YENYO

SMBJ SERIES

Surface Mount Transient Voltage Suppressor

Working Voltage 6.5 to 440 V
Peak Pulse Power 600W

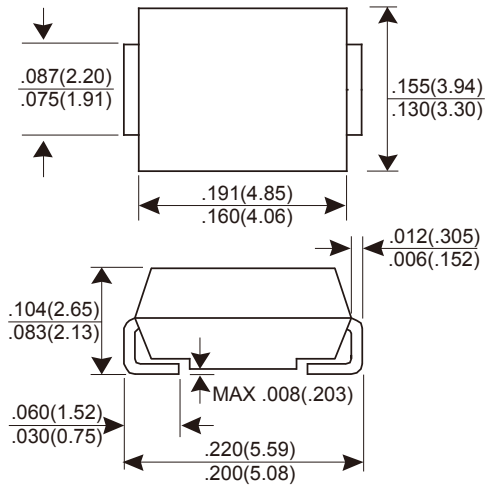
Features

- ✶ High reliability application and automotive grade AEC-Q101 qualified
- ✶ 600W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycles):0.01%
- ✶ Low leakage
- ✶ Excellent clamping capability
- ✶ Very fast response time
- ✶ RoHS compliant
- ✶ IEC-61000-4-2 ESD 30kV(Air), 30kV(Contact)
- ✶ ESD protection of data lines in accordance with IEC 61000-4-2
- ✶ EFT protection of data lines in accordance with IEC 61000-4-4

Mechanical Data

- ✶ Case: Molded plastic, SMB/DO-214AA
- ✶ Epoxy: UL 94V-0 rate flame retardant
- ✶ Terminals: Solderable per MIL-STD-750, method 2026
- ✶ Polarity: Color band denotes cathode end
- ✶ Part no. with suffix "-A" means AEC-Q101 qualified

SMB/DO-214AA



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

T_A = 25℃ unless otherwise noted

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000μs waveform (Note 1,2)	P_{PPM}	600	W
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	I_{FSM}	100	A
Power dissipation on infinite heatsink at T_L=75℃	P_D	5.0	W
Maximum instantaneous forward voltage at 50A for unidirectional only (Note 4)	V_F	3.5 / 5.0	V
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	℃/W
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	℃/W
Operating junction temperature range ($V_R \leqq 78V$)	T_J	-65 to +175	℃
Operating junction temperature range ($V_R > 78V$)	T_J	-65 to +150	℃
Storage temperature range	T_{STG}	-65 to +175	℃

NOTES : (1) Non-repetitive current pulse, per Fig. 3 and derated above T_A=25℃ per Fig. 2
(2) Mounted on copper pad area of 0.2" x 0.2" (5.0 x 5.0mm) to each terminal
(3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum
(4) V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

SMBJ SERIES

Electrical Characteristics(T_A=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R@V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C@I_{PP} (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
SMBJ6.5A		KK		7.22	7.98	10	500	6.5	53.57	11.2
SMBJ7.0A		KM		7.78	8.60	10	200	7.0	50.00	12.0
SMBJ7.5A		KP		8.33	9.21	1	100	7.5	46.51	12.9
SMBJ8.0A		KR		8.89	9.83	1	50	8.0	44.12	13.6
SMBJ8.5A	SMBJ8.5CA	KT	AT	9.44	10.4	1	10	8.5	41.67	14.4
SMBJ9.0A	SMBJ9.0CA	KV	AV	10.0	11.1	1	5	9.0	38.96	15.4
SMBJ10A	SMBJ10CA	KX	AX	11.1	12.3	1	5	10	35.29	17.0
SMBJ11A	SMBJ11CA	KZ	AZ	12.2	13.5	1	1	11	32.97	18.2
SMBJ12A	SMBJ12CA	LE	BE	13.3	14.7	1	1	12	30.15	19.9
SMBJ13A	SMBJ13CA	LG	BG	14.4	15.9	1	1	13	27.91	21.5
SMBJ14A	SMBJ14CA	LK	BK	15.6	17.2	1	1	14	25.86	23.2
SMBJ15A	SMBJ15CA	LM	BM	16.7	18.5	1	1	15	24.59	24.4
SMBJ16A	SMBJ16CA	LP	BP	17.8	19.7	1	1	16	23.08	26.0
SMBJ17A	SMBJ17CA	LR	BR	18.9	20.9	1	1	17	21.74	27.6
SMBJ18A	SMBJ18CA	LT	BT	20.0	22.1	1	1	18	20.55	29.2
SMBJ20A	SMBJ20CA	LV	BV	22.2	24.5	1	1	20	18.52	32.4
SMBJ22A	SMBJ22CA	LX	BX	24.4	26.9	1	1	22	16.90	35.5
SMBJ24A	SMBJ24CA	LZ	BZ	26.7	29.5	1	1	24	15.42	38.9
SMBJ26A	SMBJ26CA	ME	CE	28.9	31.9	1	1	26	14.25	42.1
SMBJ28A	SMBJ28CA	MG	CG	31.1	34.4	1	1	28	13.22	45.4
SMBJ30A	SMBJ30CA	MK	CK	33.3	36.8	1	1	30	12.40	48.4
SMBJ33A	SMBJ33CA	MM	CM	36.7	40.6	1	1	33	11.26	53.3
SMBJ36A	SMBJ36CA	MP	CP	40.0	44.2	1	1	36	10.33	58.1
SMBJ40A	SMBJ40CA	MR	CR	44.4	49.1	1	1	40	9.30	64.5
SMBJ43A	SMBJ43CA	MT	CT	47.8	52.8	1	1	43	8.65	69.4
SMBJ45A	SMBJ45CA	MV	CV	50.0	55.3	1	1	45	8.25	72.7
SMBJ48A	SMBJ48CA	MX	CX	53.3	58.9	1	1	48	7.75	77.4
SMBJ51A	SMBJ51CA	MZ	CZ	56.7	62.7	1	1	51	7.28	82.4
SMBJ54A	SMBJ54CA	NE	DE	60.0	66.3	1	1	54	6.89	87.1
SMBJ58A	SMBJ58CA	NG	DG	64.4	71.2	1	1	58	6.41	93.6
SMBJ60A	SMBJ60CA	NK	DK	66.7	73.7	1	1	60	6.20	96.8
SMBJ64A	SMBJ64CA	NM	DM	71.1	78.6	1	1	64	5.83	103.0
SMBJ70A	SMBJ70CA	NP	DP	77.8	86.0	1	1	70	5.31	113.0
SMBJ75A	SMBJ75CA	NR	DR	83.3	92.1	1	1	75	4.96	121.0
SMBJ78A	SMBJ78CA	NT	DT	86.7	95.8	1	1	78	4.76	126.0
SMBJ85A	SMBJ85CA	NV	DV	94.4	104	1	1	85	4.38	137.0
SMBJ90A	SMBJ90CA	NX	DX	100	111	1	1	90	4.11	146.0
SMBJ100A	SMBJ100CA	NZ	DZ	111	123	1	1	100	3.70	162.0
SMBJ110A	SMBJ110CA	PE	EE	122	135	1	1	110	3.39	177.0
SMBJ120A	SMBJ120CA	PG	EG	133	147	1	1	120	3.11	193.0
SMBJ130A	SMBJ130CA	PK	EK	144	159	1	1	130	2.87	209.0
SMBJ150A	SMBJ150CA	PM	EM	167	185	1	1	150	2.47	243.0
SMBJ160A	SMBJ160CA	PP	EP	178	197	1	1	160	2.32	259.0
SMBJ170A	SMBJ170CA	PR	ER	189	209	1	1	170	2.18	275.0
SMBJ180A	SMBJ180CA	PT	ET	200	220	1	1	180	2.06	291.6
SMBJ200A	SMBJ200CA	PV	EV	224	247	1	1	200	1.85	324.0
SMBJ220A	SMBJ220CA	PX	EX	246	272	1	1	220	1.69	356.0
SMBJ250A	SMBJ250CA	PZ	EZ	279	309	1	1	250	1.48	405.0
SMBJ300A	SMBJ300CA	QE	FE	335	371	1	1	300	1.23	486.0
SMBJ350A	SMBJ350CA	QG	FG	391	432	1	1	350	1.06	567.0
SMBJ400A	SMBJ400CA	QK	FK	447	494	1	1	400	0.93	648.0
SMBJ440A	SMBJ440CA	QM	FM	492	543	1	1	440	0.84	713.0

Suffix "A" denotes 5% tolerance device.

Add suffix "CA" after part number to specify Bi-directional devices.

For Bi-directional type having V_R of 10 volts and less, the I_R limit is double.

RATINGS AND CHARACTERISTICS CURVES SMBJ SERIES

Fig.1 - Peak Pulse Power Rating Curve

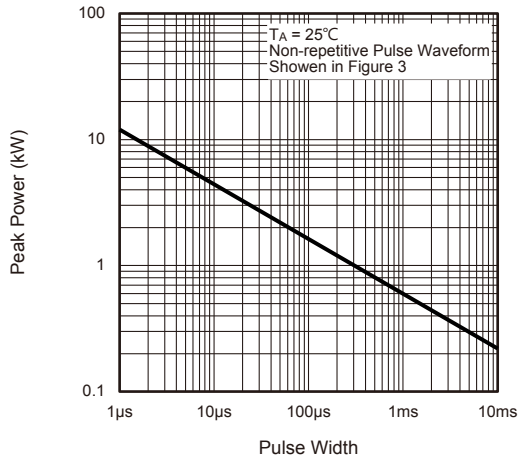


Fig.2 - Pulse Derating Curve

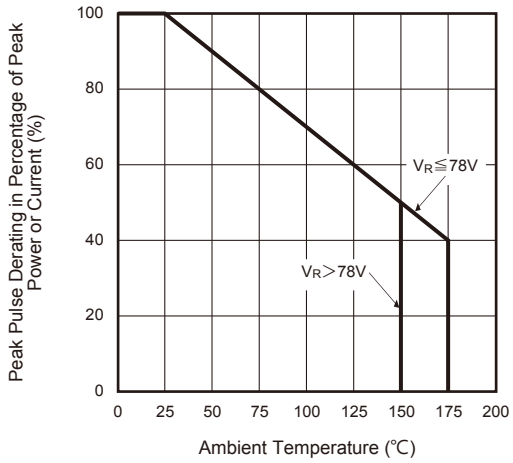


Fig.3 - Pulse Waveform

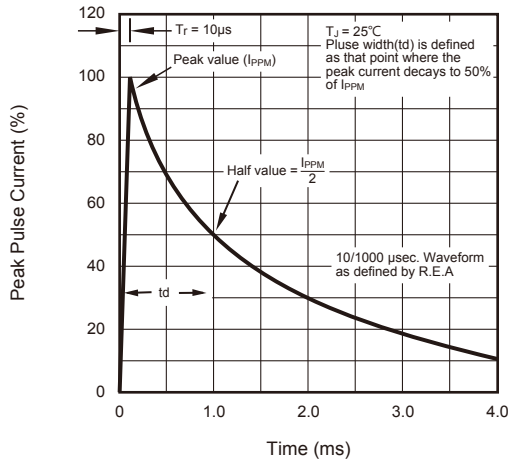


Fig.4 - Typical Junction Capacitance

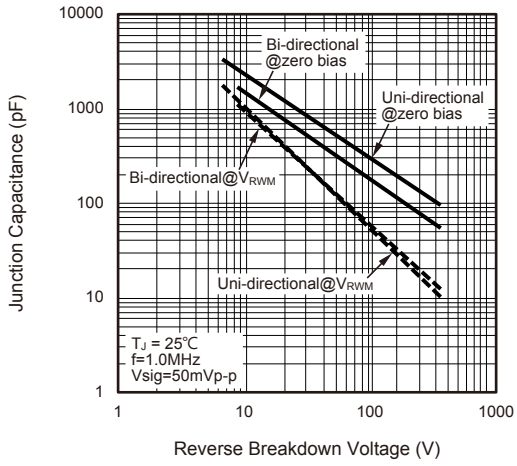


Fig.5 - Steady State Power Derating Curve

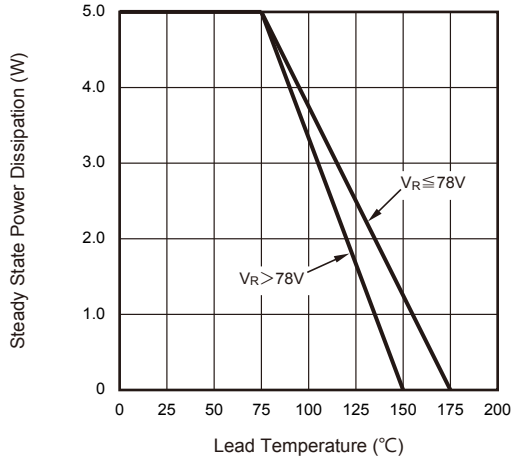


Fig.6 - Maximum Non-Repetitive Surge Current