

Features

EC76SMBJ5.0 thru 440

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated junction
- Low incremental surge resistance, excellent clamping capability
- 600W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%
- High temperature soldering guaranteed:
- 250°C /10 seconds at terminals



DO-214AA(SMB)

Mechanical Data

- Case: JEDEC DO-214AA(SMB J-Bend) molded plastic over passivated junction
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: For unidirectional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation
- Weight: 0.003oz., 0.093g

Absolute Maximum Ratings

(Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000 us waveform ^(1,2) (see Fig. 1)	PPPM	Minimum 600	W
Peak pulse current with a 10/1000 us waveform ⁽¹⁾	IPPM	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave uni-directional only ⁽²⁾	IFSM	100	A
Typical thermal resistance, junction to ambient ⁽⁴⁾	RθJA	100	°C/W
Typical thermal resistance, junction to lead	RθJL	20	°C/W
Operating junction and storage temperature range	TJ,TSTG	-55 to +150	°C

- Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above TA=25 per Fig. 2.
 2. Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal
 3. Mounted on minimum recommended pad layout



Surface Mount Transient Voltage Suppressors

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Stand-off Voltage 5.0 to 440V

Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified. VF=3.5V at IF=100A (uni-directional only)

Device type	Device marking code		Breakdown voltage V _(BR) (Volts) ⁽¹⁾		Test current at I _T (mA)	Stand-off voltage V _{WM} (Volts)	Maximum reverse leakage at V _{WM} I _D (uA) ⁽³⁾	Maximum peak pulse surge current I _{PPM} (A) ⁽²⁾	Maximum clamping voltage at I _{PPM} V _C (Volts)
	UNI	BI	Min.	Max.					
EC76SMBJ5.0	KD	AD	6.40	7.82	10	5.0	800	62.5	9.6
EC76SMBJ5.0A ⁽⁵⁾	KE	AE	6.40	7.07	10	5.0	800	65.2	9.2
EC76SMBJ6.0	KF	AF	6.67	8.15	10	6.0	800	52.6	11.4
EC76SMBJ6.0A	KG	AG	6.67	7.37	10	6.0	800	58.3	10.3
EC76SMBJ6.5	KH	AH	7.22	8.82	10	6.5	500	48.8	12.3
EC76SMBJ6.5A	KK	AK	7.22	7.98	10	6.5	500	53.6	11.2
EC76SMBJ7.0	KL	AL	7.78	9.51	10	7.0	200	45.1	13.3
EC76SMBJ7.0A	KM	AM	7.78	8.60	10	7.0	200	50.0	12.0
EC76SMBJ7.5	KN	AN	8.33	10.2	1.0	7.5	100	42.0	14.3
EC76SMBJ7.5A	KP	AP	8.33	9.21	1.0	7.5	100	46.5	12.9
EC76SMBJ8.0	KQ	AQ	8.89	10.9	1.0	8.0	50	40.0	15.0
EC76SMBJ8.0A	KR	AR	8.89	9.83	1.0	8.0	50	44.1	13.6
EC76SMBJ8.5	KS	AS	9.44	11.5	1.0	8.5	20	37.7	15.9
EC76SMBJ8.5A	KT	AT	9.44	10.4	1.0	8.5	20	41.7	14.4
EC76SMBJ9.0	KU	AU	10.0	12.2	1.0	9.0	10	35.5	16.9
EC76SMBJ9.0A	KV	AV	10.0	11.1	1.0	9.0	10	39.0	15.4
EC76SMBJ10	KW	AW	11.1	13.6	1.0	10	5.0	31.9	18.8
EC76SMBJ10A	KX	AX	11.1	12.3	1.0	10	5.0	35.3	17.0
EC76SMBJ11	KY	AY	12.2	14.9	1.0	11	5.0	29.9	20.1
EC76SMBJ11A	KZ	AZ	12.2	13.5	1.0	11	5.0	33.0	18.2
EC76SMBJ12	LD	BD	13.3	16.3	1.0	12	5.0	27.3	22.0
EC76SMBJ12A	LE	BE	13.3	14.7	1.0	12	5.0	30.2	19.9
EC76SMBJ13	LF	BF	14.4	17.6	1.0	13	1.0	25.2	23.8
EC76SMBJ13A	LG	BG	14.4	15.9	1.0	13	1.0	27.9	21.5
EC76SMBJ14	LH	BH	15.6	19.1	1.0	14	1.0	23.3	25.8
EC76SMBJ14A	LK	BK	15.6	17.2	1.0	14	1.0	25.9	23.2
EC76SMBJ15	LL	BL	16.7	20.4	1.0	15	1.0	22.3	26.9
EC76SMBJ15A	LM	BM	16.7	18.5	1.0	15	1.0	24.6	24.4
EC76SMBJ16	LN	BN	17.8	21.8	1.0	16	1.0	20.8	28.8
EC76SMBJ16A	LP	BP	17.8	19.7	1.0	16	1.0	23.1	26.0
EC76SMBJ17	LQ	BQ	18.9	23.1	1.0	17	1.0	19.7	30.5
EC76SMBJ17A	LR	BR	18.9	20.9	1.0	17	1.0	21.7	27.6
EC76SMBJ18	LS	BS	20.0	24.4	1.0	18	1.0	18.6	32.2
EC76SMBJ18A	LT	BT	20.0	22.1	1.0	18	1.0	20.5	29.2
EC76SMBJ20	LU	BU	22.2	27.1	1.0	20	1.0	16.8	35.8
EC76SMBJ20A	LV	BV	22.2	24.5	1.0	20	1.0	18.5	32.4
EC76SMBJ22	LW	BW	24.4	29.8	1.0	22	1.0	15.2	39.4
EC76SMBJ22A	LX	BX	24.4	26.9	1.0	22	1.0	16.9	35.5
EC76SMBJ24	LY	BY	26.7	32.6	1.0	24	1.0	14.0	43.0
EC76SMBJ24A	LZ	BZ	26.7	29.5	1.0	24	1.0	15.4	38.9
EC76SMBJ26	MD	CD	28.9	35.3	1.0	26	1.0	12.9	46.6
EC76SMBJ26A	ME	CE	28.9	31.9	1.0	26	1.0	14.3	42.1



