

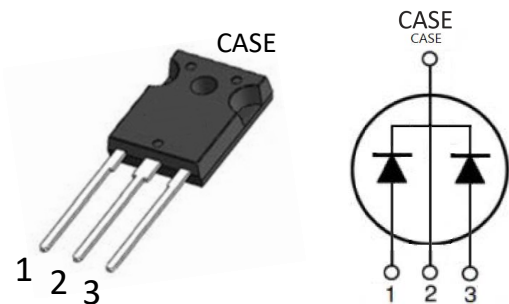
Features

- 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
$I_F, T_c \leq 138^\circ\text{C}$	40**	A
Q_c	200**	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
ASD40120P2	TO-247-3	ASD40120P2

* Per Leg, ** Per Device

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	$T_C=25^{\circ}C$ $T_C=125^{\circ}C$ $T_C=138^{\circ}C$	53*/106** 27*/54** 40*/80**	A
Repetitive Peak Forward Surge Current	I_{FRM}	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave, $D=0.3$	100*/200**	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave	250*/500**	A
Power Dissipation	P_{TOT}	$T_C=25^{\circ}C$	233*	W
		$T_C=110^{\circ}C$	104*	W
Operating Junction	T_j		-55°C to 175°C	°C
Storage Temperature	T_{stg}		-55°C to 175°C	°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}		0.62*/0.31**	°C/W

* Per Leg, ** Per Device

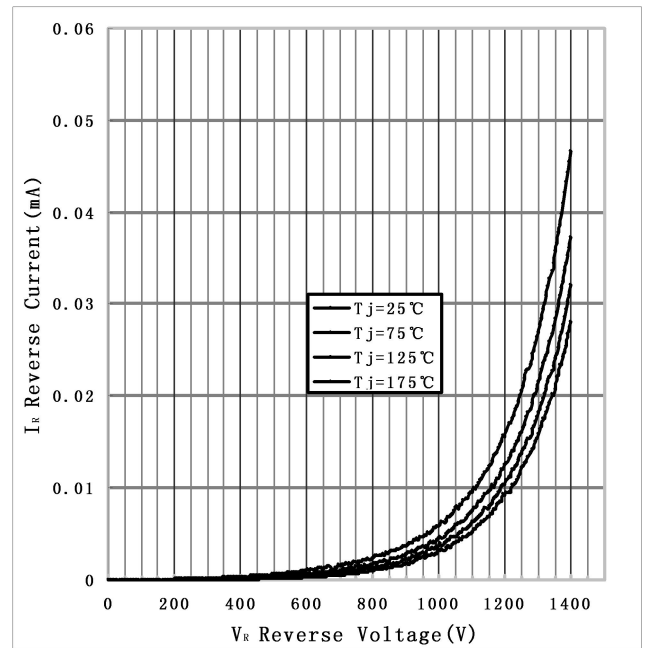
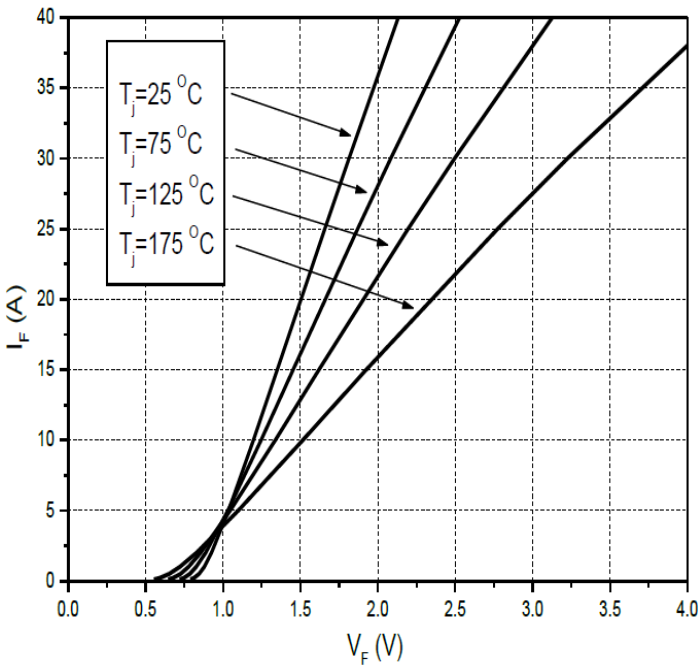
Electrical Characteristics (Per Leg)

Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	$I_F=20A, T_j=25^\circ C$	1.5	1.7	V
		$I_F=20A, T_j=175^\circ C$	2.3	3	
Reverse Current	I_R	$V_R=1200V, T_j=25^\circ C$	10	50	μA
		$V_R=1200V, T_j=175^\circ C$	20	100	
Total Capacitive Charge	Q_C	$V_R=800V, T_j=150^\circ C$ $Q_C = \int_0^{V_R} C(V)dV$	100	-	nC
Total Capacitance	C	$V_R=0V, T_j=25^\circ C, f=1MHZ$	1500	1580	pF
		$V_R=400V, T_j=25^\circ C, f=1MHZ$	98	100	
		$V_R=800V, T_j=25^\circ C, f=1MHZ$	97	99	

