



3.DATA SHEET

P4SMAJ SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR
VOLTAGE - 5.0 to 220 Volts 400 Watt Peak Power Pulse

SMA / DO-214AC

Unit: inch (mm)

FEATURES

- For surface mounted applications in order to optimize board space.
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Low inductance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- Typical IR less than 1μA above 10V
- High temperature soldering : 250°C/10 seconds at terminals.
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O

MECHANICAL DATA

Case: JEDEC DO-214AC low profile molded plastic
Terminals: Solder leads, solderable per MIL-STD-750, Method 2026
Polarity: Indicated by cathode band except Bi-directional types.
Standard Packaging: 12mm tape per(EIA-481)
Weight: 0.002 ounces, 0.064 gram



MAXIMUM RATINGS AND 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 at $T_A=25^\circ\text{C}$, $T_P=1\text{ms}$ (Note 1,2,5)Fig.1 | P_{PPM} | Minimum 400 | Watts |
| Peak Forward Surge Current, per Figure 5(Note 3) | I_{FSM} | 40.0 | Amps |
| Peak Pulse Current Current on 10/1000μs waveform(Note 1,2,5)Fig.2 | I_{PPM} | See Table 1 | Amps |
| Steady State Power Dissipation(Note 4) | $P_{M(AV)}$ | 1.0 | Watts |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | °C |

NOTES:

- 1.Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
- 2.Mounted on 5.0mm² Copper pads to each terminal.
- 3.8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.
- 4.lead temperature at 75°C= T_L .
- 5.Peak pluse power waveformis 10/1000μS.



| Part Number | | Marking Code | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage | Peak Pulse Current | Package | | | |
|--|-------------|--------------|----|---------------------------|-------------------|----------------------------------|--------------|-----------------------------------|------|--------------------|--------------------|--------------|----------------------------------|-----------------|----|
| | | | | | V _{RWM} | V _{BR} @ I _T | | I _R @ V _{RWM} | | | | | V _C @ I _{PP} | I _{PP} | |
| | | | | | | Min. | | Max. | UNI | | | | | | BI |
| UNI | BI | UNI | BI | V | V | V | mA | μA | μA | V | A | | | | |
| 400W Transient Voltage Suppressor | | | | | | | | | | | | | | | |
| P4SMAJ5.0 | P4SMAJ5.0C | HD | TD | 5.0 | 6.40 | 7.55 | 10 | 800 | 1600 | 9.6 | 41.6 | SMA/DO-214AC | | | |
| P4SMAJ5.0A | P4SMAJ5.0CA | HE | TE | 5.0 | 6.40 | 7.25 | 10 | 800 | 1600 | 9.2 | 43.5 | SMA/DO-214AC | | | |
| P4SMAJ6.0 | P4SMAJ6.0C | HF | TF | 6.0 | 6.67 | 8.45 | 10 | 800 | 1600 | 11.4 | 35.1 | SMA/DO-214AC | | | |
| P4SMAJ6.0A | P4SMAJ6.0CA | HG | TG | 6.0 | 6.67 | 7.67 | 10 | 800 | 1600 | S10.3 | 38.8 | SMA/DO-214AC | | | |
| P4SMAJ6.5 | P4SMAJ6.5C | HH | TH | 6.5 | 7.22 | 9.14 | 10 | 500 | 1000 | 12.3 | 32.5 | SMA/DO-214AC | | | |
| P4SMAJ6.5A | P4SMAJ6.5CA | HK | TK | 6.5 | 7.22 | 8.30 | 10 | 500 | 1000 | 11.2 | 35.7 | SMA/DO-214AC | | | |
| P4SMAJ7.0 | P4SMAJ7.0C | HL | TL | 7.0 | 7.78 | 9.86 | 10 | 200 | 400 | 13.3 | 30.1 | SMA/DO-214AC | | | |
| P4SMAJ7.0A | P4SMAJ7.0CA | HM | TM | 7.0 | 7.78 | 8.95 | 10 | 200 | 400 | 12.0 | 33.3 | SMA/DO-214AC | | | |
| P4SMAJ7.5 | P4SMAJ7.5C | HN | TN | 7.5 | 8.33 | 10.67 | 1.0 | 100 | 200 | 14.3 | 28.0 | SMA/DO-214AC | | | |
| P4SMAJ7.5A | P4SMAJ7.5CA | HP | TP | 7.5 | 8.33 | 9.58 | 1.0 | 100 | 200 | 12.9 | 31.0 | SMA/DO-214AC | | | |
| P4SMAJ8.0 | P4SMAJ8.0C | HQ | TQ | 8.0 | 8.89 | 11.30 | 1.0 | 50 | 100 | 15.0 | 26.5 | SMA/DO-214AC | | | |
| P4SMAJ8.0A | P4SMAJ8.0CA | HR | TR | 8.0 | 8.89 | 10.23 | 1.0 | 50 | 100 | 13.6 | 29.4 | SMA/DO-214AC | | | |
| P4SMAJ8.5 | P4SMAJ8.5C | HS | TS | 8.5 | 9.44 | 11.92 | 1.0 | 10 | 20 | 15.9 | 25.1 | SMA/DO-214AC | | | |
| P4SMAJ8.5A | P4SMAJ8.5CA | HT | TT | 8.5 | 9.44 | 10.82 | 1.0 | 10 | 20 | 14.4 | 27.7 | SMA/DO-214AC | | | |
| P4SMAJ9.0 | P4SMAJ9.0C | HU | TU | 9.0 | 10.0 | 12.6 | 1.0 | 5 | 10 | 16.9 | 23.6 | SMA/DO-214AC | | | |
| P4SMAJ9.0A | P4SMAJ9.0CA | HV | TV | 9.0 | 10.0 | 11.5 | 1.0 | 5 | 10 | 15.4 | 26.0 | SMA/DO-214AC | | | |
| P4SMAJ10 | P4SMAJ10C | HW | TW | 10 | 11.1 | 14.1 | 1.0 | 5 | 5 | 18.8 | 21.2 | SMA/DO-214AC | | | |
| P4SMAJ10A | P4SMAJ10CA | HX | TX | 10 | 11.1 | 12.8 | 1.0 | 5 | 5 | 17.0 | 23.5 | SMA/DO-214AC | | | |
| P4SMAJ11 | P4SMAJ11C | HY | TY | 11 | 12.2 | 15.4 | 1.0 | 5 | 5 | 20.1 | 20.0 | SMA/DO-214AC | | | |
| P4SMAJ11A | P4SMAJ11CA | HZ | TZ | 11 | 12.2 | 14.0 | 1.0 | 5 | 5 | 18.2 | 22.0 | SMA/DO-214AC | | | |
| P4SMAJ12 | P4SMAJ12C | ID | UD | 12 | 13.3 | 16.9 | 1.0 | 5 | 5 | 22.0 | 18.1 | SMA/DO-214AC | | | |
| P4SMAJ12A | P4SMAJ12CA | IE | UE | 12 | 13.3 | 15.3 | 1.0 | 5 | 5 | 19.9 | 20.1 | SMA/DO-214AC | | | |
| P4SMAJ13 | P4SMAJ13C | IF | UF | 13 | 14.4 | 18.2 | 1.0 | 5 | 5 | 23.8 | 16.8 | SMA/DO-214AC | | | |
| P4SMAJ13A | P4SMAJ13CA | IG | UG | 13 | 14.4 | 16.5 | 1.0 | 5 | 5 | 21.5 | 18.6 | SMA/DO-214AC | | | |
| P4SMAJ14 | P4SMAJ14C | IH | UH | 14 | 15.6 | 19.8 | 1.0 | 5 | 5 | 25.8 | 15.5 | SMA/DO-214AC | | | |
| P4SMAJ14A | P4SMAJ14CA | IK | UK | 14 | 15.6 | 17.9 | 1.0 | 5 | 5 | 23.2 | 17.2 | SMA/DO-214AC | | | |
| P4SMAJ15 | P4SMAJ15C | IL | UL | 15 | 16.7 | 21.1 | 1.0 | 5 | 5 | 26.9 | 14.8 | SMA/DO-214AC | | | |
| P4SMAJ15A | P4SMAJ15CA | IM | UM | 15 | 16.7 | 19.2 | 1.0 | 5 | 5 | 24.4 | 16.4 | SMA/DO-214AC | | | |
| P4SMAJ16 | P4SMAJ16C | IN | UN | 16 | 17.8 | 22.6 | 1.0 | 5 | 5 | 28.8 | 13.8 | SMA/DO-214AC | | | |
| P4SMAJ16A | P4SMAJ16CA | IP | UP | 16 | 17.8 | 20.5 | 1.0 | 5 | 5 | 26.0 | 15.3 | SMA/DO-214AC | | | |
| P4SMAJ17 | P4SMAJ17C | IQ | UQ | 17 | 18.9 | 23.9 | 1.0 | 5 | 5 | 30.5 | 13.1 | SMA/DO-214AC | | | |
| P4SMAJ17A | P4SMAJ17CA | IR | UR | 17 | 18.9 | 21.7 | 1.0 | 5 | 5 | 27.6 | 14.5 | SMA/DO-214AC | | | |
| P4SMAJ18 | P4SMAJ18C | IS | US | 18 | 20.0 | 25.3 | 1.0 | 5 | 5 | 32.2 | 12.4 | SMA/DO-214AC | | | |
| P4SMAJ18A | P4SMAJ18CA | IT | UT | 18 | 20.0 | 23.3 | 1.0 | 5 | 5 | 29.2 | 13.7 | SMA/DO-214AC | | | |
| P4SMAJ20 | P4SMAJ20C | IU | UU | 20 | 22.2 | 28.1 | 1.0 | 5 | 5 | 35.8 | 11.1 | SMA/DO-214AC | | | |
| P4SMAJ20A | P4SMAJ20CA | IV | UV | 20 | 22.2 | 25.5 | 1.0 | 5 | 5 | 32.4 | 12.3 | SMA/DO-214AC | | | |
| P4SMAJ22 | P4SMAJ22C | IW | UW | 22 | 24.4 | 30.9 | 1.0 | 5 | 5 | 39.4 | 10.1 | SMA/DO-214AC | | | |
| P4SMAJ22A | P4SMAJ22CA | IX | UX | 22 | 24.4 | 28.0 | 1.0 | 5 | 5 | 35.5 | 11.2 | SMA/DO-214AC | | | |
| P4SMAJ24 | P4SMAJ24C | IY | UY | 24 | 26.7 | 33.8 | 1.0 | 5 | 5 | 43.0 | 9.3 | SMA/DO-214AC | | | |
| P4SMAJ24A | P4SMAJ24CA | IZ | UZ | 24 | 26.7 | 30.7 | 1.0 | 5 | 5 | 38.9 | 10.3 | SMA/DO-214AC | | | |
| P4SMAJ26 | P4SMAJ26C | JD | VD | 26 | 28.9 | 36.6 | 1.0 | 5 | 5 | 46.6 | 8.6 | SMA/DO-214AC | | | |
| P4SMAJ26A | P4SMAJ26CA | JE | VE | 26 | 28.9 | 33.2 | 1.0 | 5 | 5 | 42.1 | 9.5 | SMA/DO-214AC | | | |
| P4SMAJ28 | P4SMAJ28C | JF | VF | 28 | 31.1 | 39.4 | 1.0 | 5 | 5 | 50.0 | 8.0 | SMA/DO-214AC | | | |
| P4SMAJ28A | P4SMAJ28CA | JG | VG | 28 | 31.1 | 35.8 | 1.0 | 5 | 5 | 45.4 | 8.8 | SMA/DO-214AC | | | |
| P4SMAJ30 | P4SMAJ30C | JH | VH | 30 | 33.3 | 42.2 | 1.0 | 5 | 5 | 53.5 | 7.5 | SMA/DO-214AC | | | |
| P4SMAJ30A | P4SMAJ30CA | JK | VK | 30 | 33.3 | 38.3 | 1.0 | 5 | 5 | 48.4 | 8.3 | SMA/DO-214AC | | | |
| P4SMAJ33 | P4SMAJ33C | JL | VL | 33 | 36.7 | 46.5 | 1.0 | 5 | 5 | 59.0 | 6.8 | SMA/DO-214AC | | | |
| P4SMAJ33A | P4SMAJ33CA | JM | VM | 33 | 36.7 | 42.2 | 1.0 | 5 | 5 | 53.3 | 7.5 | SMA/DO-214AC | | | |
| P4SMAJ36 | P4SMAJ36C | JN | VN | 36 | 40.0 | 50.7 | 1.0 | 5 | 5 | 64.3 | 6.2 | SMA/DO-214AC | | | |
| P4SMAJ36A | P4SMAJ36CA | JP | VP | 36 | 40.0 | 46.0 | 1.0 | 5 | 5 | 58.1 | 6.9 | SMA/DO-214AC | | | |
| P4SMAJ40 | P4SMAJ40C | JQ | VQ | 40 | 44.4 | 56.3 | 1.0 | 5 | 5 | 71.4 | 5.6 | SMA/DO-214AC | | | |
| P4SMAJ40A | P4SMAJ40CA | JR | VR | 40 | 44.4 | 51.1 | 1.0 | 5 | 5 | 64.5 | 6.2 | SMA/DO-214AC | | | |



| Part Number | | Marking Code | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage | Peak Pulse Current | Package |
|---|-------------|--------------|----|---------------------------|----------------------------------|----------------|--------------|-----------------------------------|-----|--------------------|----------------------------------|--------------|
| | | | | | V _{BR} @ I _T | I _T | | I _R @ V _{RWM} | | | | |
| | | | | V _{RWM} | | | Min. | Max. | UNI | BI | V _C @ I _{PP} | |
| UNI | BI | UNI | BI | V | V | V | mA | μA | μA | V | A | |
| 400W Transient Voltage Suppressor –continued | | | | | | | | | | | | |
| P4SMAJ43 | P4SMAJ43C | JS | VS | 43 | 47.8 | 60.5 | 1.0 | 5 | 5 | 76.7 | 5.2 | SMA/DO-214AC |
| P4SMAJ43A | P4SMAJ43CA | JT | VT | 43 | 47.8 | 54.9 | 1.0 | 5 | 5 | 69.4 | 5.7 | SMA/DO-214AC |
| P4SMAJ45 | P4SMAJ45C | JU | VU | 45 | 50.0 | 63.3 | 1.0 | 5 | 5 | 80.3 | 5.0 | SMA/DO-214AC |
| P4SMAJ45A | P4SMAJ45CA | JV | VV | 45 | 50.0 | 57.5 | 1.0 | 5 | 5 | 72.7 | 5.5 | SMA/DO-214AC |
| P4SMAJ48 | P4SMAJ48C | JW | VW | 48 | 53.3 | 67.5 | 1.0 | 5 | 5 | 85.5 | 4.7 | SMA/DO-214AC |
| P4SMAJ48A | P4SMAJ48CA | JX | VX | 48 | 53.3 | 61.3 | 1.0 | 5 | 5 | 77.4 | 5.2 | SMA/DO-214AC |
| P4SMAJ51 | P4SMAJ51C | JY | VY | 51 | 56.7 | 71.8 | 1.0 | 5 | 5 | 91.1 | 4.4 | SMA/DO-214AC |
| P4SMAJ51A | P4SMAJ51CA | JZ | VZ | 51 | 56.7 | 65.2 | 1.0 | 5 | 5 | 82.4 | 4.9 | SMA/DO-214AC |
| P4SMAJ54 | P4SMAJ54C | RD | WD | 54 | 60.0 | 76.0 | 1.0 | 5 | 5 | 96.3 | 4.2 | SMA/DO-214AC |
| P4SMAJ54A | P4SMAJ54CA | RE | WE | 54 | 60.0 | 69.0 | 1.0 | 5 | 5 | 87.1 | 4.6 | SMA/DO-214AC |
| P4SMAJ58 | P4SMAJ58C | RF | WF | 58 | 64.4 | 81.6 | 1.0 | 5 | 5 | 103 | 3.9 | SMA/DO-214AC |
| P4SMAJ58A | P4SMAJ58CA | RG | WG | 58 | 64.4 | 74.1 | 1.0 | 5 | 5 | 93.6 | 4.3 | SMA/DO-214AC |
| P4SMAJ60 | P4SMAJ60C | RH | WH | 60 | 66.7 | 84.5 | 1.0 | 5 | 5 | 107 | 3.7 | SMA/DO-214AC |
| P4SMAJ60A | P4SMAJ60CA | RK | WK | 60 | 66.7 | 76.7 | 1.0 | 5 | 5 | 96.8 | 4.1 | SMA/DO-214AC |
| P4SMAJ64 | P4SMAJ64C | RL | WL | 64 | 71.1 | 90.1 | 1.0 | 5 | 5 | 114 | 3.5 | SMA/DO-214AC |
| P4SMAJ64A | P4SMAJ64CA | RM | WM | 64 | 71.1 | 81.8 | 1.0 | 5 | 5 | 103 | 3.9 | SMA/DO-214AC |
| P4SMAJ70 | P4SMAJ70C | RN | WN | 70 | 77.8 | 98.6 | 1.0 | 5 | 5 | 125 | 3.2 | SMA/DO-214AC |
| P4SMAJ70A | P4SMAJ70CA | RP | WP | 70 | 77.8 | 89.5 | 1.0 | 5 | 5 | 113 | 3.5 | SMA/DO-214AC |
| P4SMAJ75 | P4SMAJ75C | RQ | WQ | 75 | 83.3 | 105.7 | 1.0 | 5 | 5 | 134 | 3.0 | SMA/DO-214AC |
| P4SMAJ75A | P4SMAJ75CA | RR | WR | 75 | 83.3 | 95.8 | 1.0 | 5 | 5 | 121 | 3.3 | SMA/DO-214AC |
| P4SMAJ78 | P4SMAJ78C | RS | WS | 78 | 86.7 | 109.8 | 1.0 | 5 | 5 | 139 | 2.9 | SMA/DO-214AC |
| P4SMAJ78A | P4SMAJ78CA | RT | WT | 78 | 86.7 | 99.7 | 1.0 | 5 | 5 | 126 | 2.2 | SMA/DO-214AC |
| P4SMAJ85 | P4SMAJ85C | RU | WU | 85 | 94.4 | 119.2 | 1.0 | 5 | 5 | 151 | 2.6 | SMA/DO-214AC |
| P4SMAJ85A | P4SMAJ85CA | RV | WV | 85 | 94.4 | 108.2 | 1.0 | 5 | 5 | 137 | 2.9 | SMA/DO-214AC |
| P4SMAJ90 | P4SMAJ90C | RW | WW | 90 | 100 | 126.5 | 1.0 | 5 | 5 | 160 | 2.5 | SMA/DO-214AC |
| P4SMAJ90A | P4SMAJ90CA | RX | WX | 90 | 100 | 115.5 | 1.0 | 5 | 5 | 146 | 2.7 | SMA/DO-214AC |
| P4SMAJ100 | P4SMAJ100C | RY | WY | 100 | 111 | 141.0 | 1.0 | 5 | 5 | 179 | 2.2 | SMA/DO-214AC |
| P4SMAJ100A | P4SMAJ100CA | RZ | WZ | 100 | 111 | 128.0 | 1.0 | 5 | 5 | 162 | 2.5 | SMA/DO-214AC |
| P4SMAJ110 | P4SMAJ110C | SD | XD | 110 | 122 | 154.5 | 1.0 | 5 | 5 | 196 | 2.0 | SMA/DO-214AC |
| P4SMAJ110A | P4SMAJ110CA | SE | XE | 110 | 122 | 140.5 | 1.0 | 5 | 5 | 177 | 2.3 | SMA/DO-214AC |
| P4SMAJ120 | P4SMAJ120C | SF | XF | 120 | 133 | 169.0 | 1.0 | 5 | 5 | 214 | 1.9 | SMA/DO-214AC |
| P4SMAJ120A | P4SMAJ120CA | SG | XG | 120 | 133 | 153.0 | 1.0 | 5 | 5 | 193 | 2.0 | SMA/DO-214AC |
| P4SMAJ130 | P4SMAJ130C | SH | XH | 130 | 144 | 182.5 | 1.0 | 5 | 5 | 231 | 1.7 | SMA/DO-214AC |
| P4SMAJ130A | P4SMAJ130CA | SK | XK | 130 | 144 | 165.5 | 1.0 | 5 | 5 | 209 | 1.9 | SMA/DO-214AC |
| P4SMAJ150 | P4SMAJ150C | SL | XL | 150 | 167 | 211.5 | 1.0 | 5 | 5 | 268 | 1.5 | SMA/DO-214AC |
| P4SMAJ150A | P4SMAJ150CA | SM | XM | 150 | 167 | 192.5 | 1.0 | 5 | 5 | 243 | 1.6 | SMA/DO-214AC |
| P4SMAJ160 | P4SMAJ160C | SN | XN | 160 | 178 | 226.0 | 1.0 | 5 | 5 | 287 | 1.4 | SMA/DO-214AC |
| P4SMAJ160A | P4SMAJ160CA | SP | XP | 160 | 178 | 205.0 | 1.0 | 5 | 5 | 259 | 1.5 | SMA/DO-214AC |
| P4SMAJ170 | P4SMAJ170C | SQ | XQ | 170 | 189 | 239.5 | 1.0 | 5 | 5 | 304 | 1.3 | SMA/DO-214AC |
| P4SMAJ170A | P4SMAJ170CA | SR | XR | 170 | 189 | 217.5 | 1.0 | 5 | 5 | 275 | 1.4 | SMA/DO-214AC |
| P4SMAJ180 | P4SMAJ180C | SS | XS | 180 | 198 | 253.8 | 1.0 | 5 | 5 | 322 | 1.2 | SMA/DO-214AC |
| P4SMAJ180A | P4SMAJ180CA | ST | XT | 180 | 198 | 230.4 | 1.0 | 5 | 5 | 292 | 1.3 | SMA/DO-214AC |
| P4SMAJ190 | P4SMAJ190C | SU | XU | 190 | 209 | 267.9 | 1.0 | 5 | 5 | 340 | 1.2 | SMA/DO-214AC |
| P4SMAJ190A | P4SMAJ190CA | SV | XV | 190 | 209 | 243.2 | 1.0 | 5 | 5 | 308 | 1.3 | SMA/DO-214AC |
| P4SMAJ200 | P4SMAJ200C | SW | XW | 200 | 220 | 282.0 | 1.0 | 5 | 5 | 358 | 1.1 | SMA/DO-214AC |
| P4SMAJ200A | P4SMAJ200CA | SX | XX | 200 | 220 | 256.0 | 1.0 | 5 | 5 | 324 | 1.2 | SMA/DO-214AC |
| P4SMAJ210 | P4SMAJ210C | SY | XY | 210 | 231 | 296.1 | 1.0 | 5 | 5 | 376 | 1.1 | SMA/DO-214AC |
| P4SMAJ210A | P4SMAJ210CA | SZ | XZ | 210 | 231 | 268.8 | 1.0 | 5 | 5 | 340 | 1.2 | SMA/DO-214AC |
| P4SMAJ220 | P4SMAJ220C | GD | ZD | 220 | 242 | 310.2 | 1.0 | 5 | 5 | 394 | 1.0 | SMA/DO-214AC |
| P4SMAJ220A | P4SMAJ220CA | GE | ZE | 220 | 242 | 281.6 | 1.0 | 5 | 5 | 356 | 1.1 | SMA/DO-214AC |



td, PULSE WIDTH, SEC
FIGURE 1-PEAK PULSE POWER RATING CURVE



TA, AMBIENT TEMPERATURE, °C
FIGURE 2 DERATING CURVE



t, TIME, ms
FIGURE 3-PULSE WAVEFORM



V(BR), BREAKDOWN VOLTAGE, VOLTS
FIGURE 4-TYPICAL CAPACITANCE



TL, LEAD TEMPERATURE, °C
FIG. 5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT