

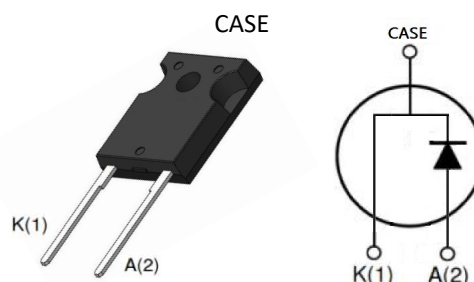
### Features

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

Key Characteristics		
$V_{RRM}$	1200	V
$I_F, T_c \leq 146^\circ\text{C}$	20	A
$Q_c$	51	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
ASD20120C	TO-247-2	ASD20120C

**Maximum Ratings**

Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$		1200	V
Surge Peak Reverse Voltage	$V_{RSM}$		1200	V
DC Blocking Voltage	$V_{DC}$		1200	V
Continuous Forward Current	$I_F$	$T_C=25^{\circ}C$	51	A
		$T_C=135^{\circ}C$	24	
		$T_C=146^{\circ}C$	20	
Repetitive Peak Forward Surge Current	$I_{FRM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave, $D=0.3$	100	A
Non-repetitive Peak Forward Surge Current	$I_{FSM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave	180	A
Power Dissipation	$P_{TOT}$	$T_C=25^{\circ}C$	230	W
		$T_C=110^{\circ}C$	104	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 lbf-in
		6-32 Screw	8.8	

**Thermal Characteristics**

Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{thJC}$		0.65	$^{\circ}C/W$

**Electrical Characteristics**

Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	$V_F$	$I_F=20A, T_j=25^\circ C$	1.55	1.8	V
		$I_F=20A, T_j=175^\circ C$	2.2	2.5	
Reverse Current	$I_R$	$V_R=1200V, T_j=25^\circ C$	5	20	$\mu A$
		$V_R=1200V, T_j=175^\circ C$	30	200	
Total Capacitive Charge	$Q_C$	$V_R=800V, T_j=150^\circ C$ $Q_C = \int_0^{V_R} C(V)dV$	51	-	nC
Total Capacitance	C	$V_R=0V, T_j=25^\circ C, f=1MHZ$	1280	1390	pF
		$V_R=400V, T_j=25^\circ C, f=1MHZ$	95	97	
		$V_R=800V, T_j=25^\circ C, f=1MHZ$	77	79	

