

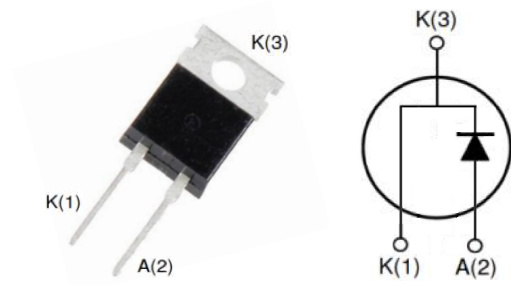
### Features

- 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
$I_F, T_c \leq 155^\circ\text{C}$	6	A
$Q_c$	23	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
ASD665A	TO-220-2	ASD665A

**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	$I_F$	$T_C=25^{\circ}C$	19	A
		$T_C=135^{\circ}C$	9	
		$T_C=155^{\circ}C$	6	
Repetitive Peak Forward Surge Current	$I_{FRM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave, $D=0.3$	50	A
Non-repetitive Peak Forward Surge Current	$I_{FSM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave	73	A
Power Dissipation	$P_{TOT}$	$T_C=25^{\circ}C$	92	W
		$T_C=110^{\circ}C$	43	W
Operating Junction	$T_j$		$-55^{\circ}C$ to $175^{\circ}C$	$^{\circ}C$
Storage Temperature	$T_{stg}$		$-55^{\circ}C$ to $175^{\circ}C$	$^{\circ}C$
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	$R_{thJC}$		1.38	$^{\circ}C/W$

**Electrical Characteristics**

Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	$V_F$	$I_F=6A, T_j=25^{\circ}C$	1.4	1.65	V
		$I_F=6A, T_j=175^{\circ}C$	1.7	2.0	
Reverse Current	$I_R$	$V_R=650V, T_j=25^{\circ}C$	10	50	$\mu A$
		$V_R=650V, T_j=175^{\circ}C$	20	100	
Total Capacitive Charge	$Q_C$	$V_R=400V, T_j=150^{\circ}C$ $Q_C = \int_0^{V_R} C(V)dV$	23	-	nC
Total Capacitance	C	$V_R=0V, T_j=25^{\circ}C, f=1MHZ$	379	423	pF
		$V_R=200V, T_j=25^{\circ}C, f=1MHZ$	40	43	
		$V_R=400V, T_j=25^{\circ}C, f=1MHZ$	32	34	

**Performance Graphs**

1) Forward IV characteristics as a function of  $T_j$  :

2) Reverse IV characteristics as a function of  $T_j$  :

