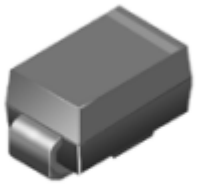
Features

EC76SMAJ5.0 thru 440

- Plastic package has Underwriters Laboratory Flammability
- Classification 94V-0
- Optimized for LAN protection applications
- Ideal for ESD protection of date lines in accordance with IEC 1000-4-2 (IEC801-2)
- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated junction
- Low incremental surge resistance, excellent clamping capability
- 400W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%(300W about 78V)
- Very fast response time
- High temperature soldering guaranteed: 250℃/10 seconds at terminals



DO-214AC(SMA)

Mechanical Date

- 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: 0.002oz., 0.064g
- Mounting Position: Any

Absolute Maximum Ratings

(Ratings at 25℃ ambient temperature unless otherwise specified.)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000 us waveform(1,2) (see Fig. 1)	P_{PPM}	400	W
Peak pulse current with a 10/1000 us waveform(1)	I_{PPM}	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave uni-directional only(2)	I_{FSM}	40	A
Typical thermal resistance, junction to ambient(4)	$R_{\theta JA}$	120	℃/W
Typical thermal resistance, junction to lead	$R_{\theta JL}$	30	℃/W
Operating junction and storage temperature range	T_J,T_{STG}	-55 to +150	℃

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25 per Fig. 2. Rating is 300W above 78V.
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

Electrical Characteristics

Ratings at 25℃ ambient temperature unless otherwise specified. V_F=3.5V at I_F=25A (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.					
EC76SMAJ5.0	AD	WD	6.40	7.82	10	5.0	800	41.7	9.6
EC76SMAJ5.0A(5)	AE	WE	6.40	7.07	10	5.0	800	43.5	9.2
EC76SMAJ6.0	AF	WF	6.67	8.15	10	6.0	800	35.1	11.4
EC76SMAJ6.0A	AG	WG	6.67	7.37	10	6.0	800	38.8	10.3
EC76SMAJ6.5	AH	WH	7.22	8.82	10	6.5	500	32.5	12.3
EC76SMAJ6.5A	AK	WK	7.22	7.98	10	6.5	500	35.7	11.2
EC76SMAJ7.0	AL	WL	7.78	9.51	10	7.0	200	30.1	13.3
EC76SMAJ7.0A	AM	WM	7.78	8.60	10	7.0	200	33.3	12.0
EC76SMAJ7.5	AN	WN	8.33	10.2	1.0	7.5	100	28.0	14.3
EC76SMAJ7.5A	AP	WP	8.33	9.21	1.0	7.5	100	31.0	12.9
EC76SMAJ8.0	AQ	WQ	8.89	10.9	1.0	8.0	50	26.7	15.0
EC76SMAJ8.0A	AR	WR	8.89	9.83	1.0	8.0	50	29.4	13.6
EC76SMAJ8.5	AS	WS	9.44	11.5	1.0	8.5	10	25.2	15.9
EC76SMAJ8.5A	AT	WT	9.44	10.4	1.0	8.5	10	27.8	14.4
EC76SMAJ9.0	AU	WU	10.0	12.2	1.0	9.0	5.0	23.7	16.9
EC76SMAJ9.0A	AV	WV	10.0	11.1	1.0	9.0	5.0	26.0	15.4
EC76SMAJ10	AW	WW	11.1	13.6	1.0	10	1.0	21.3	18.8
EC76SMAJ10A	AX	WX	11.1	12.3	1.0	10	1.0	23.5	17.0
EC76SMAJ11	AY	WY	12.2	14.9	1.0	11	1.0	19.9	20.1
EC76SMAJ11A	AZ	WZ	12.2	13.5	1.0	11	1.0	22.0	18.2
EC76SMAJ12	BD	XD	13.3	16.3	1.0	12	1.0	18.2	22.0
EC76SMAJ12A	BE	XE	13.3	14.7	1.0	12	1.0	20.1	19.9
EC76SMAJ13	BF	XF	14.4	17.6	1.0	13	1.0	16.8	23.8
EC76SMAJ13A	BG	XG	14.4	15.9	1.0	13	1.0	18.6	21.5
EC76SMAJ14	BH	XH	15.6	19.1	1.0	14	1.0	15.5	25.8
EC76SMAJ14A	BK	XK	15.6	17.2	1.0	14	1.0	17.2	23.2
EC76SMAJ15	BL	XL	16.7	20.4	1.0	15	1.0	14.9	26.9
EC76SMAJ15A	BM	XM	16.7	18.5	1.0	15	1.0	16.4	24.4
EC76SMAJ16	BN	XN	17.8	21.8	1.0	16	1.0	13.9	28.8
EC76SMAJ16A	BP	XP	17.8	19.7	1.0	16	1.0	15.4	26.0
EC76SMAJ17	BQ	XQ	18.9	23.1	1.0	17	1.0	13.1	30.5
EC76SMAJ17A	BR	XR	18.9	20.9	1.0	17	1.0	14.5	27.6
EC76SMAJ18	BS	XS	20.0	24.4	1.0	18	1.0	12.4	32.2
EC76SMAJ18A	BT	XT	20.0	22.1	1.0	18	1.0	13.7	29.2
EC76SMAJ20	BU	XU	22.2	27.1	1.0	20	1.0	11.2	35.8
EC76SMAJ20A	BV	XV	22.2	24.5	1.0	20	1.0	12.3	32.4
EC76SMAJ22	BW	XW	24.4	29.8	1.0	22	1.0	10.2	39.4
EC76SMAJ22A	BX	XX	24.4	26.9	1.0	22	1.0	11.3	35.5
EC76SMAJ24	BY	XY	26.7	32.6	1.0	24	1.0	9.3	43.0
EC76SMAJ24A	BZ	XZ	26.7	29.5	1.0	24	1.0	10.3	38.9
EC76SMAJ26	CD	YD	28.9	35.3	1.0	26	1.0	8.6	46.6
EC76SMAJ26A	CE	YE	28.9	31.9	1.0	26	1.0	9.5	42.1
EC76SMAJ28	CF	YF	31.1	38.0	1.0	28	1.0	8.0	50.0
EC76SMAJ28A	CG	YG	31.1	34.4	1.0	28	1.0	8.8	45.4
EC76SMAJ30	CH	YH	33.3	40.7	1.0	30	1.0	7.5	53.5
EC76SMAJ30A	CK	YK	33.3	36.8	1.0	30	1.0	8.3	48.4

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 the bi-directional EC76SMAJ5.0CA, the maximum $V_{(BR)}$ is 7.25V.

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.					
EC76SMAJ33	CL	YL	36.7	44.9	1.0	33	1.0	6.8	59.0
EC76SMAJ33A	CM	YM	36.7	40.6	1.0	33	1.0	7.5	53.3
EC76SMAJ36	CN	YN	40.0	48.9	1.0	36	1.0	6.2	64.3
EC76SMAJ36A	CP	YP	40.0	44.2	1.0	36	1.0	6.9	58.1
EC76SMAJ40	CQ	YQ	44.4	54.3	1.0	40	1.0	5.6	71.4
EC76SMAJ40A	CR	YR	44.4	49.1	1.0	40	1.0	6.2	64.5
EC76SMAJ43	CS	YS	47.8	58.4	1.0	43	1.0	5.2	76.7
EC76SMAJ43A	CT	YT	47.8	52.8	1.0	43	1.0	5.8	69.4
EC76SMAJ45	CU	YU	50.0	61.1	1.0	45	1.0	5.0	80.3
EC76SMAJ45A	CV	YV	50.0	55.3	1.0	45	1.0	5.5	72.7
EC76SMAJ48	CW	YW	53.3	65.1	1.0	48	1.0	4.7	85.5
EC76SMAJ48A	CX	YX	53.3	58.9	1.0	48	1.0	5.2	77.4
EC76SMAJ51	CY	YY	56.7	69.3	1.0	51	1.0	4.4	91.1
EC76SMAJ51A	CZ	YZ	56.7	62.7	1.0	51	1.0	4.9	82.4
EC76SMAJ54	RD	ZD	60.0	73.3	1.0	54	1.0	4.2	96.3
EC76SMAJ54A	RE	ZE	60.0	66.3	1.0	54	1.0	4.6	87.1
EC76SMAJ58	RF	ZF	64.4	78.7	1.0	58	1.0	3.9	103
EC76SMAJ58A	RG	ZG	64.4	71.2	1.0	58	1.0	4.3	93.6
EC76SMAJ60	RH	ZH	66.7	81.5	1.0	60	1.0	3.7	107
EC76SMAJ60A	RK	ZK	66.7	73.7	1.0	60	1.0	4.1	96.8
EC76SMAJ64	RL	ZL	71.1	86.9	1.0	64	1.0	3.5	114
EC76SMAJ64A	RM	ZM	71.1	78.6	1.0	64	1.0	3.9	103
EC76SMAJ70	RN	ZN	77.8	95.1	1.0	70	1.0	3.2	125
EC76SMAJ70A	RP	ZP	77.8	86.0	1.0	70	1.0	3.5	113
EC76SMAJ75	RQ	ZQ	83.3	102	1.0	75	1.0	3.0	134
EC76SMAJ75A	RR	ZR	83.3	92.1	1.0	75	1.0	3.3	121
EC76SMAJ78	RS	ZS	86.7	106	1.0	78	1.0	2.9	139
EC76SMAJ78A	RT	ZT	86.7	95.8	1.0	78	1.0	3.2	126
EC76SMAJ85	RU	ZU	94.4	115	1.0	85	1.0	2.0	151
EC76SMAJ85A	RV	ZV	94.4	104	1.0	85	1.0	2.2	137
EC76SMAJ90	RW	ZW	100	122	1.0	90	1.0	1.9	160

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.					
EC76SMAJ90A	RX	ZX	100	111	1.0	90	1.0	2.1	146
EC76SMAJ100	RY	ZY	111	136	1.0	100	1.0	1.7	179
EC76SMAJ100A	RZ	ZZ	111	123	1.0	100	1.0	1.9	162
EC76SMAJ110	SD	VD	122	149	1.0	110	1.0	1.5	196
EC76SMAJ110A	SE	VE	122	135	1.0	110	1.0	1.7	177
EC76SMAJ120	SF	VF	133	163	1.0	120	1.0	1.4	214
EC76SMAJ120A	SG	VG	133	147	1.0	120	1.0	1.6	193
EC76SMAJ130	SH	VH	144	176	1.0	130	1.0	1.3	231
EC76SMAJ130A	SK	VK	144	159	1.0	130	1.0	1.4	209
EC76SMAJ150	SL	VL	167	204	1.0	150	1.0	1.1	268
EC76SMAJ150A	SM	VM	167	185	1.0	150	1.0	1.2	243
EC76SMAJ160	SN	VN	178	218	1.0	160	1.0	1.0	287
EC76SMAJ160A	SP	VP	178	197	1.0	160	1.0	1.2	259
EC76SMAJ170	SQ	VQ	189	231	1.0	170	1.0	0.99	304
EC76SMAJ170A	SR	VR	189	209	1.0	170	1.0	1.09	275
EC76SMAJ180A	ST	VT	201	222	1.0	180	1.0	1.4	292
EC76SMAJ200A	SV	VV	224	247	1.0	200	1.0	1.2	324
EC76SMAJ220A	SX	VX	246	272	1.0	220	1.0	1.1	356
EC76SMAJ250A	SZ	VZ	279	309	1.0	250	1.0	1.0	405
EC76SMAJ300A	TE	UE	335	371	1.0	300	1.0	0.8	486
EC76SMAJ350A	TG	UG	391	432	1.0	350	1.0	0.7	567
EC76SMAJ400A	TK	UK	447	494	1.0	400	1.0	0.6	648
EC76SMAJ440A	TM	UM	492	543	1.0	440	1.0	0.6	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 Forward Current Derating Curve

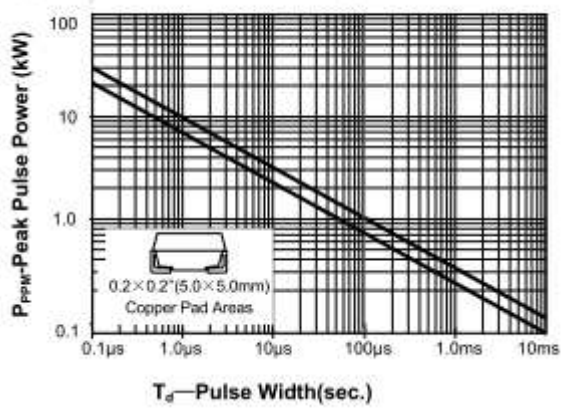


Fig.2 Pulse Derating Curve

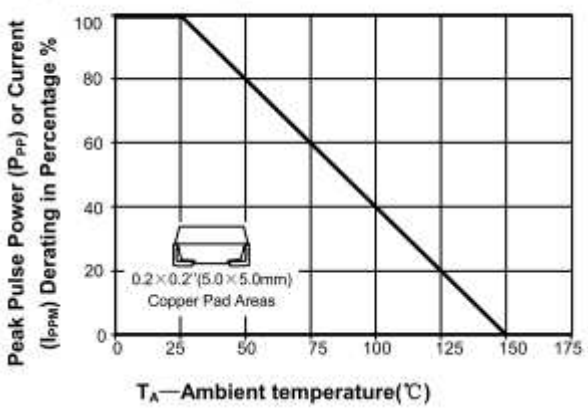


Fig.3 Typical Forward Characteristics

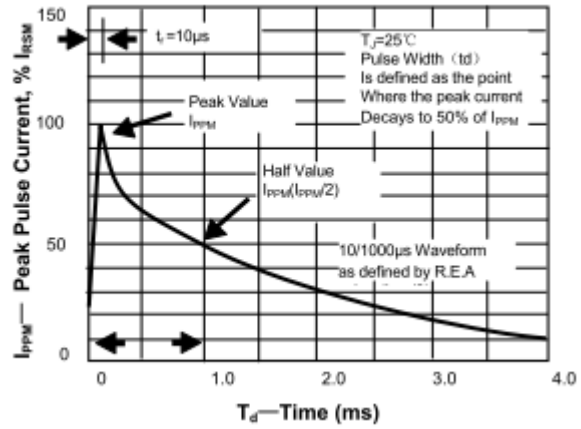


Fig.4 Typical Junction Capacitance

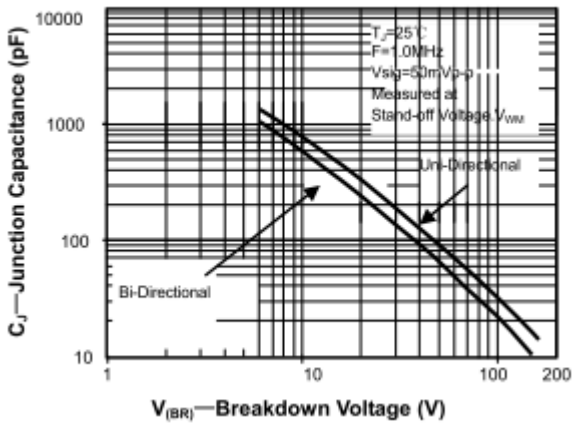


Fig.5 Typical Forward Characteristics

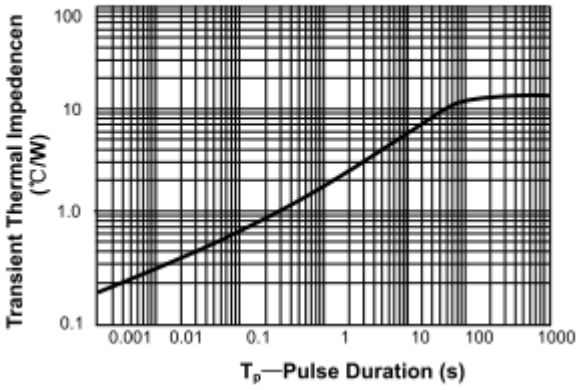
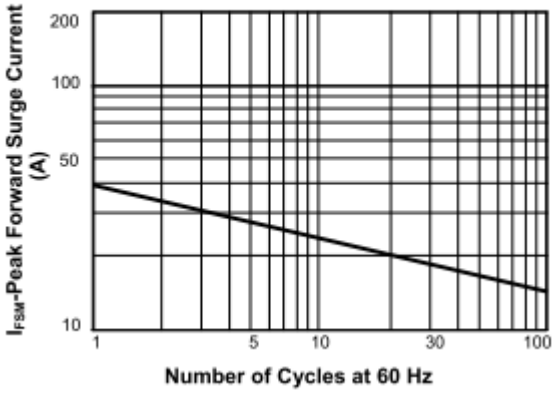


Fig.6 Typical Forward Characteristics

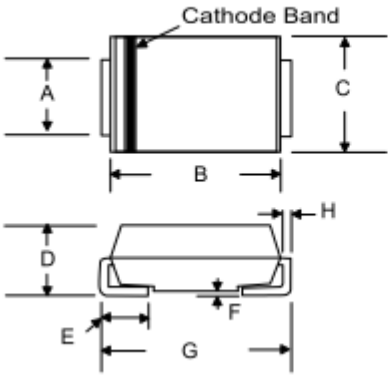


Order Information

EC76SMAJ xx C A

- xx: Stand off Voltage
- C: Bi-directional
- A: **5% Voltage Tolerance**

Product Dimension

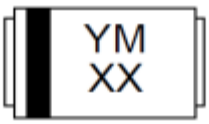


DO-214AC (SMA)

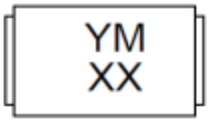
Dimensions	Inches		Milimeters	
	Min	Max	Min	Max
A	0.050	0.064	1.27	1.63
B	0.157	0.181	4.00	4.60
C	0.095	0.104	2.40	2.65
D	0.075	0.089	1.90	2.25
E	0.031	0.059	0.80	1.50
F	0.004	0.008	0.10	0.20
G	0.189	0.205	4.80	5.20
H	0.006	0.012	0.15	0.31

Marking

UNIDIRECTIONAL:



BIDIRECTIONAL:



YM: Date Code
XX: Marking Code