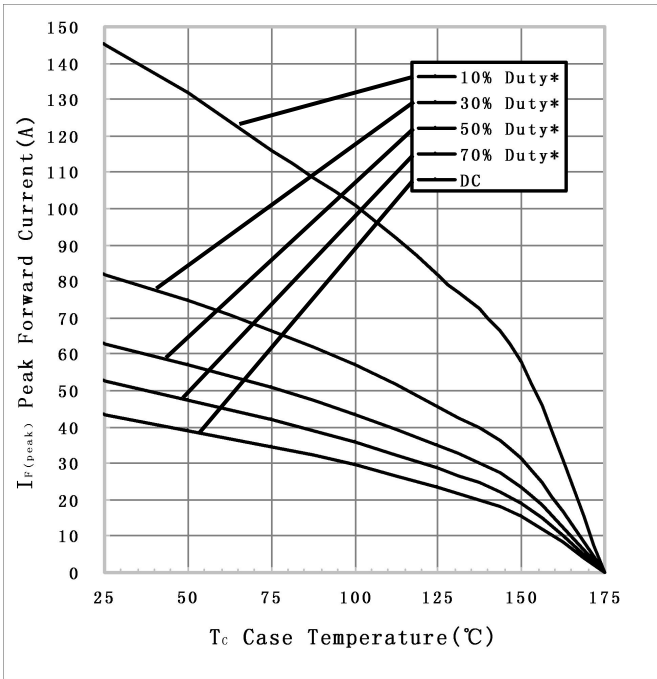
Performance Graphs (Per Leg)

1) Forward IV characteristics as a function of Tj :

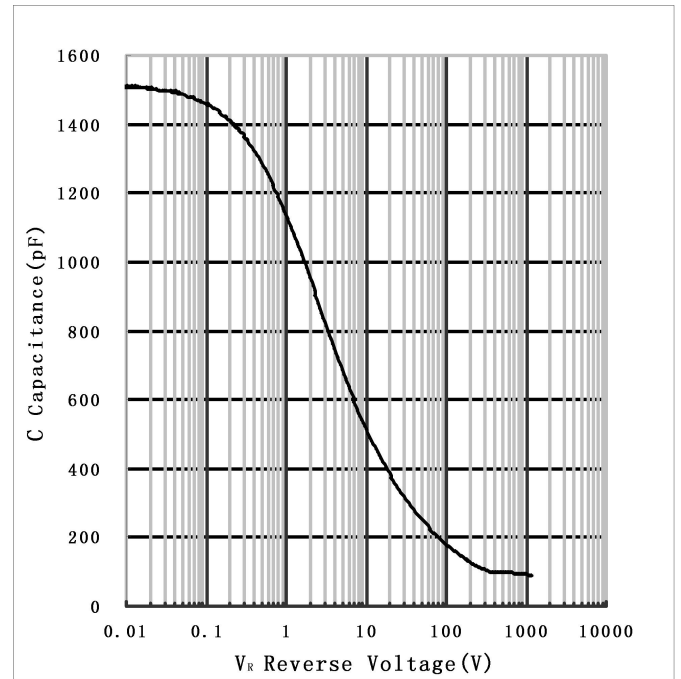
2) Reverse IV characteristics as a function of Tj :



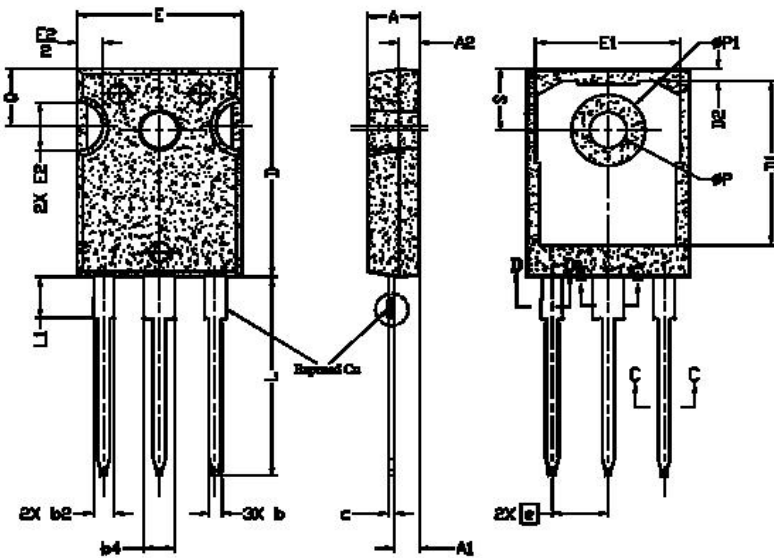
3) Current Derating



4) Capacitance vs. reverse voltage :



Package TO-247-3



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	
b4	2.87	3.00	3.22	6, 8
b5	2.87	3.00	3.18	
c	0.55	0.60	0.69	6
c1	0.55	6.00	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	5.44 BSC			
L	19.81	20.07	20.32	
L1	4.10	4.19	4.40	6
ΦP	3.56	3.61	3.65	7
ΦP1	7.19 REF			
Q	5.39	5.79	6.20	
S	6.04	6.17	6.30	

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