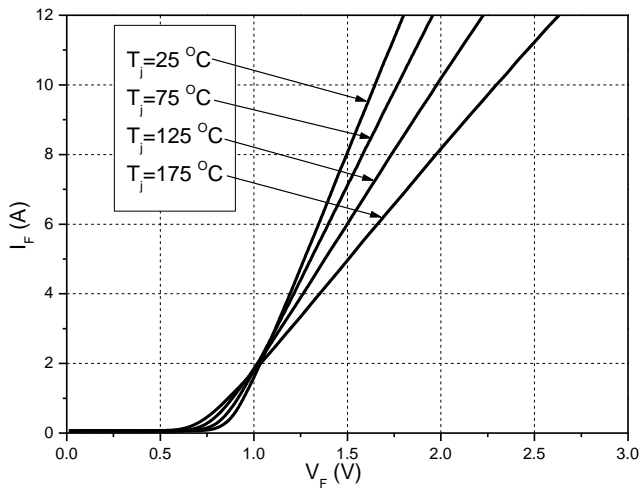


Figure 1. Forward Characteristics

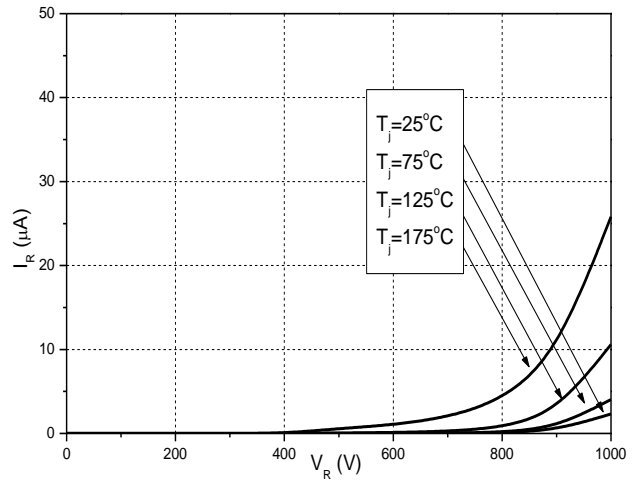


Figure 2. Reverse Characteristics

3) Current Derating

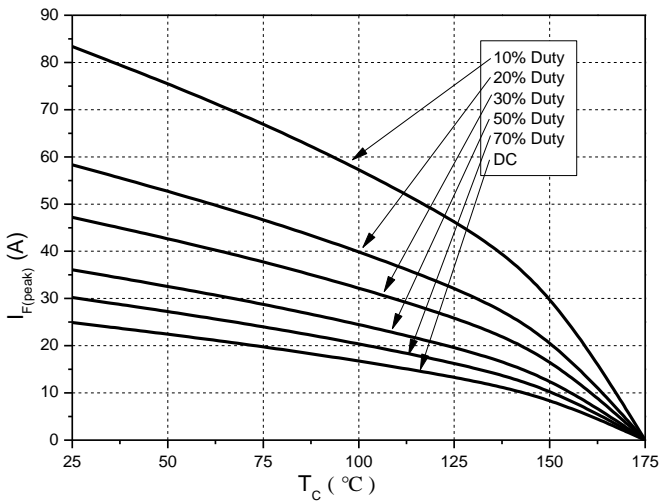


Figure 3. Current Derating

4) Capacitance vs. reverse voltage :

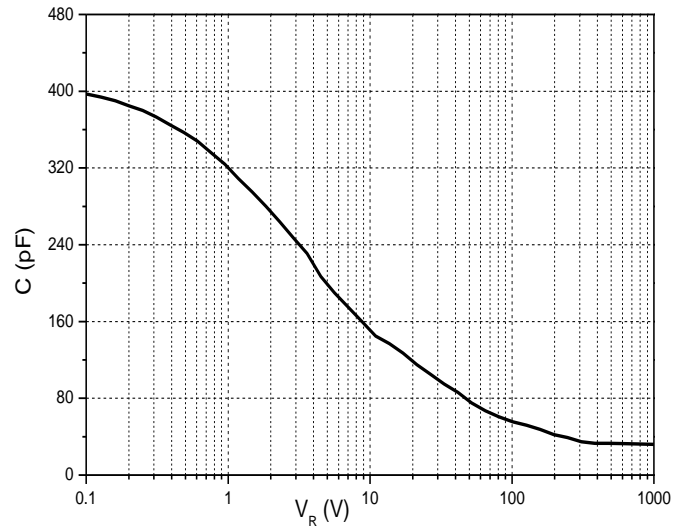
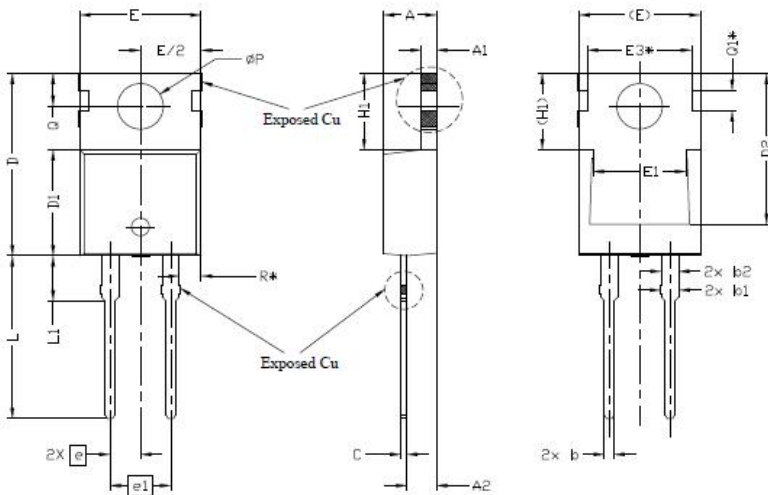


Figure 4. Capacitance vs. Reverse Voltage

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

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