

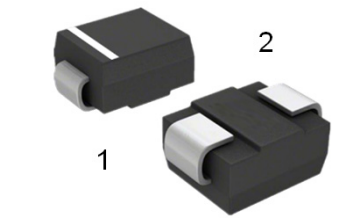
1500W Surface Mount Transient Voltage Suppressor

Description

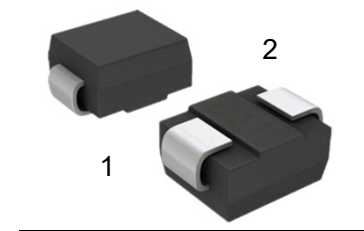
The 1.5SMBJxxA Series are designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Feature

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- 1500W peak pulse power capability with a 10/1000us waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- Component in accordance to RoHS
- Solder dip 265°C max. 10s, per JESD 22-B106



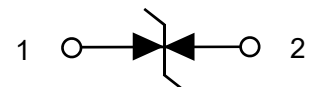
SMB(Uni)



SMB(Bi)

Mechanical Characteristics

- Case: DO-214AA(SMB)
- Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, Halogen-free
- Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
- Polarity: Cathode line denotes the cathode end

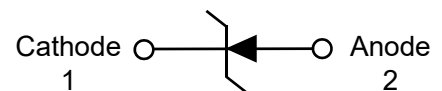


Bi-directional

Circuit Diagram

Applications

- Power lines
- I/O Interface.
- Automotive and Telecommunication Industrial Electronics



Uni-directional

Circuit Diagram

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation with 10/1000 μ s Waveform ¹⁾	P_{PPM}	1500	W
Power Dissipation on Infinite Heatsink @ $T_L=75^\circ\text{C}$	P_D	5.0	W
Peak Pulse Current with 10/1000 μ s Waveform ¹⁾	I_{PPM}	See next table	A
Peak Forward Surge Current , 8.3 ms single half sine-wave ²⁾	I_{FSM}	100(Uni)	A
Maximum Instantaneous Forward Voltage @25A ³⁾	V_F	3.5/6.5(Uni)	V
Operating Junction Temperature and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Notes:

1. Non-repetitive current pulse, per Fig. 5 and derated above $T_A=25^\circ\text{C}$ per Fig.1.
2. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum
3. $V_F=3.5\text{V}$ Max for devices of $V_{BR}\leq 200\text{V}$, and $V_F=6.5\text{V}$ Max for devices of $V_{BR} > 200\text{V}$

Transient Voltage Suppressor

1.5SMBJxxA Series

Electrical characteristics per line@25°C(unless otherwise specified)

