

SMBJ Series



Uni-directional	Bi-directional
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Agency Approvals

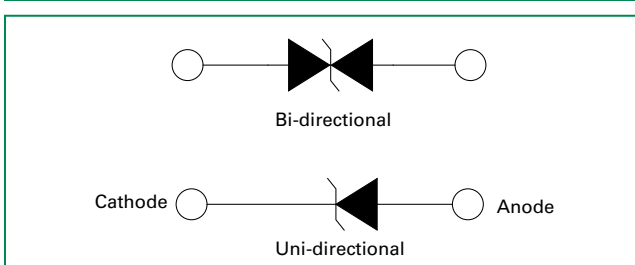
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	E230531	

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Current (I _R) (N ₁ , N ₂ , N ₅)	I _R	600	mA
Peak Reverse Current (I _R) (N ₁ , N ₂ , N ₅)	I _R	5.0	mA
Peak Forward Current (I _F) (N ₃)	I _F	100	mA
Peak Forward Surge Current (I _{FSM}) (N ₄)	I _{FSM}	3.5/5.0	mA
Operating Temperature (T _{OP}) (N ₆)	T _{OP}	-65 to 150	°C
Storage Temperature (T _{STG}) (N ₇)	T _{STG}	-65 to 175	°C
Lead Temperature (T _L) (N ₈)	T _L	20	°C
Lead Temperature (T _L) (N ₉)	T _L	100	°C

- Notes:**
- N₁ - MFR 10/1000 (F₁ .2)(N₁ 1), (N₂ 2), (N₅ 5)
 - MFR 10/1000 (F₁ .2)(N₁ 1), (N₂ 2), (N₅ 5)
 - MFR 10/1000 (F₁ .2)(N₁ 1), (N₂ 2), (N₅ 5)
 - MFR 10/1000 (F₁ .2)(N₁ 1), (N₂ 2), (N₅ 5)
 - MFR 10/1000 (F₁ .2)(N₁ 1), (N₂ 2), (N₅ 5)

Functional Diagram



Description

MBJ series surface mount diodes. Features include high power capability and low forward voltage drop.

Features

- 600 mA peak repetitive reverse current
- 10/1000 (F₁ .2)(N₁ 1), (N₂ 2), (N₅ 5)
- JEDEC D201A
- IEC 61000-4-2 E D 30 (A₁), 30 (C₁)
- IEC 61000-4-4
- High power capability
- Low forward voltage drop
- RoHS compliant
- UL recognized

Applications

Power diodes for power supplies, motor drives, and other high power applications.

Additional Information

Datasheet

Resources

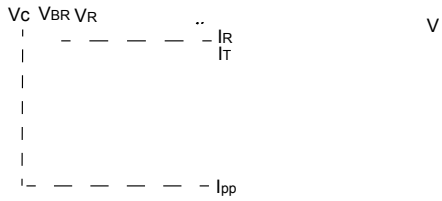
Samples

Electrical Characteristics (T_A=25°C unless otherwise noted)