**Performance Graphs**

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

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

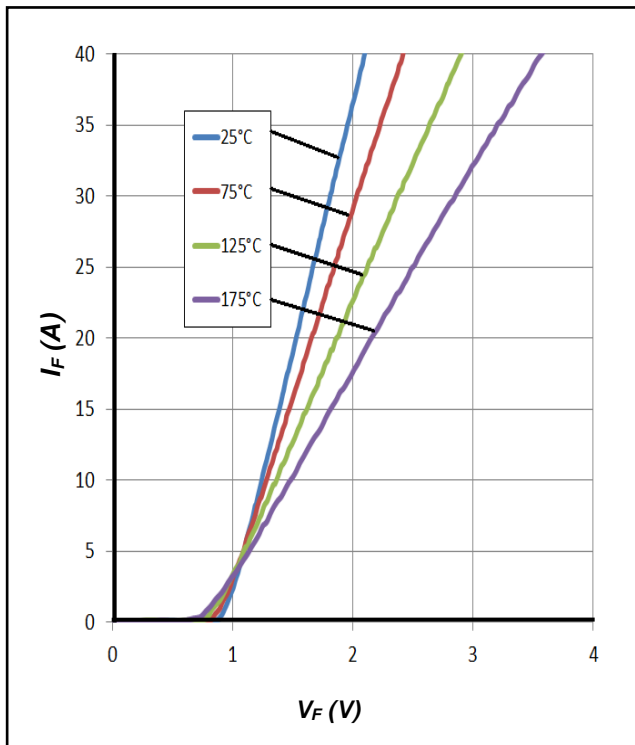


Figure 1. Forward Characteristics

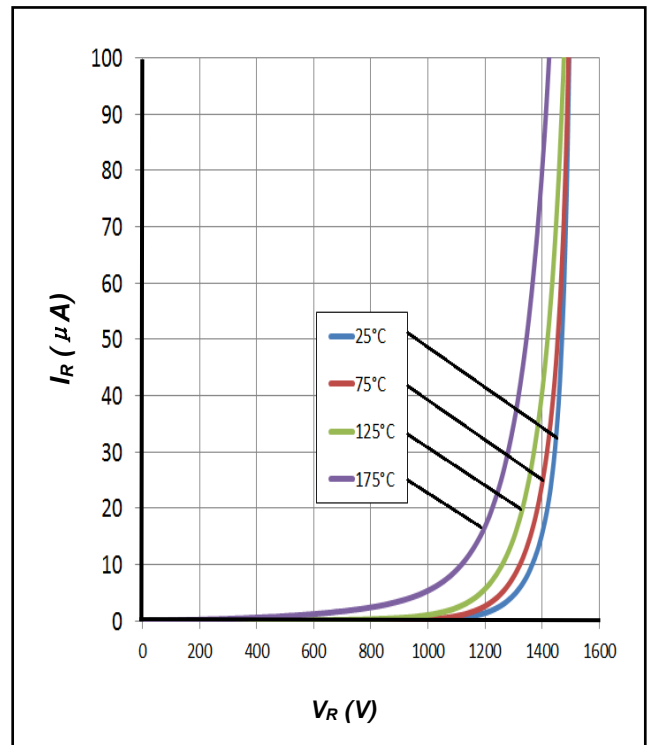


Figure 2. Reverse Characteristics

3) Current Derating

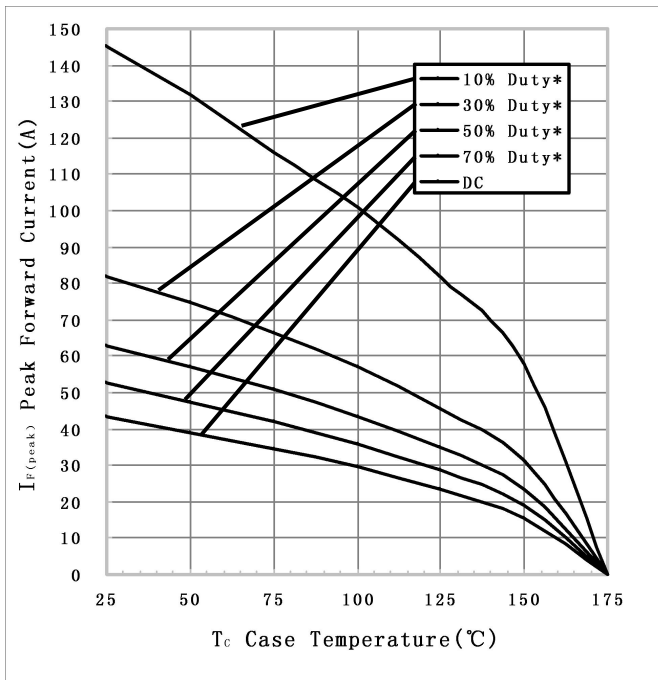


Figure 3. Current Derating

4) Capacitance vs. reverse voltage :

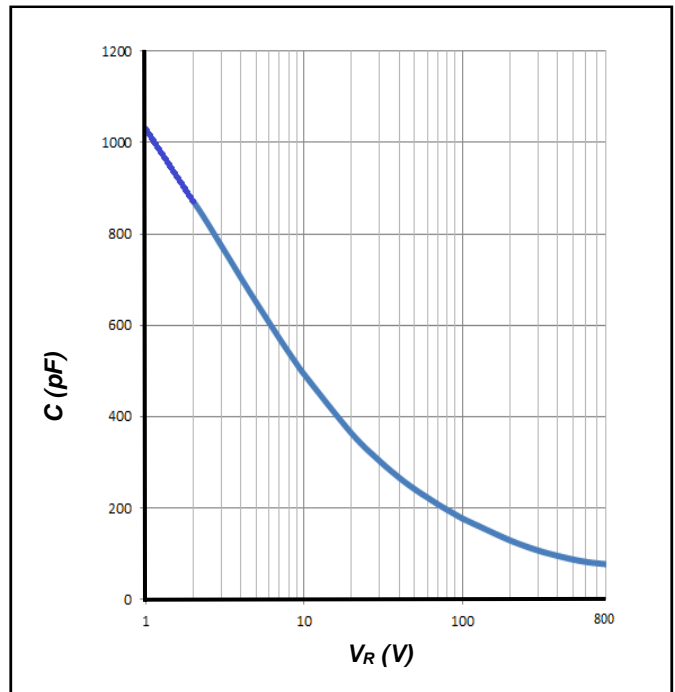
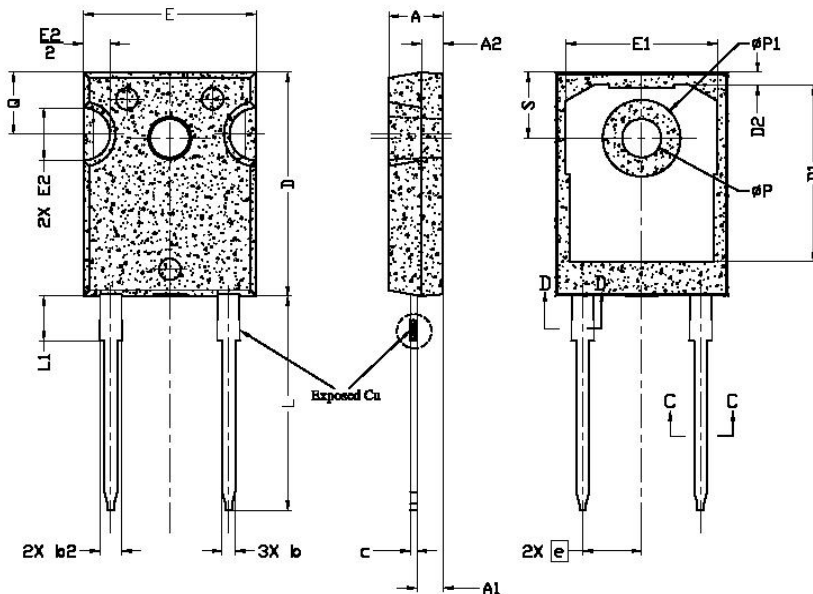


Figure 4. Total Capacitance vs. Reverse Voltage

**Package TO-247-2**



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4,83	5,02	5,21	
A1	2,29	2,41	2,55	
A2	1,50	2,00	2,49	
b	1,12	1,20	1,33	
b1	1,12	1,20	1,28	
b2	1,91	2,00	2,39	6
b3	1,91	2,00	2,34	
c	0,55	0,60	0,69	6
c1	0,55	0,60	0,65	
D	20,80	20,95	21,10	4
D1	16,25	16,55	17,65	5
D2	0,51	1,19	1,35	
E	15,75	15,94	16,13	4
E1	13,46	14,02	14,16	5
E2	4,32	4,91	5,49	3
e	5,44BSC			
L	19,81	20,07	20,32	
L1	4,10	4,19	4,40	6
∅P	3,56	3,61	3,65	7
∅P1	7,19REF.			
Q	5,39	5,79	6,20	
S	6,04	6,17	6,30	

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