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Device type	Device marking code		Breakdown voltage $V_{(BR)}$ (Volts) ⁽¹⁾		Test current at I_T (mA)	Stand-off voltage V_{WM} (Volts)	Maximum reverse leakage at V_{WM} I_D (uA) ⁽³⁾	Maximum peak pulse surge current I_{PPM} (A) ⁽²⁾	Maximum clamping voltage at I_{PPM} V_C (Volts)
	UNI	BI	Min.	Max.					
EC76SMBJ28	MF	CF	31.1	38.0	1.0	28	1.0	12.0	50.0
EC76SMBJ28A	MG	CG	31.1	34.4	1.0	28	1.0	13.2	45.4
EC76SMBJ30	MH	CH	33.3	40.7	1.0	30	1.0	11.2	53.5
EC76SMBJ30A	MK	CK	33.3	36.8	1.0	30	1.0	12.4	48.4
EC76SMBJ33	ML	CL	36.7	44.9	1.0	33	1.0	10.2	59.0
EC76SMBJ33A	MM	CM	36.7	40.6	1.0	33	1.0	11.3	53.3
EC76SMBJ36	MN	CN	40.0	48.9	1.0	36	1.0	9.3	64.3
EC76SMBJ36A	MP	CP	40.0	44.2	1.0	36	1.0	10.3	58.1
EC76SMBJ40	MQ	CQ	44.4	54.3	1.0	40	1.0	8.4	71.4
EC76SMBJ40A	MR	CR	44.4	49.1	1.0	40	1.0	9.3	64.5
EC76SMBJ43	MS	CS	47.8	58.4	1.0	43	1.0	7.8	76.7
EC76SMBJ43A	MT	CT	47.8	52.8	1.0	43	1.0	8.6	69.4
EC76SMBJ45	MU	CU	50.0	61.1	1.0	45	1.0	7.5	80.3
EC76SMBJ45A	MV	CV	50.0	55.3	1.0	45	1.0	8.3	72.7
EC76SMBJ48	MW	CW	53.3	65.1	1.0	48	1.0	7.0	85.5
EC76SMBJ48A	MX	CX	53.3	58.9	1.0	48	1.0	7.8	77.4
EC76SMBJ51	MY	CY	56.7	69.3	1.0	51	1.0	6.6	91.1
EC76SMBJ51A	MZ	CZ	56.7	62.7	1.0	51	1.0	7.3	82.4
EC76SMBJ54	ND	DD	60.0	73.3	1.0	54	1.0	6.2	96.3
EC76SMBJ54A	NE	DE	60.0	66.3	1.0	54	1.0	6.9	87.1
EC76SMBJ58	NF	DF	64.4	78.7	1.0	58	1.0	5.8	103
EC76SMBJ58A	NG	DG	64.4	71.2	1.0	58	1.0	6.4	93.6
EC76SMBJ60	NH	DH	68.7	81.5	1.0	60	1.0	5.6	107
EC76SMBJ60A	NK	DK	68.7	73.7	1.0	60	1.0	6.2	96.8
EC76SMBJ64	NL	DL	71.1	86.9	1.0	64	1.0	5.3	114
EC76SMBJ64A	NM	DM	71.1	78.6	1.0	64	1.0	5.8	103
EC76SMBJ70	NN	DN	77.8	95.1	1.0	70	1.0	4.8	125
EC76SMBJ70A	NP	DP	77.8	86.0	1.0	70	1.0	5.3	113
EC76SMBJ75	NQ	DQ	83.3	102	1.0	75	1.0	4.5	134
EC76SMBJ75A	NR	DR	83.3	92.1	1.0	75	1.0	5.0	121
EC76SMBJ78	NS	DS	86.7	106	1.0	78	1.0	4.3	139
EC76SMBJ78A	NT	DT	86.7	95.8	1.0	78	1.0	4.8	126
EC76SMBJ85	NU	DU	94.4	115	1.0	85	1.0	4.0	151
EC76SMBJ85A	NV	DV	94.4	104	1.0	85	1.0	4.4	137
EC76SMBJ90	NW	DW	100	122	1.0	90	1.0	3.8	160
EC76SMBJ90A	NX	DX	100	111	1.0	90	1.0	4.1	146
EC76SMBJ100	NY	DY	111	136	1.0	100	1.0	3.4	179
EC76SMBJ100A	NZ	DZ1		123	1.0	100	1.0	3.7	162
EC76SMBJ110	PD	FD	122	149	1.0	110	1.0	3.1	196
EC76SMBJ110A	PE	FE	122	135	1.0	110	1.0	3.4	177
EC76SMBJ120	PF	FF	133	163	1.0	120	1.0	2.8	214
EC76SMBJ120A	PG	FG	133	147	1.0	120	1.0	3.1	193
EC76SMBJ130	PH	FH	144	176	1.0	130	1.0	2.6	231
EC76SMBJ130A	PK	FK	144	159	1.0	130	1.0	2.9	209
EC76SMBJ150	PL	FL	167	204	1.0	150	1.0	2.2	268
EC76SMBJ150A	PM	FM	167	185	1.0	150	1.0	2.5	243
EC76SMBJ160	PN	FN	178	218	1.0	160	1.0	2.1	287
EC76SMBJ160A	PP	FP	178	197	1.0	160	1.0	2.3	259



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	UNI	BI	Min.	Max.					
EC76SMBJ170	PQ	FQ	189	231	1.0	170	1.0	2.0	304
EC76SMBJ170A	PR	FR	189	209	1.0	170	1.0	2.2	275
EC76SMBJ180A	PT	FT	201	222	1.0	180	1.0	2.1	292
EC76SMBJ200A	PV	FV	224	247	1.0	200	1.0	1.9	324
EC76SMBJ220A	PX	FX	246	272	1.0	220	1.0	1.7	356
EC76SMBJ250A	PZ	FZ	279	309	1.0	250	1.0	1.5	405
EC76SMBJ300A	QE	GE	335	371	1.0	300	1.0	1.3	486
EC76SMBJ350A	QG	GG	391	432	1.0	350	1.0	1.1	567
EC76SMBJ400A	QK	GK	447	494	1.0	400	1.0	0.9	648
EC76SMBJ440A	QM	GM	492	543	1.0	440	1.0	0.9	713

- Notes:
1. $V_{(BR)}$ measured after I_T applied for 300us square wave pulse or equivalent
 2. Surge current waveform per Fig. 3 and derate per Fig. 2
 3. For bi-directional types having V_{WM} of 10 Volts and less, the I_D limit is doubled
 4. All terms and symbols are consistent with ANSI/IEEE C62.35
 5. For parts without A, the V_{BR} is +10%