N q ($\overline{\text{P}}^{\text{r}}$)	N q ($\overline{\text{P}}^{\text{r}}$)	M s			B 		C I (A)	M [†] 	M [†] 	M [†] 	M [†] 	A
		NI	BI		(A)	(A)		(A)	(%/C)			
				MIN	MA		(A)	(A)	(A)	(A)	(%/C)	
MBJ5.0A	MBJ5.0CA	KE	AE	5.0	6.40	7.00	10	9.2	65.3	800	0.041	
MBJ6.0A	MBJ6.0CA	KG	AG	6.0	6.67	7.37	10	10.3	58.3	800	0.046	
MBJ6.5A	MBJ6.5CA	KK	AK	6.5	7.22	7.98	10	11.2	53.6	500	0.052	
MBJ7.0A	MBJ7.0CA	KM	AM	7.0	7.78	8.60	10	12.0	50.0	200	0.058	
MBJ7.5A	MBJ7.5CA	K	A	7.5	8.33	9.21	1	12.9	46.6	100	0.061	
MBJ8.0A	MBJ8.0CA	K	A	8.0	8.89	9.83	1	13.6	44.2	50	0.064	
MBJ8.5A	MBJ8.5CA	K	A	8.5	9.44	10.40	1	14.4	41.7	20	0.066	
MBJ9.0A	MBJ9.0CA	K	A	9.0	10.00	11.10	1	15.4	39.0	10	0.069	
MBJ10A	MBJ10CA	K	A	10.0	11.10	12.30	1	17.0	35.3	5	0.071	
MBJ11A	MBJ11CA	K	A	11.0	12.20	13.50	1	18.2	33.0	1	0.074	
MBJ12A	MBJ12CA	LE	BE	12.0	13.30	14.70	1	19.9	30.2	1	0.075	
MBJ13A	MBJ13CA	LG	BG	13.0	14.40	15.90	1	21.5	28.0	1	0.076	
MBJ14A	MBJ14CA	LK	BK	14.0	15.60	17.20	1	23.2	25.9	1	0.08	
MBJ15A	MBJ15CA	LM	BM	15.0	16.70	18.50	1	24.4	24.6	1	0.083	
MBJ16A	MBJ16CA	L	B	16.0	17.80	19.70	1	26.0	23.1	1	0.084	
MBJ17A	MBJ17CA	L	B	17.0	18.90	20.90	1	27.6	21.8	1	0.085	
MBJ18A	MBJ18CA	L	B	18.0	20.00	22.10	1	29.2	20.6	1	0.088	
MBJ20A	MBJ20CA	L	B	20.0	22.20	24.50	1	32.4	18.6	1	0.091	
MBJ22A	MBJ22CA	L	B	22.0	24.40	26.90	1	35.5	16.9	1	0.092	
MBJ24A	MBJ24CA	L	B	24.0	26.70	29.50	1	38.9	15.5	1	0.092	
MBJ26A	MBJ26CA	ME	CE	26.0	28.90	31.90	1	42.1	14.3	1	0.093	
MBJ28A	MBJ28CA	MG	CG	28.0	31.10	34.40	1	45.4	13.3	1	0.094	
MBJ30A	MBJ30CA	MK	CK	30.0	33.30	36.80	1	48.4	12.4	1	0.096	
MBJ33A	MBJ33CA	MM	CM	33.0	36.70	40.60	1	53.3	11.3	1	0.097	
MBJ36A	MBJ36CA	M	C	36.0	40.00	44.20	1	58.1	10.4	1	0.098	
MBJ40A	MBJ40CA	M	C	40.0	44.40	49.10	1	64.5	9.3	1	0.099	
MBJ43A	MBJ43CA	M	C	43.0	47.80	52.80	1	69.4	8.7	1	0.1	
MBJ45A	MBJ45CA	M	C	45.0	50.00	55.30	1	72.7	8.3	1	0.101	
MBJ48A	MBJ48CA	M	C	48.0	53.30	58.90	1	77.4	7.8	1	0.101	
MBJ51A	MBJ51CA	M	C	51.0	56.70	62.70	1	82.4	7.3	1	0.101	
MBJ54A	MBJ54CA	NE	DE	54.0	60.00	66.30	1	87.1	6.9	1	0.102	
MBJ58A	MBJ58CA	NG	DG	58.0	64.40	71.20	1	93.6	6.5	1	0.103	
MBJ60A	MBJ60CA	NK	DK	60.0	66.70	73.70	1	96.8	6.2	1	0.103	
MBJ64A	MBJ64CA	NM	DM	64.0	71.10	78.60	1	103.0	5.9	1	0.104	
MBJ70A	MBJ70CA	N	D	70.0	77.80	86.00	1	113.0	5.3	1	0.105	
MBJ75A	MBJ75CA	N	D	75.0	83.30	92.10	1	121.0	5.0	1	0.106	
MBJ78A	MBJ78CA	N	D	78.0	86.70	95.80	1	126.0	4.8	1	0.106	
MBJ85A	MBJ85CA	N	D	85.0	94.40	104.00	1	137.0	4.4	1	0.106	
MBJ90A	MBJ90CA	N	D	90.0	100.00	111.00	1	146.0	4.1	1	0.107	
MBJ100A	MBJ100CA	N	D	100.0	111.00	123.00	1	162.0	3.7	1	0.107	
MBJ110A	MBJ110CA	E	EE	110.0	122.00	135.00	1	177.0	3.4	1	0.107	
MBJ120A	MBJ120CA	G	EG	120.0	133.00	147.00	1	193.0	3.1	1	0.108	
MBJ130A	MBJ130CA	K	EK	130.0	144.00	159.00	1	209.0	2.9	1	0.108	
MBJ150A	MBJ150CA	M	EM	150.0	167.00	185.00	1	243.0	2.5	1	0.108	
MBJ160A	MBJ160CA		E	160.0	178.00	197.00	1	259.0	2.3	1	0.108	
MBJ170A	MBJ170CA		E	170.0	189.00	209.00	1	275.0	2.2	1	0.108	
MBJ180A	MBJ180CA		E	180.0	201.00	222.00	1	292.0	2.1	1	0.108	
MBJ188A	MBJ188CA	B	EB	188.0	209.00	231.00	1	304.0	2.0	1	0.11	
MBJ200A	MBJ200CA		E	200.0	224.00	247.00	1	324.0	1.9	1	0.11	
MBJ220A	MBJ220CA		E	220.0	246.00	272.00	1	356.0	1.7	1	0.11	
MBJ250A	MBJ250CA		E	250.0	279.00	309.00	1	405.0	1.5	1	0.11	
MBJ300A*	MBJ300CA*	E	FE	300.0	335.00	371.00	1	486.0	1.3	1	0.112	
MBJ350A*	MBJ350CA*	G	FG	350.0	391.00	432.00	1	567.0	1.1	1	0.112	
MBJ400A*	MBJ400CA*	K	FK	400.0	447.00	494.00	1	648.0	0.9	1	0.112	
MBJ440A*	MBJ440CA*	M	FM	440.0	492.00	543.00	1	713.0	0.9	1	0.112	