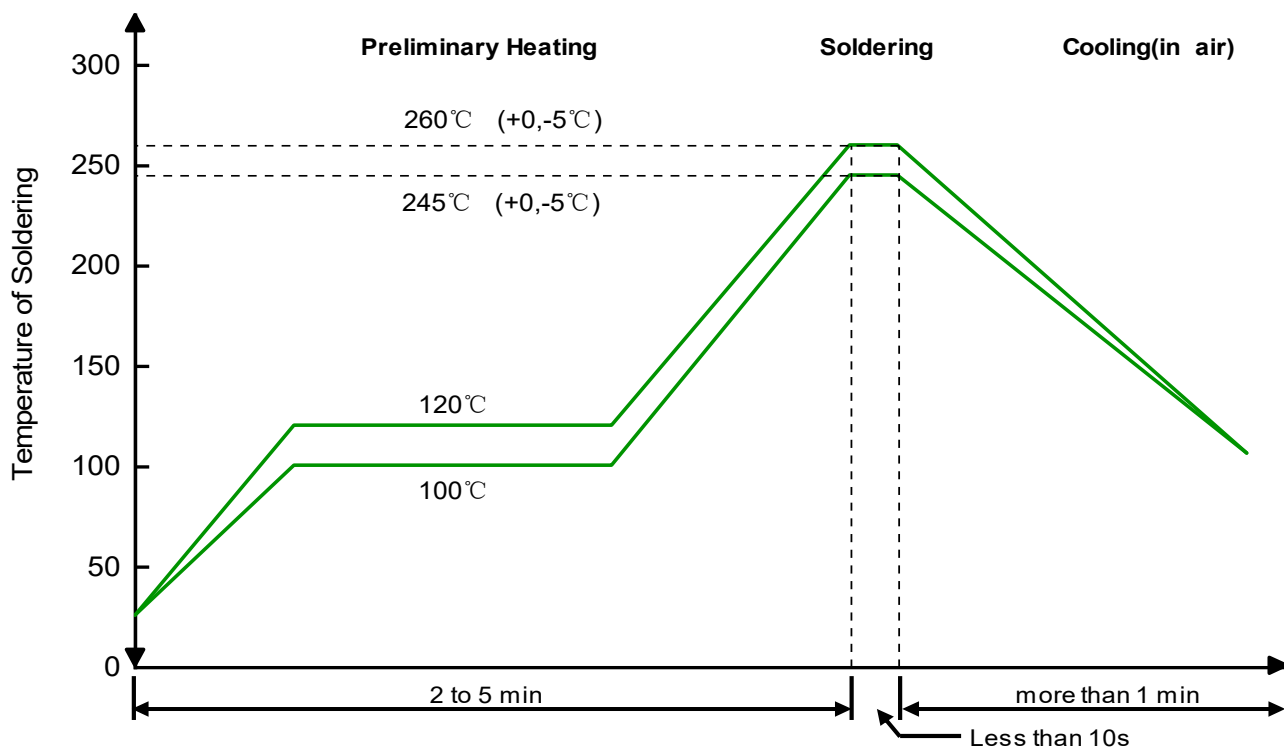
Part Number		Marking		V _{RMW}	V _{BR@I_T}		I _T	V _{C@I_{PP}}	I _{PP}	I _{R@V_{RWM}}
Uni	Bi	Uni	Bi	V	min(V)	max(V)	mA	V	A	μA
1.5SMBJ5.0AA	1.5SMBJ5.0CAA	KE	AE	5	6.4	7	10	9.2	163	800
1.5SMBJ6.0AA	1.5SMBJ6.0CAA	KG	AG	6	6.67	7.37	10	10.3	145.7	800
1.5SMBJ6.5AA	1.5SMBJ6.5CAA	KK	AK	6.5	7.22	7.98	10	11.2	134	500
1.5SMBJ7.0AA	1.5SMBJ7.0CAA	KM	AM	7	7.78	8.6	10	12	125	200
1.5SMBJ7.5AA	1.5SMBJ7.5CAA	KP	AP	7.5	8.33	9.21	1	12.9	116.3	100
1.5SMBJ8.0AA	1.5SMBJ8.0CAA	KR	AR	8	8.89	9.83	1	13.6	110.3	50
1.5SMBJ8.5AA	1.5SMBJ8.5CAA	KT	AT	8.5	9.44	10.4	1	14.4	104.2	20
1.5SMBJ9.0AA	1.5SMBJ9.0CAA	KV	AV	9	10	11.1	1	15.4	97.4	10
1.5SMBJ10AA	1.5SMBJ10CAA	KX	AX	10	11.1	12.3	1	17	88.3	5
1.5SMBJ11AA	1.5SMBJ11CAA	KZ	AZ	11	12.2	13.5	1	18.2	82.5	1
1.5SMBJ12AA	1.5SMBJ12CAA	LE	BE	12	13.3	14.7	1	19.9	75.4	1
1.5SMBJ13AA	1.5SMBJ13CAA	LG	BG	13	14.4	15.9	1	21.5	69.8	1
1.5SMBJ14AA	1.5SMBJ14CAA	LK	BK	14	15.6	17.2	1	23.2	64.7	1
1.5SMBJ15AA	1.5SMBJ15CAA	LM	BM	15	16.7	18.5	1	24.4	61.5	1
1.5SMBJ16AA	1.5SMBJ16CAA	LP	BP	16	17.8	19.7	1	26	57.7	1
1.5SMBJ17AA	1.5SMBJ17CAA	LR	BR	17	18.9	20.9	1	27.6	54.4	1
1.5SMBJ18AA	1.5SMBJ18CAA	LT	BT	18	20	22.1	1	29.2	51.4	1
1.5SMBJ20AA	1.5SMBJ20CAA	LV	BV	20	22.2	24.5	1	32.4	46.3	1
1.5SMBJ22AA	1.5SMBJ22CAA	LX	BX	22	24.4	26.9	1	35.5	42.3	1
1.5SMBJ24AA	1.5SMBJ24CAA	LZ	BZ	24	26.7	29.5	1	38.9	38.6	1
1.5SMBJ26AA	1.5SMBJ26CAA	ME	CE	26	28.9	31.9	1	42.1	35.7	1
1.5SMBJ28AA	1.5SMBJ28CAA	MG	CG	28	31.1	34.4	1	45.4	33.1	1
1.5SMBJ30AA	1.5SMBJ30CAA	MK	CK	30	33.3	36.8	1	48.4	31	1
1.5SMBJ33AA	1.5SMBJ33CAA	MM	CM	33	36.7	40.6	1	53.3	28.2	1
1.5SMBJ36AA	1.5SMBJ36CAA	MP	CP	36	40	44.2	1	58.1	25.9	1
1.5SMBJ40AA	1.5SMBJ40CAA	MR	CR	40	44.4	49.1	1	64.5	23.3	1
1.5SMBJ43AA	1.5SMBJ43CAA	MT	CT	43	47.8	52.8	1	69.4	21.7	1
1.5SMBJ45AA	1.5SMBJ45CAA	MV	CV	45	50	55.3	1	72.7	20.6	1
1.5SMBJ48AA	1.5SMBJ48CAA	MX	CX	48	53.3	58.9	1	77.4	19.4	1
1.5SMBJ51AA	1.5SMBJ51CAA	MZ	CZ	51	56.7	62.7	1	82.4	18.2	1
1.5SMBJ54AA	1.5SMBJ54CAA	NE	DE	54	60	66.3	1	87.1	17.3	1
1.5SMBJ58AA	1.5SMBJ58CAA	NG	DG	58	64.4	71.2	1	93.6	16.1	1
1.5SMBJ60AA	1.5SMBJ60CAA	NK	DK	60	66.7	73.7	1	96.8	15.1	1
1.5SMBJ64AA	1.5SMBJ64CAA	NM	DM	64	71.1	78.6	1	103	14.6	1
1.5SMBJ70AA	1.5SMBJ70CAA	NP	DP	70	77.8	86	1	113	13.3	1
1.5SMBJ75AA	1.5SMBJ75CAA	NR	DR	75	83.3	92.1	1	121	12.4	1
1.5SMBJ78AA	1.5SMBJ78CAA	NT	DT	78	86.7	95.8	1	126	11.9	1

