



# DATA SHEET

SEMICONDUCTOR

1.5SMCJ Series

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR VOLTAGE 5.0 to 440 Volts 1500 Watt Peak Power Pulse



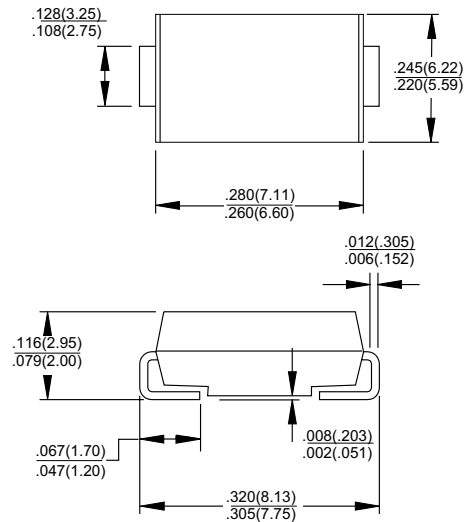
### FEATURES

SMC/DO-214AB Unit:inch(mm)

- For surface mounted applications in order to optimize board space.
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High temperature soldering : 260°C /10 seconds at terminals
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- Pb free product at available : 99% Sn above meet RoHS environment substance directive request

### MECHANICAL DATA

- Case: JEDEC DO-214AB,Molded plastic over passivated junction.
- Terminals: Solder plated,solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end (cathode)
- Standard Packaging:16mm tape (EIA-481)
- Quantify Per Reel : 3000 pcs



### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 1.5SMCJ5.0 thru types 1.5SMCJ220.

Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.

For Capacitive load derate current by 20%.

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation on 10/1000us waveform (Note1.2 , Fig.1)	P <sub>pp</sub>	1500	Watts
Peak Forward Surge Current, 8.3ms single half sine - wave uni-directional only (JEDEC method) (Notes 2,3)	I <sub>FSM</sub>	200	Amps
Peak Pulse Current on 10/1000s waveform(Note 1 , Fig.3)	I <sub>PP</sub>	See Table 1	Amps
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 ~ +150	°C

#### NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig.2.
2. Mounted on 5.0 mm<sup>2</sup>(0.13mm thick) land areas.
3. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

