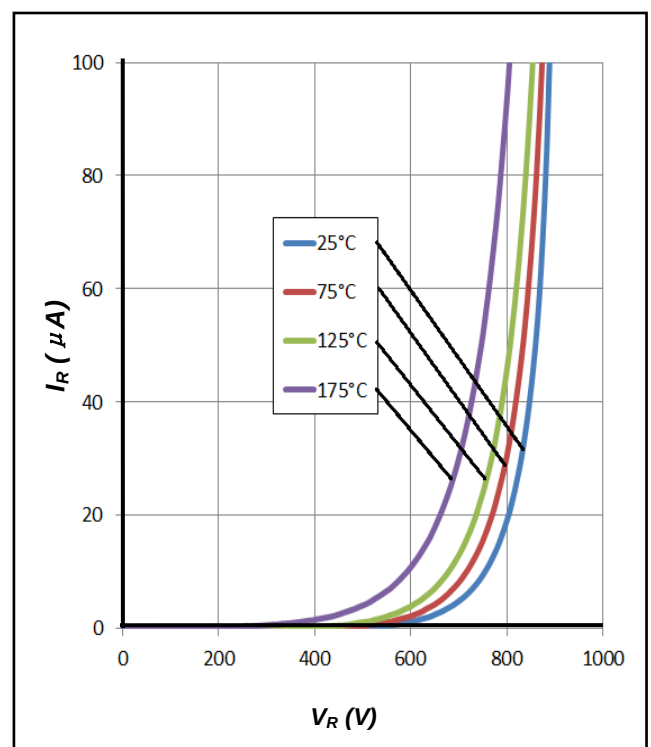


Figure 2. Reverse Characteristics

3) Current Derating

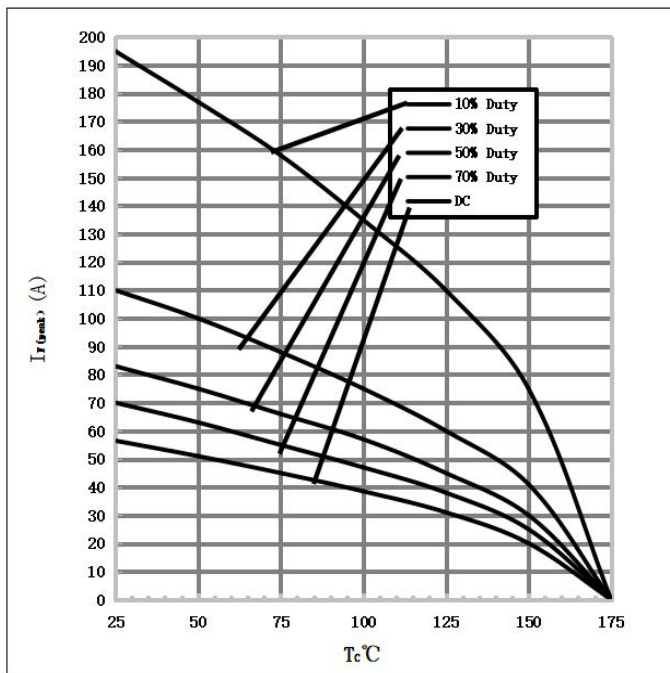


Figure 3. Current Derating

4) Capacitance vs. reverse voltage :

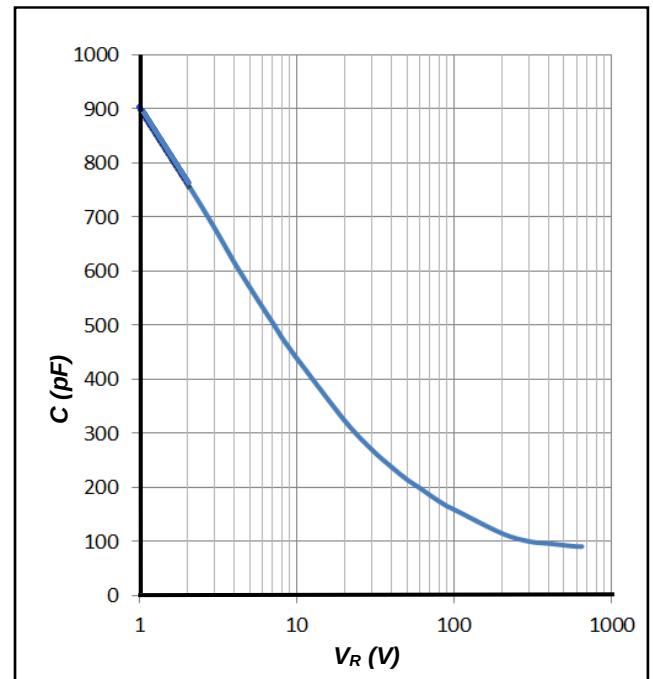
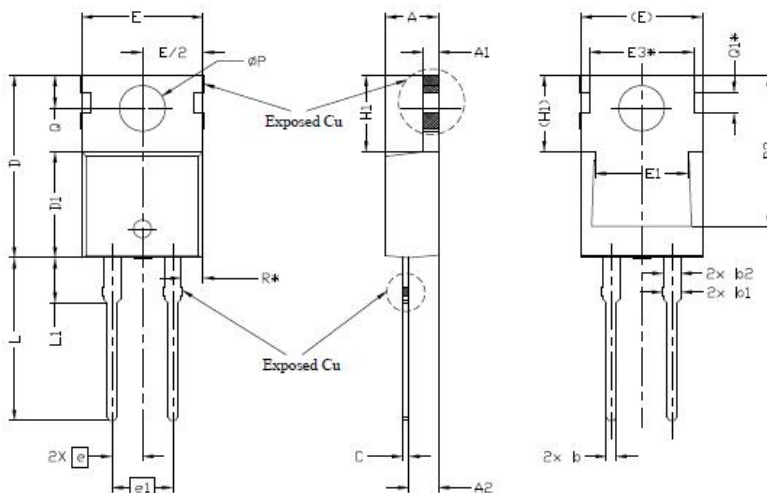


Figure 4. Total Capacitance vs. Reverse Voltage

Package TO-220-2

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	
Q1	3.75	3.84	3.93	
Q	2.60	2.80	3.00	
Q1*	1.73REF.			
R*	1.82REF.			

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