Transient Voltage Suppressor

1.5SMBJxxA Series

Part Number		Marking		V_{RMW}	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	I_{PP}	$I_R@V_{RWM}$
Uni	Bi	Uni	Bi	V	min(V)	max(V)	mA	V	A	μA
1.5SMBJ85AA	1.5SMBJ85CAA	NV	DV	85	94.4	104	1	137	11	1
1.5SMBJ90AA	1.5SMBJ90CAA	NX	DX	90	100	111	1	146	10.3	1
1.5SMBJ100AA	1.5SMBJ100CAA	NZ	DZ	100	111	123	1	162	9.3	1
1.5SMBJ110AA	1.5SMBJ110CAA	PE	EE	110	122	135	1	177	8.5	1
1.5SMBJ120AA	1.5SMBJ120CAA	PG	EG	120	133	147	1	193	7.8	1
1.5SMBJ130AA	1.5SMBJ130CAA	PK	EK	130	144	159	1	209	7.2	1
1.5SMBJ150AA	1.5SMBJ150CAA	PM	EM	150	167	185	1	243	6.2	1
1.5SMBJ160AA	1.5SMBJ160CAA	PP	EP	160	178	197	1	259	5.8	1
1.5SMBJ170AA	1.5SMBJ170CAA	PR	ER	170	189	209	1	275	5.5	1
1.5SMBJ180AA	1.5SMBJ180CAA	PT	ET	180	201	222	1	292	5.1	1
1.5SMBJ188AA	1.5SMBJ188CAA	PB	EB	188	209	231	1	304	4.9	1
1.5SMBJ200AA	1.5SMBJ200CAA	PV	EV	200	224	247	1	324	4.6	1
1.5SMBJ220AA	1.5SMBJ220CAA	PX	EX	220	246	272	1	356	4.4	1
1.5SMBJ250AA	1.5SMBJ250CAA	PZ	EZ	250	279	309	1	405	4.2	1

Solder Reflow Recommendation



Remark: Pb free for 260°C; Pb for 245°C.