# 1.5SMCJ Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current	Package	
			VBR @ IT			IR@VRWM	SMC/DO-214AB				
			VRWM	Min.	Max.			IT	UNI	BI	Vc@ Ipp
UNI	BI	V	V	V	mA	µA	µA	V	A	UNI	BI
1500W Transient Voltage Suppressor											
1.5SMCJ5.0	1.5SMCJ5.0C	5.0	6.40	7.82	10	1000.0	2000.0	9.6	156.3	C5.0V	C5.0C
1.5SMCJ5.0A	1.5SMCJ5.0CA	5.0	6.40	7.07	10	1000.0	2000.0	9.2	163.0	C5.0A	C5.0D
1.5SMCJ6.0	1.5SMCJ6.0C	6.0	6.67	8.15	10	1000.0	2000.0	11.4	131.6	C6.0V	C6.0C
1.5SMCJ6.0A	1.5SMCJ6.0CA	6.0	6.67	7.37	10	1000.0	2000.0	10.3	145.6	C6.0A	C6.0D
1.5SMCJ6.5	1.5SMCJ6.5C	6.5	7.22	8.82	10	500.0	1000.0	12.3	122.0	C6.5V	C6.5C
1.5SMCJ6.5A	1.5SMCJ6.5CA	6.5	7.22	7.98	10	500.0	1000.0	11.2	133.9	C6.5A	C6.5D
1.5SMCJ7.0	1.5SMCJ7.0C	7.0	7.78	9.51	10	200.0	400.0	13.3	112.8	C7.0V	C7.0C
1.5SMCJ7.0A	1.5SMCJ7.0CA	7.0	7.78	8.60	10	200.0	400.0	12.0	125.0	C7.0A	C7.0D
1.5SMCJ7.5	1.5SMCJ7.5C	7.5	8.33	10.20	1	100.0	200.0	14.3	104.9	C7.5V	C7.5C
1.5SMCJ7.5A	1.5SMCJ7.5CA	7.5	8.33	9.21	1	100.0	200.0	12.9	116.3	C7.5A	C7.5D
1.5SMCJ8.0	1.5SMCJ8.0C	8.0	8.89	10.90	1	50.0	100.0	15.0	100.0	C8.0V	C8.0C
1.5SMCJ8.0A	1.5SMCJ8.0CA	8.0	8.89	9.83	1	50.0	100.0	13.6	110.3	C8.0A	C8.0D
1.5SMCJ8.5	1.5SMCJ8.5C	8.5	9.44	11.50	1	20.0	40.0	15.9	94.3	C8.5V	C8.5C
1.5SMCJ8.5A	1.5SMCJ8.5CA	8.5	9.44	10.40	1	20.0	40.0	14.4	104.2	C8.5A	C8.5D
1.5SMCJ9.0	1.5SMCJ9.0C	9.0	10.00	12.20	1	10.0	20.0	16.9	88.8	C9.0V	C9.0C
1.5SMCJ9.0A	1.5SMCJ9.0CA	9.0	10.00	11.10	1	10.0	20.0	15.4	97.4	C9.0A	C9.0D
1.5SMCJ10	1.5SMCJ10C	10.0	11.10	13.60	1	5.0	10.0	18.8	79.8	C10V	C10C
1.5SMCJ10A	1.5SMCJ10CA	10.0	11.10	12.30	1	5.0	10.0	17.0	88.2	C10A	C10D
1.5SMCJ11	1.5SMCJ11C	11.0	12.20	14.90	1	5.0	5.0	20.1	74.6	C11V	C11C
1.5SMCJ11A	1.5SMCJ11CA	11.0	12.20	13.50	1	5.0	5.0	18.2	82.4	C11A	C11D
1.5SMCJ12	1.5SMCJ12C	12.0	13.30	16.30	1	5.0	5.0	22.0	68.2	C12V	C12C
1.5SMCJ12A	1.5SMCJ12CA	12.0	13.30	14.70	1	5.0	5.0	19.9	75.4	C12A	C12D
