

**SURFACE MOUNT  
UNIDIRECTIONAL AND BIDIRECTIONAL  
TRANSIENT VOLTAGE SUPPRESSORS**

STAND-OFF VOLTAGE - **6.8 to 200** Volts  
POWER DISSIPATION - **600** WATTS

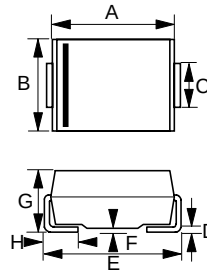
**FEATURES**

- Rating to 200V VBR
- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-O
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ps for Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min

**MECHANICAL DATA**

- Case : Molded plastic
- Polarity : by cathode band denotes uni-directional device none cathode band denotes bi-directional device
- Weight : 0.003 ounces, 0.093 gram

**SMB**



| SMB                          |      |      |
|------------------------------|------|------|
| DIM.                         | MIN. | MAX. |
| A                            | 4.06 | 4.57 |
| B                            | 3.30 | 3.94 |
| C                            | 1.96 | 2.21 |
| D                            | 0.15 | 0.31 |
| E                            | 5.21 | 5.59 |
| F                            | 0.05 | 0.20 |
| G                            | 2.01 | 2.62 |
| H                            | 0.76 | 1.52 |
| All Dimensions in millimeter |      |      |

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25°C ambient temperature unless otherwise specified.  
Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%

| CHARACTERISTICS                                                                                               | SYMBOLS            | VALUE       | UNIT  |
|---------------------------------------------------------------------------------------------------------------|--------------------|-------------|-------|
| PEAK POWER DISSIPATION AT T <sub>A</sub> = 25°C, T <sub>P</sub> = 1ms (Note 1,2)                              | P <sub>PK</sub>    | Minimum 600 | WATTS |
| Peak Forward Surge Current 8.3ms single half sine-wave super imposed on rated load (Note 3)<br>(JEDEC METHOD) | I <sub>FSM</sub>   | 100         | AMPS. |
| Steady State Power Dissipation at T <sub>L</sub> = 75°C                                                       | P <sub>M(AV)</sub> | 5.0         | WATTS |
| Maximum Instantaneous forward voltage at 50A for unidirectional devices only (Note 3)                         | V <sub>F</sub>     | SEE NOTE 4  | Volts |
| Operating Temperature Range                                                                                   | T <sub>J</sub>     | -55 to +150 | °C    |
| Storage Temperature Range                                                                                     | T <sub>STG</sub>   | -55 to +175 | °C    |