Typical Performance Curves

Fig.1 Peak Pulse Power Rating Curve

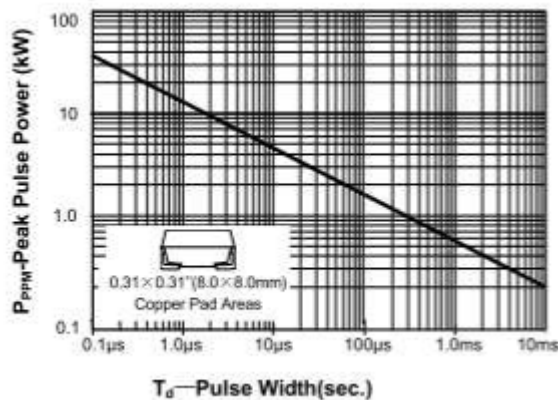


Fig.2 Pulse Derating Curve

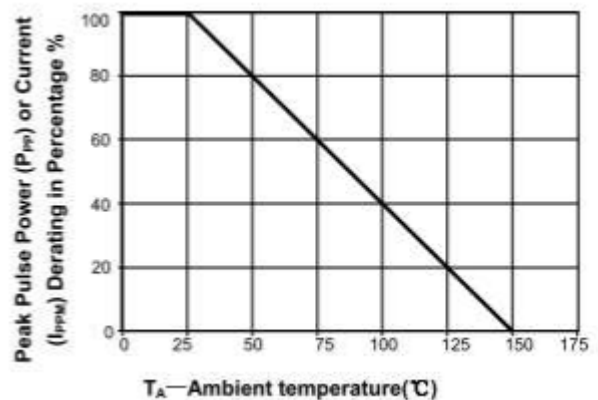


Fig.3 Pulse Waveform

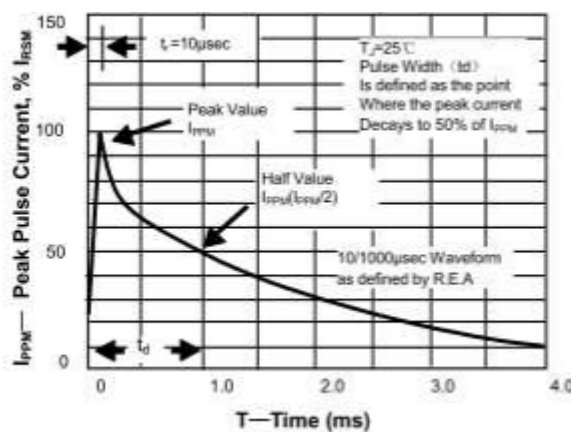


Fig.4 Typical Junction Capacitance Uni-Directional

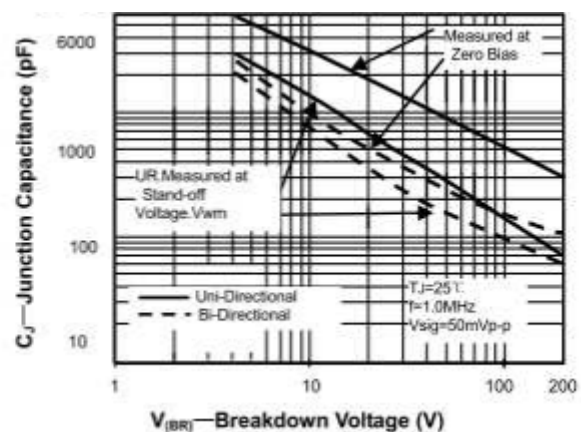


Fig.5 Typical Transient Thermal Impedance

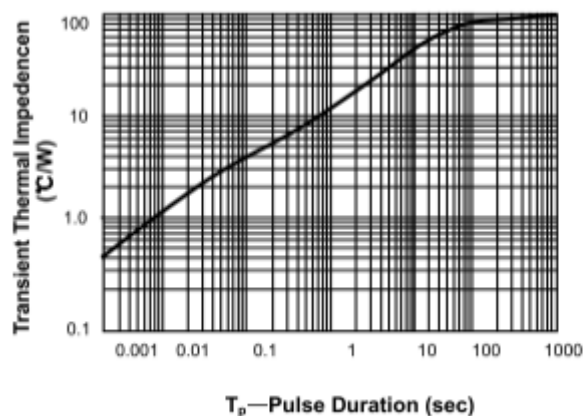
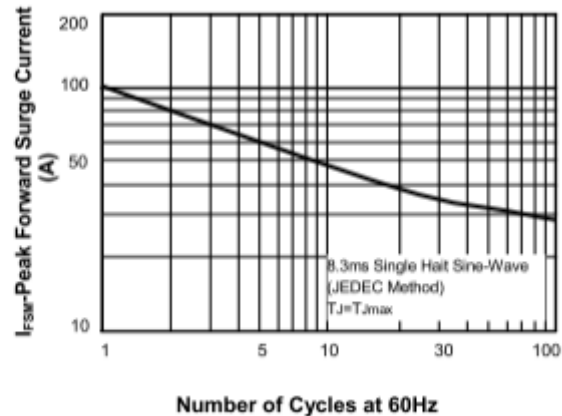


Fig.6 Maximm Non-Repetitive Forward Surge



Order Information

EC76SMBJ xx C A

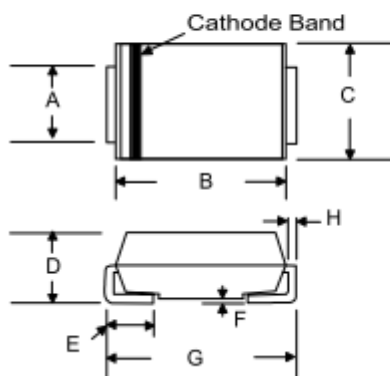
Stand off Voltage

5% Voltage Tolerance

Bi-directional

Product Dimension

DO-214AA (SMB)



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.078	0.082	1.93	2.08
B	0.167	0.187	4.25	4.75
C	0.137	0.147	3.48	3.73
D	0.078	0.103	1.99	2.61
E	0.035	0.056	0.90	1.41
F	0.004	0.008	0.10	0.20
G	0.207	0.215	5.26	5.46
H	0.006	0.012	0.15	0.31