F_T = 100 MHz, C_T = 100 pF, I_{AV} = 10 mA, R_{θJA} = 1.8°C/W.

I-V Curve Characteristics



Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - TVS Transients Clamping Waveform

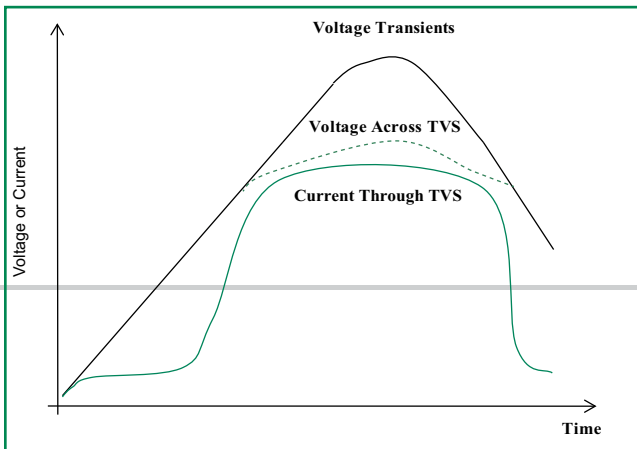
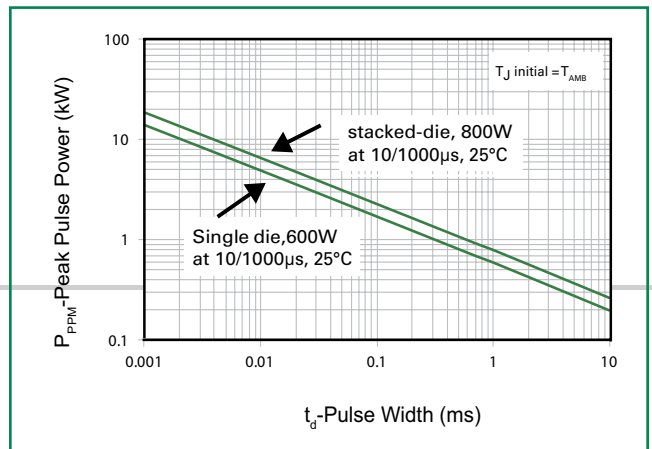
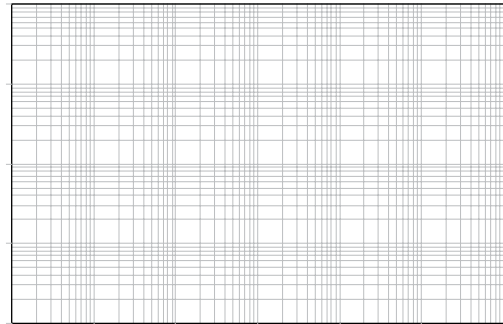
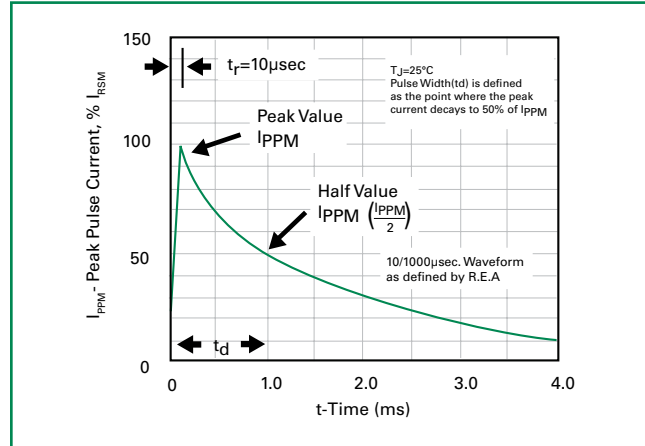