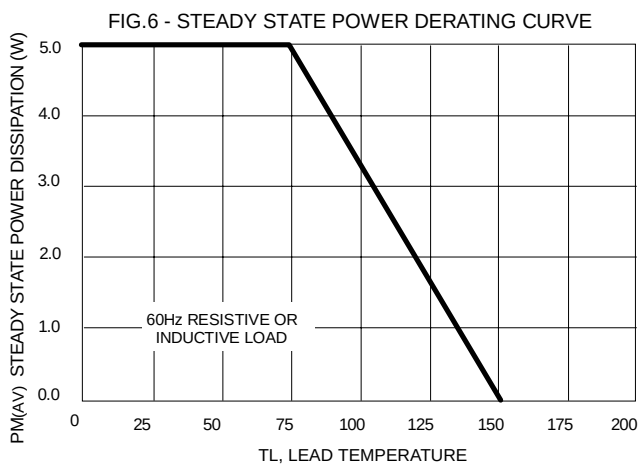
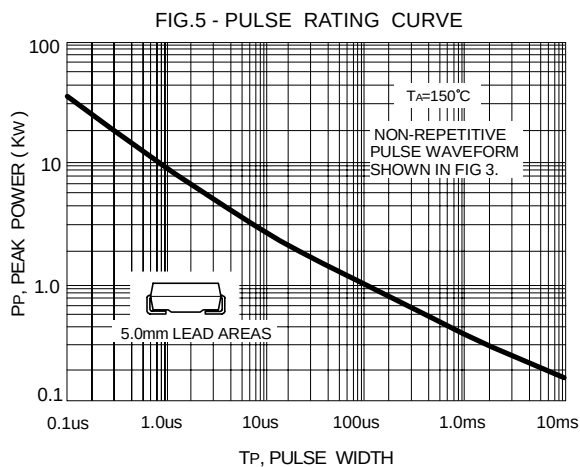
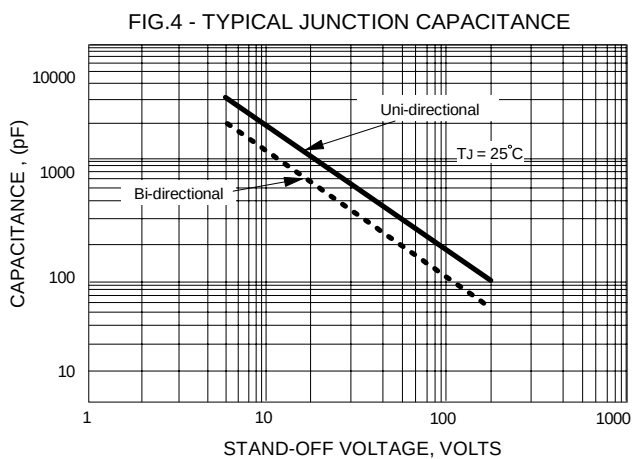
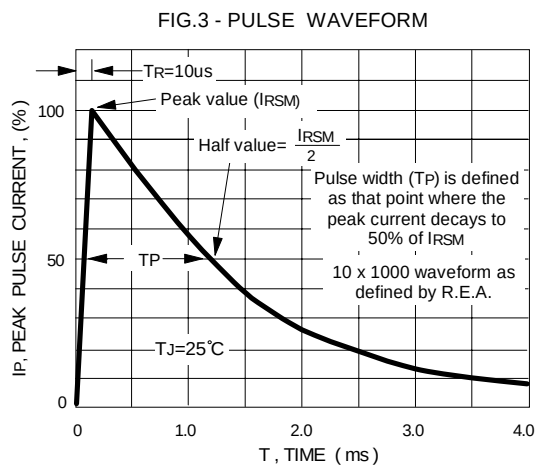
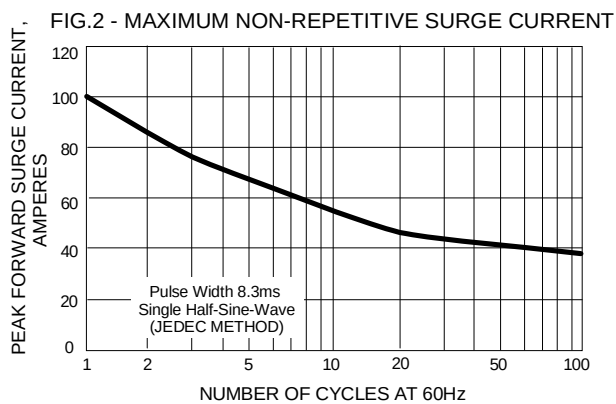
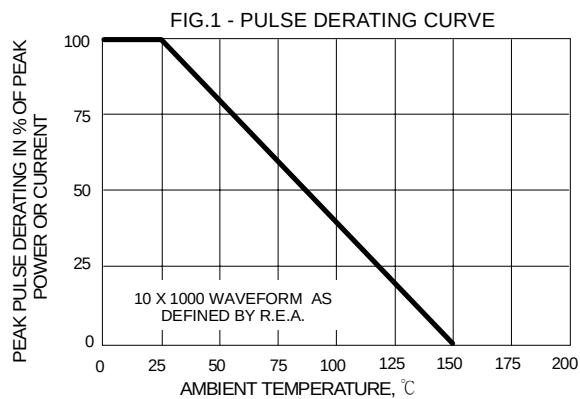
NOTES : 1. Non-repetitive current pulse, per fig. 3 and derated above T<sub>A</sub> = 25°C per fig.1.

2. Thermal Resistance junction to Lead

3. 8.3ms single half-sine wave duty cycle= 4 pulses maximum per minute (unidirectional units only).