1.5SMCJ13	1.5SMCJ13C	13.0	14.40	17.60	1	5.0	5.0	23.8	63.0	C13V	C13C
1.5SMCJ13A	1.5SMCJ13CA	13.0	14.40	15.90	1	5.0	5.0	21.5	69.8	C13A	C13D
1.5SMCJ14	1.5SMCJ14C	14.0	15.60	19.10	1	5.0	5.0	25.8	58.1	C14V	C14C
1.5SMCJ14A	1.5SMCJ14CA	14.0	15.60	17.20	1	5.0	5.0	23.2	64.7	C14A	C14D
1.5SMCJ15	1.5SMCJ15C	15.0	16.70	20.40	1	5.0	5.0	26.9	55.8	C15V	C15C
1.5SMCJ15A	1.5SMCJ15CA	15.0	16.70	18.50	1	5.0	5.0	24.4	61.5	C15A	C15D
1.5SMCJ16	1.5SMCJ16C	16.0	17.80	21.80	1	5.0	5.0	28.8	52.1	C16V	C16C
1.5SMCJ16A	1.5SMCJ16CA	16.0	17.80	19.70	1	5.0	5.0	26.0	57.7	C16A	C16D
1.5SMCJ17	1.5SMCJ17C	17.0	18.90	23.10	1	5.0	5.0	30.5	49.2	C17V	C17C
1.5SMCJ17A	1.5SMCJ17CA	17.0	18.90	20.90	1	5.0	5.0	27.6	54.3	C17A	C17D
1.5SMCJ18	1.5SMCJ18C	18.0	20.00	24.40	1	5.0	5.0	32.2	46.6	C18V	C18C
1.5SMCJ18A	1.5SMCJ18CA	18.0	20.00	22.10	1	5.0	5.0	29.2	51.4	C18A	C18D
1.5SMCJ20	1.5SMCJ20C	20.0	22.20	27.10	1	5.0	5.0	35.8	41.9	C20V	C20C
1.5SMCJ20A	1.5SMCJ20CA	20.0	22.20	24.50	1	5.0	5.0	32.4	46.3	C20A	C20D
1.5SMCJ22	1.5SMCJ22C	22.0	24.40	29.80	1	5.0	5.0	39.4	38.1	C22V	C22C
1.5SMCJ22A	1.5SMCJ22CA	22.0	24.40	26.90	1	5.0	5.0	35.5	42.3	C22A	C22D
1.5SMCJ24	1.5SMCJ24C	24.0	26.70	32.60	1	5.0	5.0	43.0	34.9	C24V	C24C
1.5SMCJ24A	1.5SMCJ24CA	24.0	26.70	29.50	1	5.0	5.0	38.9	38.6	C24A	C24D
1.5SMCJ26	1.5SMCJ26C	26.0	28.90	35.30	1	5.0	5.0	46.6	32.2	C26V	C26C
1.5SMCJ26A	1.5SMCJ26CA	26.0	28.90	31.90	1	5.0	5.0	42.1	35.6	C26A	C26D
1.5SMCJ28	1.5SMCJ28C	28.0	31.10	38.00	1	5.0	5.0	50.0	30.0	C28V	C28C
1.5SMCJ28A	1.5SMCJ28CA	28.0	31.10	34.40	1	5.0	5.0	45.4	33.0	C28A	C28D
1.5SMCJ30	1.5SMCJ30C	30.0	33.30	40.70	1	5.0	5.0	53.5	28.0	C30V	C30C
1.5SMCJ30A	1.5SMCJ30CA	30.0	33.30	36.80	1	5.0	5.0	48.4	31.0	C30A	C30D
1.5SMCJ33	1.5SMCJ33C	33.0	36.70	44.90	1	5.0	5.0	59.0	25.4	C33V	C33C
1.5SMCJ33A	1.5SMCJ33CA	33.0	36.70	40.60	1	5.0	5.0	53.3	28.1	C33A	C33D

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Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current	Package				
			VBR @ IT			IT	IR@VRWM			Vc@ Ipp	Ipp	SMC/DO-214AB		
			VRWM	Min.			Max.					UNI	BI	UNI
UNI	BI	V	V	V	mA	µA	µA	V	A	UNI	BI			
<b>1500W Transient Voltage Suppressor</b>														
1.5SMCJ36	1.5SMCJ36C	36.0	40.00	48.90	1	5.0	5.0	64.3	23.3	C36V	C36C			
1.5SMCJ36A	1.5SMCJ36CA	36.0	40.00	44.20	1	5.0	5.0	58.1	25.8	C36A	C36D			
1.5SMCJ40	1.5SMCJ40C	40.0	44.40	54.30	1	5.0	5.0	71.4	21.0	C40V	C40C			
1.5SMCJ40A	1.5SMCJ40CA	40.0	44.40	49.10	1	5.0	5.0	64.5	23.3	C40A	C40D			
1.5SMCJ43	1.5SMCJ43C	43.0	47.80	58.40	1	5.0	5.0	76.7	19.6	C43V	C43C			
1.5SMCJ43A	1.5SMCJ43CA	43.0	47.80	52.80	1	5.0	5.0	69.4	21.6	C43A	C43D			
1.5SMCJ45	1.5SMCJ45C	45.0	50.00	61.10	1	5.0	5.0	80.3	18.7	C45V	C45C			
1.5SMCJ45A	1.5SMCJ45CA	45.0	50.00	55.30	1	5.0	5.0	72.7	20.6	C45A	C45D			
1.5SMCJ48	1.5SMCJ48C	48.0	53.30	65.10	1	5.0	5.0	85.5	17.5	C48V	C48C			
1.5SMCJ48A	1.5SMCJ48CA	48.0	53.30	58.90	1	5.0	5.0	77.4	19.4	C48A	C48D			
1.5SMCJ51	1.5SMCJ51C	51.0	56.70	69.30	1	5.0	5.0	91.1	16.5	C51V	C51C			
1.5SMCJ51A	1.5SMCJ51CA	51.0	56.70	62.70	1	5.0	5.0	82.4	18.2	C51A	C51D			
1.5SMCJ54	1.5SMCJ54C	54.0	60.00	73.30	1	5.0	5.0	96.3	15.6	C54V	C54C			
1.5SMCJ54A	1.5SMCJ54CA	54.0	60.00	66.30	1	5.0	5.0	87.1	17.2	C54A	C54D			
1.5SMCJ58	1.5SMCJ58C	58.0	64.40	78.70	1	5.0	5.0	103.0	14.6	C58V	C58C			
1.5SMCJ58A	1.5SMCJ58CA	58.0	64.40	71.20	1	5.0	5.0	93.6	16.0	C58A	C58D			
1.5SMCJ60	1.5SMCJ60C	60.0	66.70	81.50	1	5.0	5.0	107.0	14.0	C60V	C60C			
1.5SMCJ60A	1.5SMCJ60CA	60.0	66.70	73.70	1	5.0	5.0	96.8	15.5	C60A	C60D			
1.5SMCJ64	1.5SMCJ64C	64.0	71.10	86.90	1	5.0	5.0	114.0	13.2	C64V	C64C			
1.5SMCJ64A	1.5SMCJ64CA	64.0	71.10	78.60	1	5.0	5.0	103.0	14.6	C64A	C64D			
1.5SMCJ70	1.5SMCJ70C	70.0	77.80	95.10	1	5.0	5.0	125.0	12.0	C70V	C70C			
1.5SMCJ70A	1.5SMCJ70CA	70.0	77.80	86.00	1	5.0	5.0	113.0	13.3	C70A	C70D			
1.5SMCJ75	1.5SMCJ75C	75.0	83.30	102.00	1	5.0	5.0	134.0	11.2	C75V	C75C			