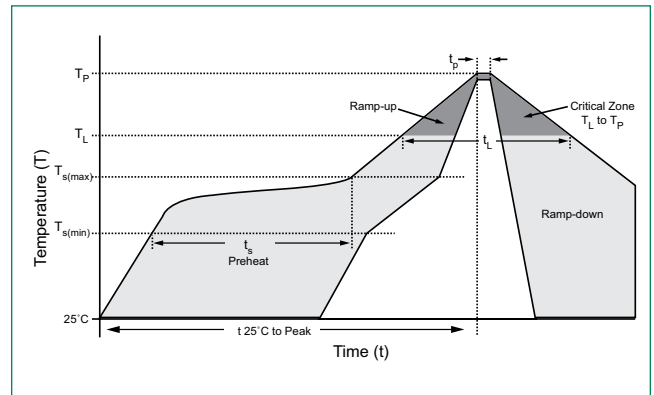
Figure 2 - Peak Pulse Power Rating





Soldering Parameters

	L	
H	M^t ()	150 C
	M^t ()	200 C
	()	60 180
A	(L^t) ()	3 C/
	(A) ()	3 C/
	(A) ()	217 C
	()	60 150
	()	260 ^{+0/-5} C
	5 C	20 40
	25 C	6 C/
D	()	8 C/
	()	260 C



Physical Specifications

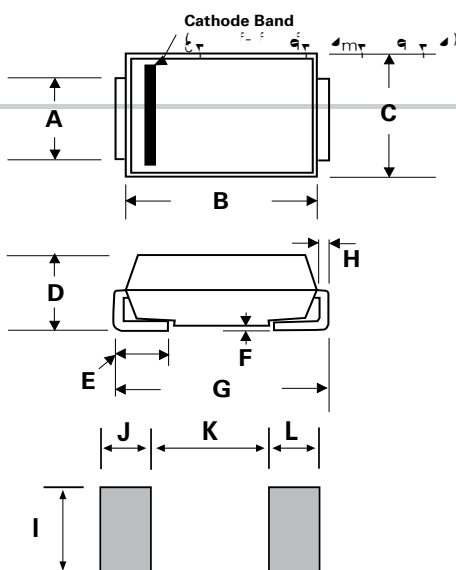
Weight	0.003 , 0.093
Case	JEDEC DO214AA. M
Polarity	C B
Terminal	M JE D22-B102