4. V<sub>F</sub> = 3.5V on SMB6.8 thru SMB90A devices and V<sub>F</sub> = 5.0V on SMB100 thru SMB200A devices.

REV. 2, 01-Dec-2000, KSIB01



| Device<br>Uni-<br>directional | Device<br>Bi-<br>directional | Device<br>Marking code |      | Breakdown voltage<br>VBR Volts |      |          | Working<br>PeakReverse<br>Voltage | Maximum<br>Reverse<br>Leakage at<br>V <sub>RWM</sub> | Maximum<br>Reverse Surge<br>Current | Maximum<br>Reverse Voltage<br>at I <sub>RSM</sub><br>(Clamping<br>Voltage) |
|-------------------------------|------------------------------|------------------------|------|--------------------------------|------|----------|-----------------------------------|------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------|
|                               |                              | (UNI)                  | (BI) | Min.                           | Max. | @IT( mA) |                                   |                                                      |                                     |                                                                            |
| SMB6.8                        | SMB6.8C                      | KDK                    | KDM  | 6.12                           | 7.48 | 10.0     | 5.50                              | 1000                                                 | 55.6                                | 10.8                                                                       |
| SMB6.8A                       | SMB6.8CA                     | KEK                    | KEM  | 6.45                           | 7.14 | 10.0     | 5.80                              | 1000                                                 | 57.1                                | 10.5                                                                       |
| SMB7.5                        | SMB7.5C                      | KFK                    | KFM  | 6.75                           | 8.25 | 10.0     | 6.05                              | 500                                                  | 51.3                                | 11.7                                                                       |
| SMB7.5A                       | SMB7.5CA                     | KGK                    | KGM  | 7.13                           | 7.88 | 10.0     | 6.40                              | 500                                                  | 53.1                                | 11.3                                                                       |
| SMB8.2                        | SMB8.2C                      | KHK                    | KHM  | 7.38                           | 9.02 | 10.0     | 6.63                              | 200                                                  | 48.0                                | 12.5                                                                       |
| SMB8.2A                       | SMB8.2CA                     | KKK                    | KKM  | 7.79                           | 8.61 | 10.0     | 7.02                              | 200                                                  | 49.6                                | 12.1                                                                       |
| SMB9.1                        | SMB9.1C                      | KLK                    | KLM  | 8.19                           | 10.0 | 10.0     | 7.37                              | 50.0                                                 | 44.0                                | 13.8                                                                       |
| SMB9.1A                       | SMB9.1CA                     | KMK                    | KMM  | 8.65                           | 9.55 | 10.0     | 7.78                              | 50.0                                                 | 44.8                                | 13.4                                                                       |
| SMB10                         | SMB10C                       | KNK                    | KNM  | 9.00                           | 11.0 | 1.0      | 8.10                              | 20.0                                                 | 40.0                                | 15.0                                                                       |
| SMB10A                        | SMB10CA                      | KPK                    | KPM  | 9.50                           | 10.5 | 1.0      | 8.55                              | 20.0                                                 | 41.4                                | 14.5                                                                       |
| SMB11                         | SMB11C                       | KQK                    | KQM  | 9.90                           | 12.1 | 1.0      | 8.92                              | 5.0                                                  | 37.0                                | 16.2                                                                       |
| SMB11A                        | SMB11CA                      | KRK                    | KRM  | 10.5                           | 11.6 | 1.0      | 9.40                              | 5.0                                                  | 38.5                                | 15.6                                                                       |
| SMB12                         | SMB12C                       | KSK                    | KSM  | 10.8                           | 13.2 | 1.0      | 9.72                              | 5.0                                                  | 34.7                                | 17.3                                                                       |
| SMB12A                        | SMB12CA                      | KTk                    | KTM  | 11.4                           | 12.6 | 1.0      | 10.2                              | 5.0                                                  | 35.9                                | 16.7                                                                       |
| SMB13                         | SMB13C                       | KUK                    | KUM  | 11.7                           | 14.3 | 1.0      | 10.5                              | 5.0                                                  | 31.6                                | 19.0                                                                       |
| SMB13A                        | SMB13CA                      | KVK                    | KVM  | 12.4                           | 13.7 | 1.0      | 11.1                              | 5.0                                                  | 33.0                                | 18.2                                                                       |
| SMB15                         | SMB15C                       | KWK                    | KWM  | 13.5                           | 16.3 | 1.0      | 12.1                              | 5.0                                                  | 27.3                                | 22.0                                                                       |
| SMB15A                        | SMB15CA                      | KXK                    | KXM  | 14.3                           | 15.8 | 1.0      | 12.8                              | 5.0                                                  | 28.3                                | 21.2                                                                       |
| SMB16                         | SMB16C                       | KYK                    | KYM  | 14.4                           | 17.6 | 1.0      | 12.9                              | 5.0                                                  | 25.5                                | 23.5                                                                       |
| SMB16A                        | SMB16CA                      | KZK                    | KZM  | 15.2                           | 16.8 | 1.0      | 13.6                              | 5.0                                                  | 26.7                                | 22.5                                                                       |
| SMB18                         | SMB18C                       | LDK                    | LDM  | 16.2                           | 19.8 | 1.0      | 14.5                              | 5.0                                                  | 22.6                                | 26.5                                                                       |
| SMB18A                        | SMB18CA                      | LEK                    | LEM  | 17.1                           | 18.9 | 1.0      | 15.3                              | 5.0                                                  | 23.5                                | 25.5                                                                       |
| SMB20                         | SMB20C                       | LFK                    | LFM  | 18.0                           | 22.0 | 1.0      | 16.2                              | 5.0                                                  | 20.6                                | 29.1                                                                       |
| SMB20A                        | SMB20CA                      | LGK                    | LGM  | 19.0                           | 21.0 | 1.0      | 17.1                              | 5.0                                                  | 21.7                                | 27.7                                                                       |
| SMB22                         | SMB22C                       | LHK                    | LHM  | 19.8                           | 24.2 | 1.0      | 17.8                              | 5.0                                                  | 18.8                                | 31.9                                                                       |
| SMB22A                        | SMB22CA                      | LKK                    | LKM  | 20.9                           | 23.1 | 1.0      | 18.8                              | 5.0                                                  | 19.6                                | 30.6                                                                       |
| SMB24                         | SMB24C                       | LLK                    | LLM  | 21.6                           | 26.4 | 1.0      | 19.4                              | 5.0                                                  | 17.3                                | 34.7                                                                       |
| SMB24A                        | SMB24CA                      | LMK                    | LMM  | 22.8                           | 25.2 | 1.0      | 20.5                              | 5.0                                                  | 18.1                                | 33.2                                                                       |
| SMB27                         | SMB27C                       | LNK                    | LNm  | 24.3                           | 29.7 | 1.0      | 21.8                              | 5.0                                                  | 15.3                                | 39.1                                                                       |
| SMB27A                        | SMB27CA                      | LPK                    | LPM  | 25.7                           | 28.4 | 1.0      | 23.1                              | 5.0                                                  | 16.0                                | 37.5                                                                       |
| SMB30                         | SMB30C                       | LQK                    | LQM  | 27.0                           | 33.0 | 1.0      | 24.3                              | 5.0                                                  | 13.8                                | 43.5                                                                       |
| SMB30A                        | SMB30CA                      | LRK                    | LRM  | 28.5                           | 31.5 | 1.0      | 25.6                              | 5.0                                                  | 14.4                                | 41.4                                                                       |
| SMB33                         | SMB33C                       | LSK                    | LSM  | 29.7                           | 36.3 | 1.0      | 26.8                              | 5.0                                                  | 12.6                                | 47.7                                                                       |
| SMB33A                        | SMB33CA                      | LTK                    | LTM  | 31.4                           | 34.7 | 1.0      | 28.2                              | 5.0                                                  | 13.2                                | 45.7                                                                       |
| SMB36                         | SMB36C                       | LUK                    | LUM  | 32.4                           | 39.6 | 1.0      | 29.1                              | 5.0                                                  | 11.6                                | 52.0                                                                       |
| SMB36A                        | SMB36CA                      | LVK                    | LVM  | 34.2                           | 37.8 | 1.0      | 30.8                              | 5.0                                                  | 12.0                                | 49.9                                                                       |
| SMB39                         | SMB39C                       | LWK                    | LWM  | 35.1                           | 42.9 | 1.0      | 31.6                              | 5.0                                                  | 10.6                                | 56.4                                                                       |
| SMB39A                        | SMB39CA                      | LXK                    | LXM  | 37.1                           | 41.0 | 1.0      | 33.3                              | 5.0                                                  | 11.2                                | 53.9                                                                       |
| SMB43                         | SMB43C                       | LYK                    | LYM  | 38.7                           | 47.3 | 1.0      | 34.8                              | 5.0                                                  | 9.6                                 | 61.9                                                                       |
| SMB43A                        | SMB43CA                      | LZK                    | LZM  | 40.9                           | 45.2 | 1.0      | 36.8                              | 5.0                                                  | 10.1                                | 59.3                                                                       |

| Device<br>Uni-<br>directional | Device<br>Bi-<br>directional | Device<br>Marking code |      | Breakdown voltage<br>VBR Volts |      |          | Working<br>PeakReverse<br>Voltage<br>VRWM(Volts) | Maximum<br>Reverse<br>Leakage at<br>VRWM | Maximum<br>Reverse Surge<br>Current<br>IRSM(Amps) | Maximum<br>Reverse Voltage<br>at IRSM<br>(Clamping<br>Voltage)<br>VRSM(Volts) |
|-------------------------------|------------------------------|------------------------|------|--------------------------------|------|----------|--------------------------------------------------|------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------|
|                               |                              | (UNI)                  | (BI) | Min.                           | Max. | @IT( mA) |                                                  |                                          |                                                   |                                                                               |
| SMB47                         | SMB47C                       | MDK                    | MDM  | 42.3                           | 51.7 | 1.0      | 38.1                                             | 5.0                                      | 8.85                                              | 67.8                                                                          |
| SMB47A                        | SMB47CA                      | MEK                    | MEM  | 44.7                           | 49.4 | 1.0      | 40.2                                             | 5.0                                      | 9.26                                              | 64.8                                                                          |
| SMB51                         | SMB45C                       | MFK                    | MFM  | 45.9                           | 56.1 | 1.0      | 41.3                                             | 5.0                                      | 8.16                                              | 73.5                                                                          |
| SMB51A                        | SMB45CA                      | MGK                    | MGM  | 48.5                           | 53.6 | 1.0      | 43.6                                             | 5.0                                      | 8.56                                              | 70.1                                                                          |
| SMB56                         | SMB56C                       | MHK                    | MHM  | 50.4                           | 61.6 | 1.0      | 45.4                                             | 5.0                                      | 7.45                                              | 80.5                                                                          |
| SMB56A                        | SMB56CA                      | MKK                    | MKM  | 53.2                           | 58.8 | 1.0      | 47.8                                             | 5.0                                      | 7.79                                              | 77.0                                                                          |
| SMB62                         | SMB62C                       | MLK                    | MLM  | 55.8                           | 68.2 | 1.0      | 50.2                                             | 5.0                                      | 6.74                                              | 89.0                                                                          |
| SMB62A                        | SMB62CA                      | MMK                    | MMM  | 58.9                           | 65.1 | 1.0      | 53.0                                             | 5.0                                      | 7.06                                              | 85.0                                                                          |
| SMB68                         | SMB68C                       | MNK                    | MNM  | 61.2                           | 74.8 | 1.0      | 55.1                                             | 5.0                                      | 6.12                                              | 98.0                                                                          |
| SMB68A                        | SMB68CA                      | MPK                    | MPM  | 64.6                           | 71.4 | 1.0      | 58.1                                             | 5.0                                      | 6.52                                              | 92.0                                                                          |
| SMB75                         | SMB75C                       | MQK                    | MQM  | 67.5                           | 82.5 | 1.0      | 60.7                                             | 5.0                                      | 5.56                                              | 108                                                                           |
| SMB75A                        | SMB75CA                      | MRK                    | MRM  | 71.3                           | 78.8 | 1.0      | 64.1                                             | 5.0                                      | 5.83                                              | 103                                                                           |
| SMB82                         | SMB82C                       | MSK                    | MSM  | 73.8                           | 90.2 | 1.0      | 66.4                                             | 5.0                                      | 5.08                                              | 118                                                                           |
| SMB82A                        | SMB82CA                      | MTK                    | MTM  | 77.8                           | 86.0 | 1.0      | 70.1                                             | 5.0                                      | 5.31                                              | 113                                                                           |
| SMB91                         | SMB91C                       | MUK                    | MUM  | 81.9                           | 100  | 1.0      | 73.7                                             | 5.0                                      | 4.58                                              | 131                                                                           |
| SMB91A                        | SMB91CA                      | MVK                    | MVM  | 86.5                           | 95.5 | 1.0      | 77.8                                             | 5.0                                      | 4.80                                              | 125                                                                           |
| SMB100                        | SMB100C                      | MWK                    | MWM  | 90.0                           | 110  | 1.0      | 81.0                                             | 5.0                                      | 4.17                                              | 144                                                                           |
| SMB100A                       | SMB100CA                     | MXK                    | MXM  | 95.0                           | 105  | 1.0      | 85.5                                             | 5.0                                      | 4.38                                              | 137                                                                           |
| SMB110                        | SMB110C                      | MYK                    | MYM  | 99.0                           | 121  | 1.0      | 89.2                                             | 5.0                                      | 3.80                                              | 158                                                                           |
| SMB110A                       | SMB110CA                     | MZK                    | MZM  | 105                            | 116  | 1.0      | 94.0                                             | 5.0                                      | 3.95                                              | 152                                                                           |
| SMB120                        | SMB120C                      | NDK                    | NDM  | 108                            | 132  | 1.0      | 97.2                                             | 5.0                                      | 3.47                                              | 173                                                                           |
| SMB120A                       | SMB120CA                     | NEK                    | NEM  | 114                            | 126  | 1.0      | 102                                              | 5.0                                      | 3.64                                              | 165                                                                           |
| SMB130                        | SMB130C                      | NFK                    | NFM  | 117                            | 143  | 1.0      | 105                                              | 5.0                                      | 3.21                                              | 187                                                                           |
| SMB130A                       | SMB130CA                     | NGK                    | NGM  | 124                            | 137  | 1.0      | 111                                              | 5.0                                      | 3.35                                              | 179                                                                           |
| SMB150                        | SMB150C                      | NHK                    | NHM  | 135                            | 165  | 1.0      | 121                                              | 5.0                                      | 2.79                                              | 215                                                                           |
| SMB150A                       | SMB150CA                     | NKK                    | NKM  | 143                            | 158  | 1.0      | 128                                              | 5.0                                      | 2.90                                              | 207                                                                           |
| SMB160                        | SMB160C                      | NLK                    | NLM  | 144                            | 176  | 1.0      | 130                                              | 5.0                                      | 2.61                                              | 230                                                                           |
| SMB160A                       | SMB160CA                     | NMK                    | NMM  | 152                            | 168  | 1.0      | 136                                              | 5.0                                      | 2.74                                              | 219                                                                           |
| SMB170                        | SMB170C                      | NNK                    | NNM  | 153                            | 187  | 1.0      | 138                                              | 5.0                                      | 2.46                                              | 244                                                                           |
| SMB170A                       | SMB170CA                     | NPK                    | NPM  | 162                            | 179  | 1.0      | 145                                              | 5.0                                      | 2.56                                              | 234                                                                           |
| SMB180                        | SMB180C                      | NQK                    | NQM  | 162                            | 198  | 1.0      | 146                                              | 5.0                                      | 2.33                                              | 258                                                                           |
| SMB180A                       | SMB180CA                     | NRK                    | NRM  | 171                            | 189  | 1.0      | 154                                              | 5.0                                      | 2.44                                              | 246                                                                           |
| SMB200                        | SMB200C                      | NSK                    | NSM  | 180                            | 220  | 1.0      | 162                                              | 5.0                                      | 2.09                                              | 287                                                                           |
| SMB200A                       | SMB200CA                     | NTK                    | NTM  | 190                            | 210  | 1.0      | 171                                              | 5.0                                      | 2.19                                              | 274                                                                           |

**NOTE :**

- 1) Suffix 'A ' denotes 5% tolerance device, no suffix denotes 10 % tolerance device.
- 2) Add suffix 'C ' or ' CA ' after part number to specify Bi-directional devices.
- 3) For Bi-Directional devices having VR of 10 volts and under, the IR limit is double .
- 4) For Uni-directional devices VF max=3.5v at if=35 A ,0.5 sine wave of 8.3 msec .pulse width.