1.5SMCJ75A	1.5SMCJ75CA	75.0	83.30	92.10	1	5.0	5.0	121.0	12.4	C75A	C75D			
1.5SMCJ78	1.5SMCJ78C	78.0	86.70	106.00	1	5.0	5.0	139.0	10.8	C78V	C78C			
1.5SMCJ78A	1.5SMCJ78CA	78.0	86.70	95.80	1	5.0	5.0	126.0	11.9	C78A	C78D			
1.5SMCJ85	1.5SMCJ85C	85.0	94.40	115.00	1	5.0	5.0	151.0	9.9	C85V	C85C			
1.5SMCJ85A	1.5SMCJ85CA	85.0	94.40	104.00	1	5.0	5.0	137.0	10.9	C85A	C85D			
1.5SMCJ90	1.5SMCJ90C	90.0	100.00	122.00	1	5.0	5.0	160.0	9.4	C90V	C90C			
1.5SMCJ90A	1.5SMCJ90CA	90.0	100.00	111.00	1	5.0	5.0	146.0	10.3	C90A	C90D			
1.5SMCJ100	1.5SMCJ100C	100.0	111.00	136.00	1	5.0	5.0	179.0	8.4	C100V	C100C			
1.5SMCJ100A	1.5SMCJ100CA	100.0	111.00	123.00	1	5.0	5.0	162.0	9.3	C100A	C100D			
1.5SMCJ110	1.5SMCJ110C	110.0	122.00	149.00	1	5.0	5.0	196.0	7.7	C110V	C110C			
1.5SMCJ110A	1.5SMCJ110CA	110.0	122.00	135.00	1	5.0	5.0	177.0	8.5	C110A	C110D			
1.5SMCJ120	1.5SMCJ120C	120.0	133.00	163.00	1	5.0	5.0	214.0	7.0	C120V	C120C			
1.5SMCJ120A	1.5SMCJ120CA	120.0	133.00	147.00	1	5.0	5.0	193.0	7.8	C120A	C120D			
1.5SMCJ130	1.5SMCJ130C	130.0	144.00	176.00	1	5.0	5.0	231.0	6.5	C130V	C130C			
1.5SMCJ130A	1.5SMCJ130CA	130.0	144.00	159.00	1	5.0	5.0	209.0	7.2	C130A	C130D			
1.5SMCJ150	1.5SMCJ150C	150.0	167.00	204.00	1	5.0	5.0	268.0	5.6	C150V	C150C			
1.5SMCJ150A	1.5SMCJ150CA	150.0	167.00	185.00	1	5.0	5.0	243.0	6.2	C150A	C150D			
1.5SMCJ160	1.5SMCJ160C	160.0	178.00	218.00	1	5.0	5.0	287.0	5.2	C160V	C160C			
1.5SMCJ160A	1.5SMCJ160CA	160.0	178.00	197.00	1	5.0	5.0	259.0	5.8	C160A	C160D			
1.5SMCJ170	1.5SMCJ170C	170.0	189.00	231.00	1	5.0	5.0	304.0	4.9	C170V	C170C			
1.5SMCJ170A	1.5SMCJ170CA	170.0	189.00	209.00	1	5.0	5.0	275.0	5.5	C170A	C170D			
1.5SMCJ188	1.5SMCJ188C	188.0	209.00	255.00	1	5.0	5.0	344.0	4.4	C188V	C188C			
1.5SMCJ188A	1.5SMCJ188CA	188.0	209.00	231.00	1	5.0	5.0	325.0	4.6	C188A	C188D			
1.5SMCJ200A	1.5SMCJ200CA	200.0	224.00	247.00	1	5.0	5.0	324.0	4.6	C200A	C200D			
1.5SMCJ220A	1.5SMCJ220CA	220.0	246.00	272.00	1	5.0	5.0	356.0	4.2	C220A	C220D			