Environmental Specifications

High Temp. Storage	JE D22-A103
HTRB	JE D22-A108
Temperature Cycling	JE D22-A104
MSL	JEDEC-J- D-020, L 1
H3TRB	JE D22-A101
RSH	JE D22-A111

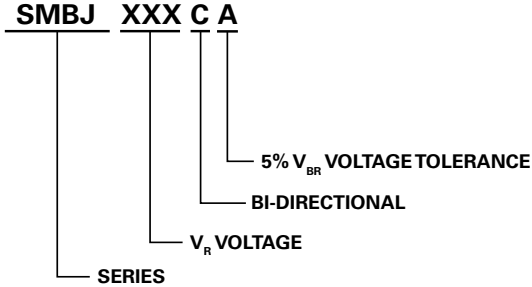
Dimensions

DO-214AA (SMB J-Bend)

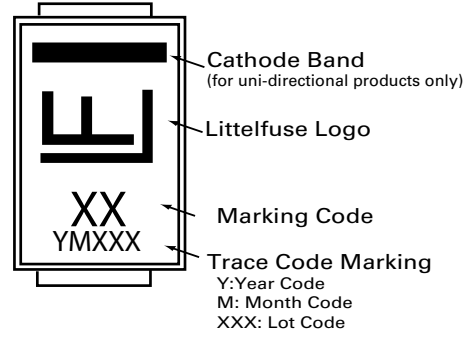


D	I		M	
	M	M	M	M
A	0.076	0.086	1.930	2.200
B	0.160	0.187	4.060	4.750
C	0.130	0.155	3.300	3.940
D	0.078	0.103	1.990	2.610
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.205	0.220	5.210	5.590
H	0.006	0.012	0.152	0.305
I	0.089	-	2.260	-
J	0.085	-	2.160	-
K	-	0.107	-	2.740
L	0.085	-	2.160	-

Part Numbering System



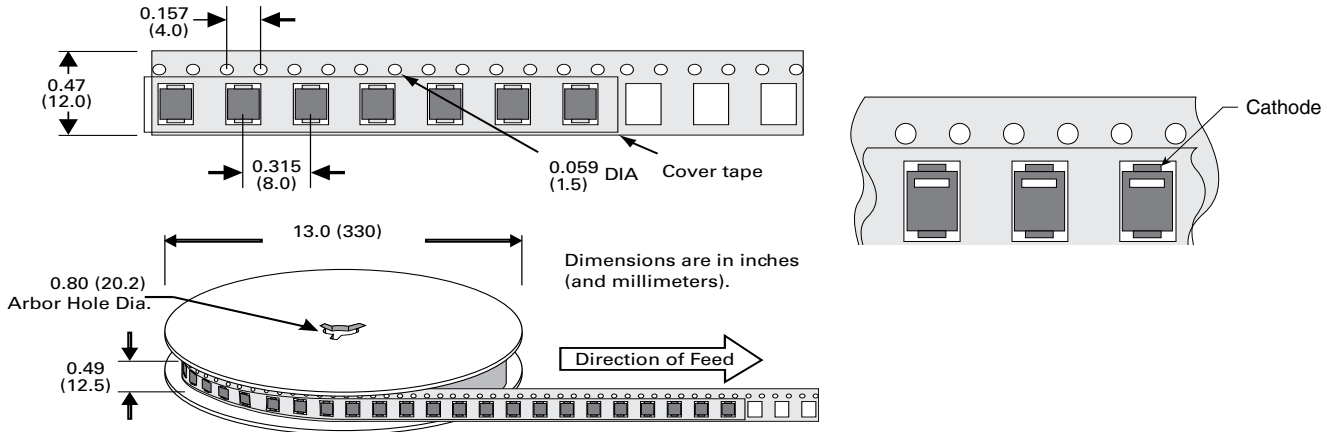
Part Marking System



Packaging

MBJtt	DO-214AA	3000	m & 12 m/13	EIA D -481

Tape and Reel Specification



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