Typical Characteristics

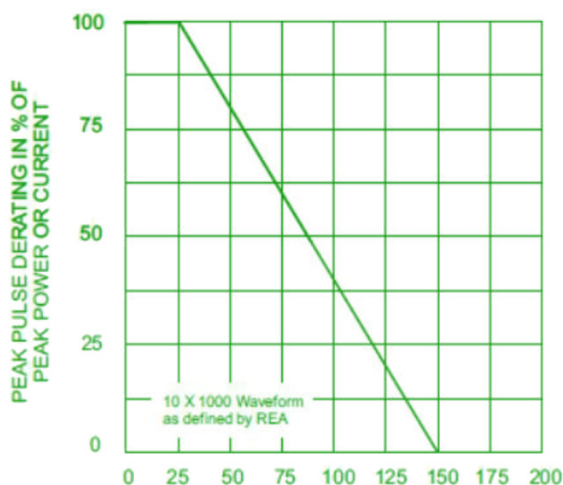


Fig. 1 - Pulse Derating Curve

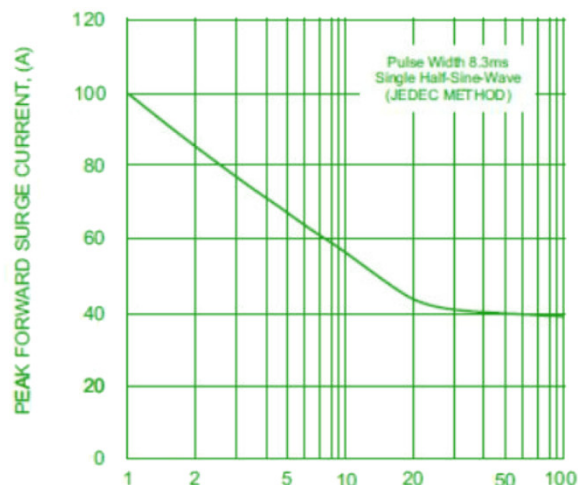


Fig. 2 - Maximum Non-Repetitive Surge Current

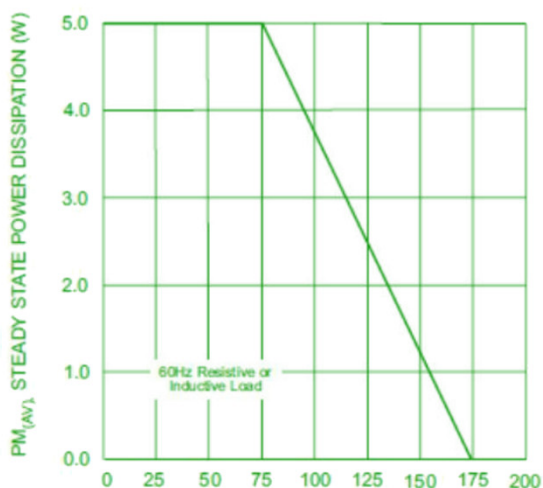


Fig. 3 - Steady State Power Derating Curve

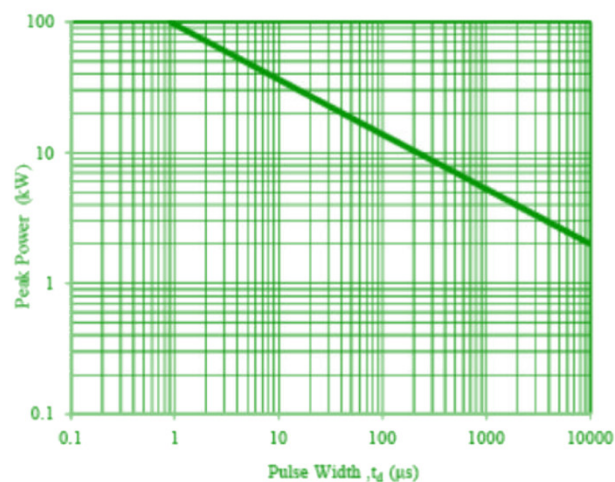


Fig. 4 - Peak Pulse Power Rating Curve

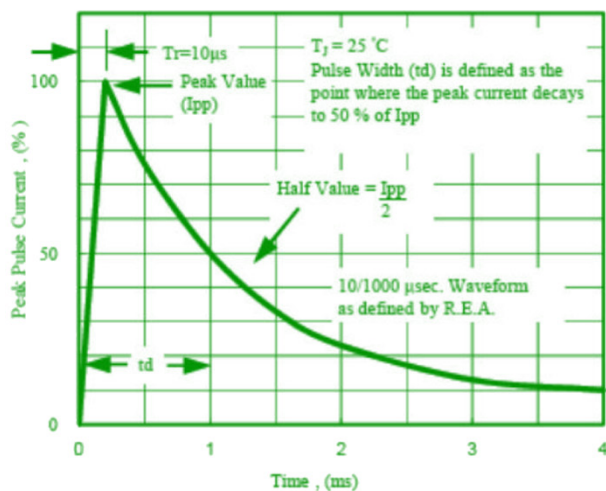


Fig. 5 - Pulse Waveform

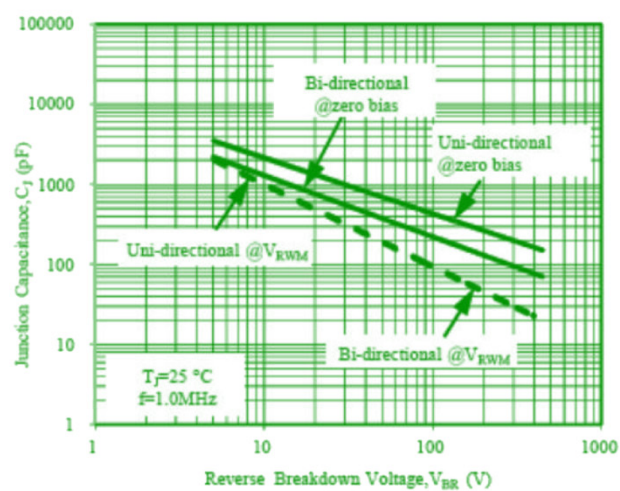
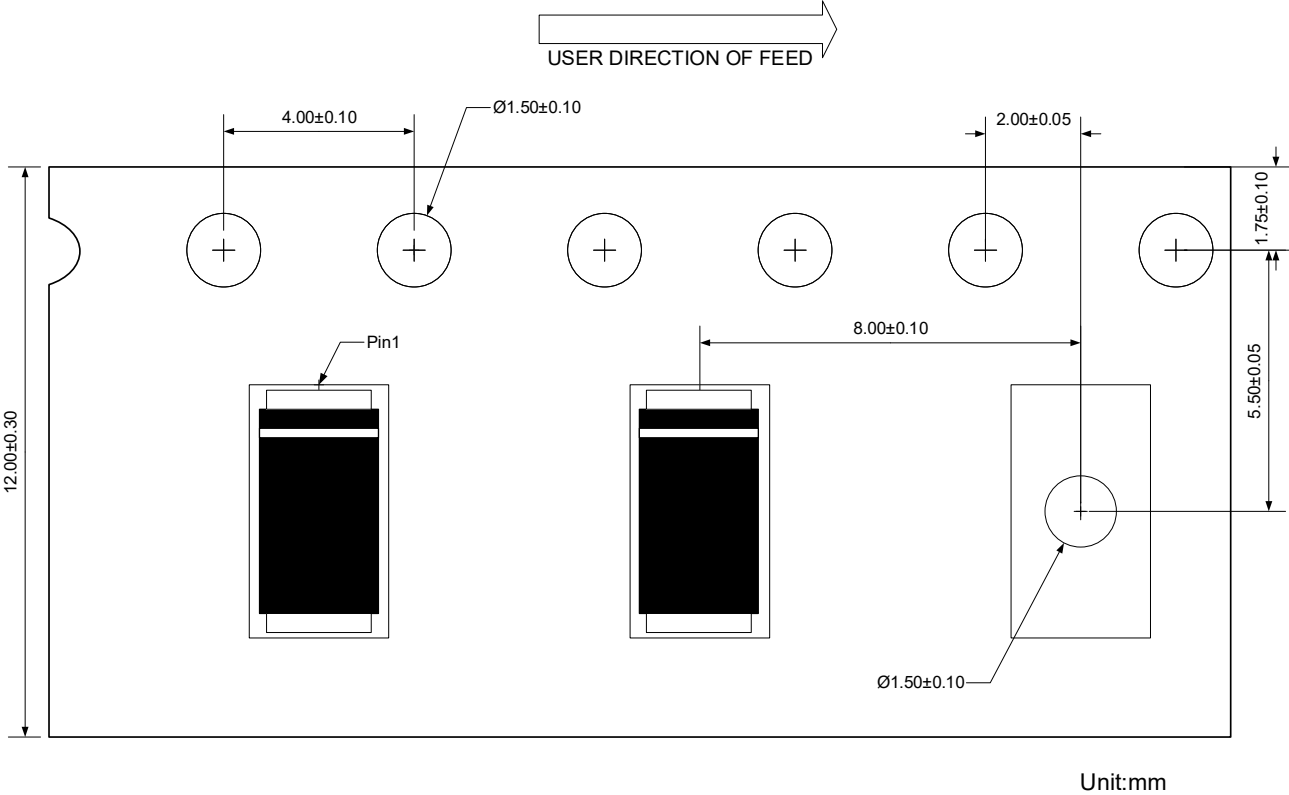


Fig. 6 - Typical Junction Capacitance

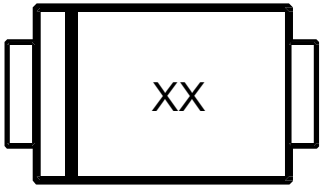
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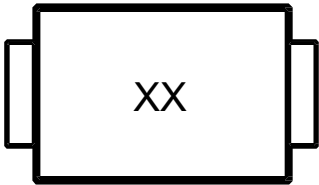
Ordering information

Package	Reel	Shipping
SMB	13"	3000 / Tape & Reel

Marking information



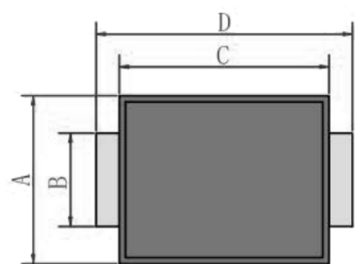
Uni-directional



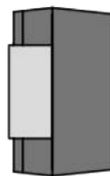
Bi-directional

Note: Detailed Marking See table above

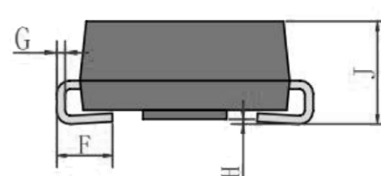
Product Dimension (SMB)



Top View

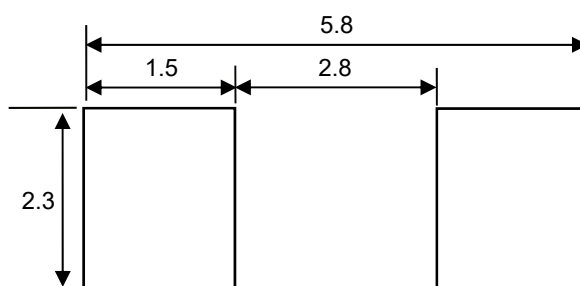


Side View



Side View

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	3.30	3.90	0.130	0.154
B	1.85	2.15	0.073	0.085
C	4.10	4.75	0.161	0.187
D	5.10	5.60	0.201	0.220
F	0.76	1.41	0.030	0.056
G	0.15	0.31	0.006	0.012
H	0.05	0.20	0.002	0.008
J	2.10	2.30	0.083	0.091



Unit: mm

Suggested PCB Layout

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