# 1.5SMCJ Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current	Package				
			VBR@ I T			I T	I R@ VRWM			Vc@Ipp	Ipp	SMC/DO-214AB		
			VRWM	Min.			Max.					UNI	BI	Device Marking Code
UNI	BI	V	V	V	m A	μA	μA	V	A	UNI	BI			
1500W Transient Voltage Suppressor														
1.5SMCJ250A	1.5SMCJ250CA	250.0	279.00	309.00	1	5.0	5.0	405.0	3.7	C250A	C250D			
1.5SMCJ300A	1.5SMCJ300CA	300.0	335.00	371.00	1	5.0	5.0	486.0	3.1	C300A	C300D			
1.5SMCJ350A	1.5SMCJ350CA	350.0	391.00	432.00	1	5.0	5.0	567.0	2.6	C350A	C350D			
1.5SMCJ400A	1.5SMCJ400CA	400.0	447.00	494.00	1	5.0	5.0	648.0	2.3	C400A	C400D			
1.5SMCJ440A	1.5SMCJ440CA	440.0	492.00	543.00	1	5.0	5.0	713.0	2.1	C440A	C440D			

# DEVICE CHARACTERISTICS

## 1.5SMCJ Series

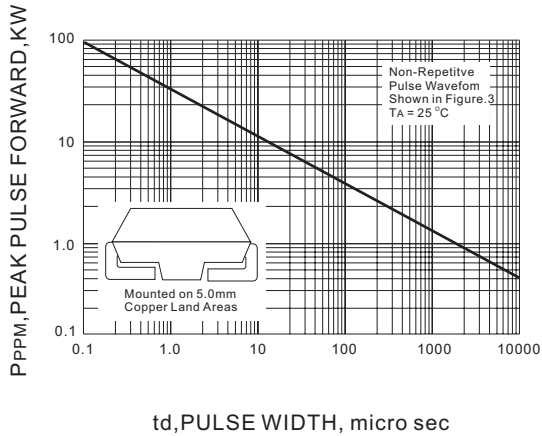


Fig.1 PEAK PULSE POWER RATING CURVE

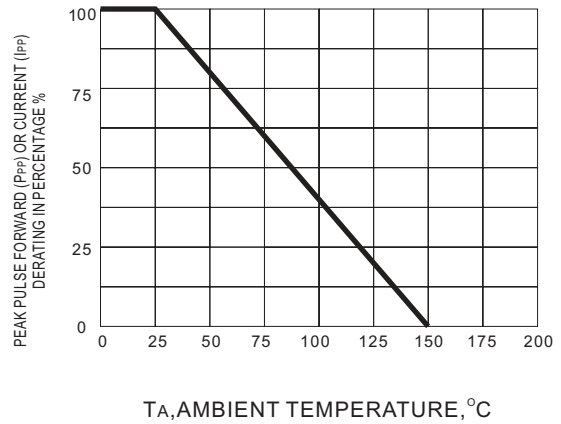


Fig.2 DERATING CURVE

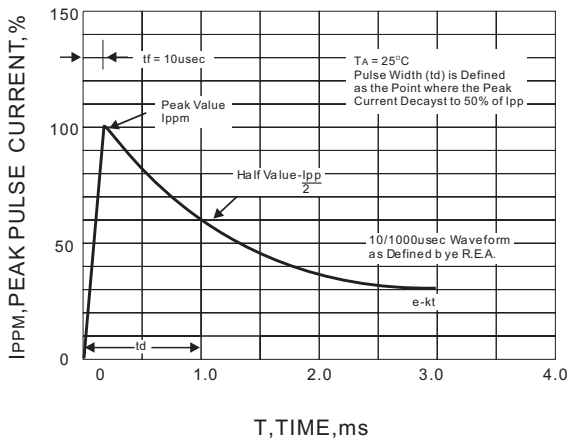


Fig.3 PULSE WAVE FORM

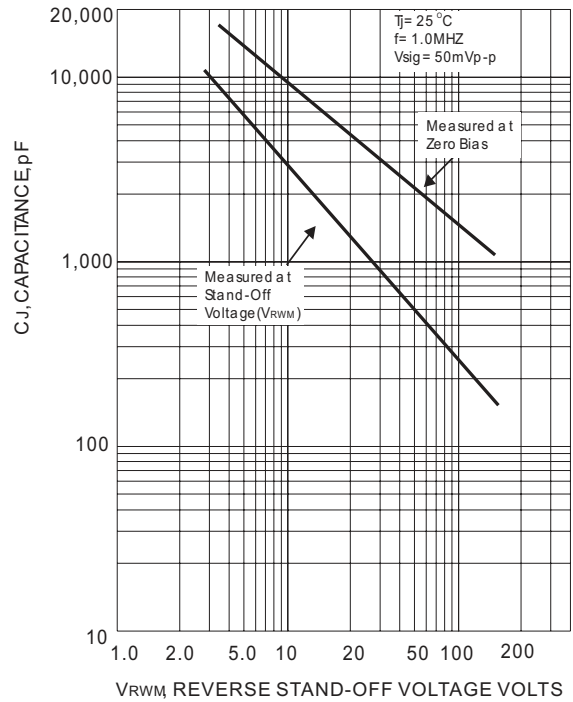


Fig.4 TYPICAL CAPACITANCE

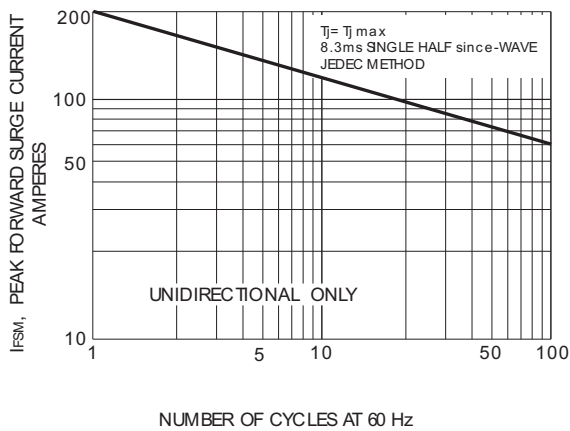


Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT