

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

STAND-OFF VOLTAGE - **6.8 to 200** Volts  
POWER DISSIPATION - **400** WATTS

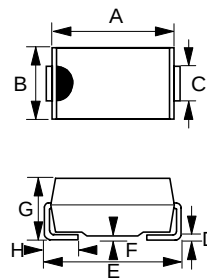
**FEATURES**

- 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 : 0.002 ounces, 0.064 grams

**SMA**



| SMA                          |      |      |
|------------------------------|------|------|
| DIM.                         | MIN. | MAX. |
| A                            | 4.06 | 4.57 |
| B                            | 2.29 | 2.92 |
| C                            | 1.27 | 1.63 |
| D                            | 0.15 | 0.31 |
| E                            | 4.83 | 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%

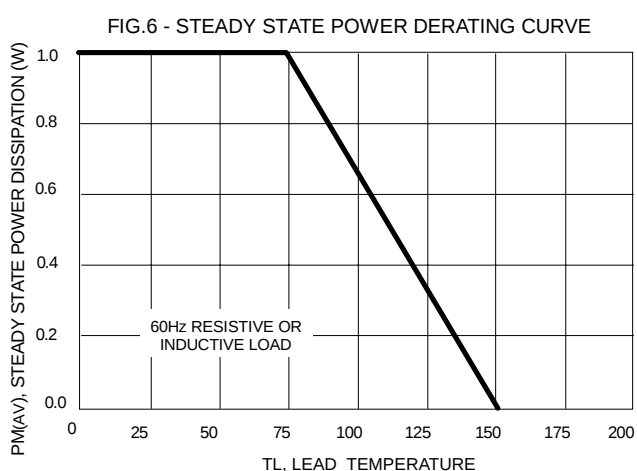
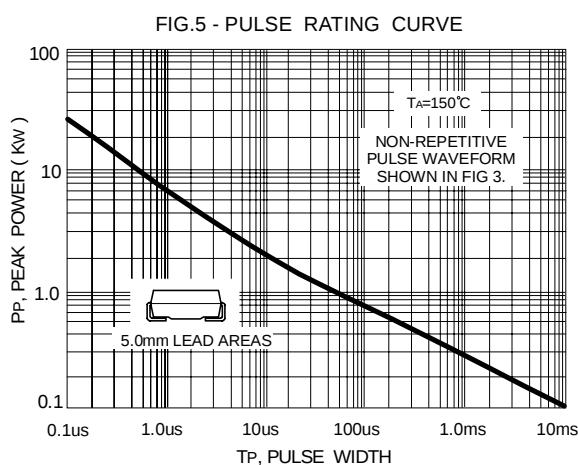
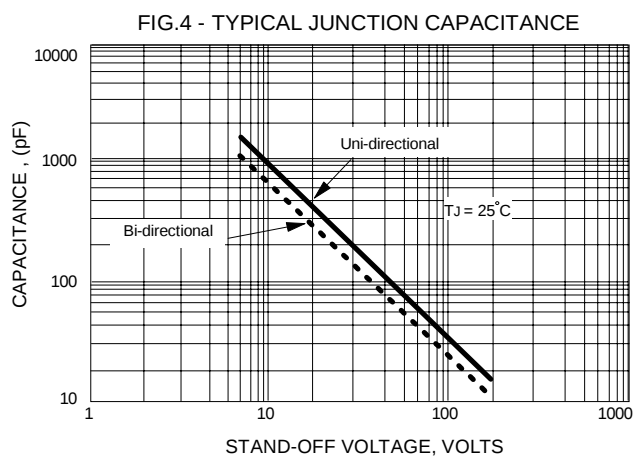
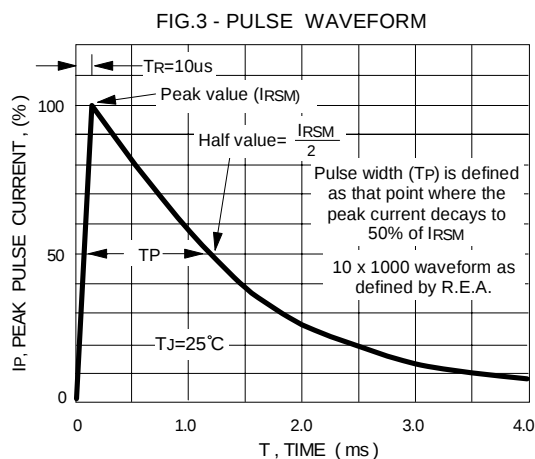
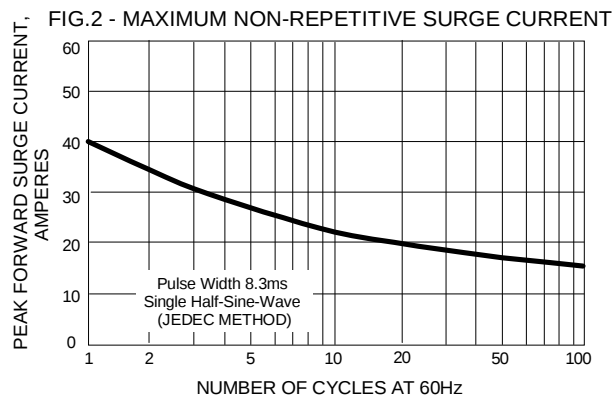
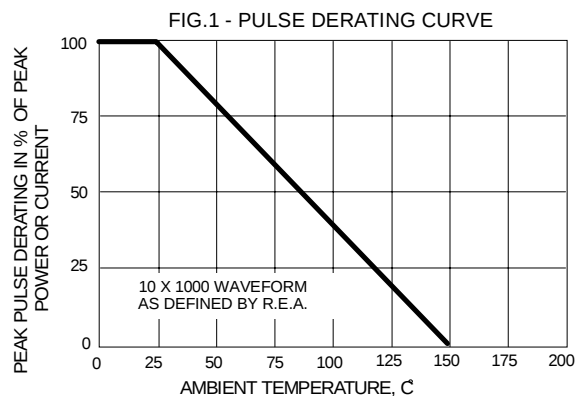
| CHARACTERISTICS                                                                                            | SYMBOLS | VALUE       | UNIT  |
|------------------------------------------------------------------------------------------------------------|---------|-------------|-------|
| PEAK POWER DISSIPATION AT TA = 25 °C, TP = 1ms (Note 1,2)                                                  | PPK     | Minimum 400 | WATTS |
| Peak Forward Surge Current 8.3ms single half sine-wave super imposed on rated load (Note 3) (JEDEC METHOD) | IFSM    | 40          | AMPS. |
| Steady State Power Dissipation at TL = 75°C                                                                | PM(AV)  | 1.0         | WATTS |
| Maximum Instantaneous forward voltage at 35A for unidirectional devices only (Note 3)                      | VF      | 3.5         | Volts |
| Operating Temperature Range                                                                                | TJ      | -55 to +150 | °C    |
| Storage Temperature Range                                                                                  | TSTG    | -55 to +175 | °C    |

NOTES : 1. Non-repetitive current pulse, per fig. 3 and derated above TA= 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).

REV. 2, 01-Dec-2000, KSIA01



| 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<br>IR (uA) | 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) |                                                  |                                                     |                                                   |                                                                               |
| SMA6.8                        | SMA6.8C                      | ADK                    | ADM  | 6.12                           | 7.48 | 10       | 5.50                                             | 1000                                                | 37.0                                              | 10.8                                                                          |
| SMA6.8A                       | SMA6.8CA                     | AEK                    | AEM  | 6.45                           | 7.13 | 10       | 5.80                                             | 1000                                                | 38.1                                              | 10.5                                                                          |
| SMA7.5                        | SMA7.5C                      | AFK                    | AFM  | 6.75                           | 8.25 | 10       | 6.05                                             | 500                                                 | 34.2                                              | 11.7                                                                          |
| SMA7.5A                       | SMA7.5CA                     | AGK                    | AGM  | 7.13                           | 7.88 | 10       | 6.40                                             | 500                                                 | 35.4                                              | 11.3                                                                          |
| SMA8.2                        | SMA8.2C                      | AHK                    | AHM  | 7.38                           | 9.02 | 10       | 6.63                                             | 200                                                 | 32.0                                              | 12.5                                                                          |
| SMA8.2A                       | SMA8.2CA                     | AKK                    | AKM  | 7.79                           | 8.61 | 10       | 7.02                                             | 200                                                 | 33.1                                              | 12.1                                                                          |
| SMA9.1                        | SMA9.1C                      | ALK                    | ALM  | 8.19                           | 10.0 | 10       | 7.37                                             | 50.0                                                | 29.0                                              | 13.8                                                                          |
| SMA9.1A                       | SMA9.1CA                     | AMK                    | AMM  | 8.65                           | 9.55 | 10       | 7.78                                             | 50.0                                                | 29.8                                              | 13.4                                                                          |
| SMA10                         | SMA10C                       | ANK                    | ANM  | 9.00                           | 11.0 | 1.0      | 8.10                                             | 20.0                                                | 26.7                                              | 15.0                                                                          |
| SMA10A                        | SMA10CA                      | APK                    | APM  | 9.50                           | 10.5 | 1.0      | 8.55                                             | 20.0                                                | 27.6                                              | 14.5                                                                          |
| SMA11                         | SMA11C                       | AQK                    | AQM  | 9.90                           | 12.1 | 1.0      | 8.92                                             | 5.0                                                 | 24.7                                              | 16.2                                                                          |
| SMA11A                        | SMA11CA                      | ARK                    | ARM  | 10.5                           | 11.6 | 1.0      | 9.40                                             | 5.0                                                 | 25.6                                              | 15.6                                                                          |
| SMA12                         | SMA12C                       | ASK                    | ASM  | 10.8                           | 13.2 | 1.0      | 9.72                                             | 5.0                                                 | 23.1                                              | 17.3                                                                          |
| SMA12A                        | SMA12CA                      | ATK                    | ATM  | 11.4                           | 12.6 | 1.0      | 10.2                                             | 5.0                                                 | 23.9                                              | 16.7                                                                          |
| SMA13                         | SMA13C                       | AUK                    | AUM  | 11.7                           | 14.3 | 1.0      | 10.5                                             | 5.0                                                 | 21.0                                              | 19.0                                                                          |
| SMA13A                        | SMA13CA                      | AVK                    | AVM  | 12.4                           | 13.7 | 1.0      | 11.1                                             | 5.0                                                 | 22.0                                              | 18.2                                                                          |
| SMA15                         | SMA15C                       | AWK                    | AWM  | 13.5                           | 16.3 | 1.0      | 12.1                                             | 5.0                                                 | 18.2                                              | 22.0                                                                          |
| SMA15A                        | SMA15CA                      | AXK                    | AXM  | 14.3                           | 15.8 | 1.0      | 12.8                                             | 5.0                                                 | 18.7                                              | 21.2                                                                          |
| SMA16                         | SMA16C                       | AYK                    | AYM  | 14.4                           | 17.6 | 1.0      | 12.9                                             | 5.0                                                 | 17.0                                              | 23.5                                                                          |
| SMA16A                        | SMA16CA                      | AZK                    | AZM  | 15.2                           | 16.8 | 1.0      | 13.6                                             | 5.0                                                 | 17.8                                              | 22.5                                                                          |
| SMA18                         | SMA18C                       | BDK                    | BDM  | 16.2                           | 19.8 | 1.0      | 14.5                                             | 5.0                                                 | 15.1                                              | 26.5                                                                          |
| SMA18A                        | SMA18CA                      | BEK                    | BEM  | 17.1                           | 18.9 | 1.0      | 15.3                                             | 5.0                                                 | 15.7                                              | 25.5                                                                          |
| SMA20                         | SMA20C                       | BFK                    | BFM  | 18.0                           | 22.0 | 1.0      | 16.2                                             | 5.0                                                 | 13.7                                              | 29.1                                                                          |
| SMA20A                        | SMA20CA                      | BGK                    | BGM  | 19.0                           | 21.0 | 1.0      | 17.1                                             | 5.0                                                 | 14.4                                              | 27.7                                                                          |
| SMA22                         | SMA22C                       | BHK                    | BHM  | 19.8                           | 24.2 | 1.0      | 17.8                                             | 5.0                                                 | 12.5                                              | 31.9                                                                          |
| SMA22A                        | SMA22CA                      | BKK                    | BKM  | 20.9                           | 23.1 | 1.0      | 18.8                                             | 5.0                                                 | 13.1                                              | 30.6                                                                          |
| SMA24                         | SMA24C                       | BLK                    | BLM  | 21.6                           | 26.4 | 1.0      | 19.4                                             | 5.0                                                 | 11.5                                              | 34.7                                                                          |
| SMA24A                        | SMA24CA                      | BMK                    | BMM  | 22.8                           | 25.2 | 1.0      | 20.5                                             | 5.0                                                 | 12.0                                              | 33.2                                                                          |
| SMA27                         | SMA27C                       | BNK                    | BNM  | 24.3                           | 29.7 | 1.0      | 21.8                                             | 5.0                                                 | 10.2                                              | 39.1                                                                          |
| SMA27A                        | SMA27CA                      | BPK                    | BPM  | 25.7                           | 28.4 | 1.0      | 23.1                                             | 5.0                                                 | 10.7                                              | 37.5                                                                          |
| SMA30                         | SMA30C                       | BQK                    | BQM  | 27.0                           | 33.0 | 1.0      | 24.3                                             | 5.0                                                 | 9.2                                               | 43.5                                                                          |
| SMA30A                        | SMA30CA                      | BRK                    | BRM  | 28.5                           | 31.5 | 1.0      | 25.6                                             | 5.0                                                 | 9.7                                               | 41.4                                                                          |
| SMA33                         | SMA33C                       | BSK                    | BSM  | 29.7                           | 36.3 | 1.0      | 26.8                                             | 5.0                                                 | 8.4                                               | 47.7                                                                          |
| SMA33A                        | SMA33CA                      | BTk                    | BTM  | 31.4                           | 34.7 | 1.0      | 28.2                                             | 5.0                                                 | 8.8                                               | 45.7                                                                          |
| SMA36                         | SMA36C                       | BUK                    | BUM  | 32.4                           | 39.6 | 1.0      | 29.1                                             | 5.0                                                 | 7.7                                               | 52.0                                                                          |
| SMA36A                        | SMA36CA                      | BVK                    | BVM  | 34.2                           | 37.8 | 1.0      | 30.8                                             | 5.0                                                 | 8.0                                               | 49.9                                                                          |
| SMA39                         | SMA39C                       | BWK                    | BWM  | 35.1                           | 42.9 | 1.0      | 31.6                                             | 5.0                                                 | 7.1                                               | 56.4                                                                          |
| SMA39A                        | SMA39CA                      | BXK                    | BXM  | 37.1                           | 41.0 | 1.0      | 33.3                                             | 5.0                                                 | 7.4                                               | 53.9                                                                          |
| SMA43                         | SMA43C                       | BYK                    | BYM  | 38.7                           | 47.3 | 1.0      | 34.8                                             | 5.0                                                 | 6.5                                               | 61.9                                                                          |
| SMA43A                        | SMA43CA                      | BZK                    | BZM  | 40.9                           | 45.2 | 1.0      | 36.8                                             | 5.0                                                 | 6.7                                               | 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<br>IR (uA) | 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) |                                                  |                                                     |                                                   |                                                                               |
| SMA47                         | SMA47C                       | CDK                    | CDM  | 42.3                           | 51.7 | 1.0      | 38.1                                             | 5.0                                                 | 5.90                                              | 67.8                                                                          |
| SMA47A                        | SMA47CA                      | CEK                    | CEM  | 44.7                           | 49.4 | 1.0      | 40.2                                             | 5.0                                                 | 6.17                                              | 64.8                                                                          |
| SMA51                         | SMA45C                       | CFK                    | CFM  | 45.9                           | 56.1 | 1.0      | 41.3                                             | 5.0                                                 | 5.44                                              | 73.5                                                                          |
| SMA51A                        | SMA45CA                      | CGK                    | CGM  | 48.5                           | 53.6 | 1.0      | 43.6                                             | 5.0                                                 | 5.71                                              | 70.1                                                                          |
| SMA56                         | SMA56C                       | CHK                    | CHM  | 50.4                           | 61.6 | 1.0      | 45.4                                             | 5.0                                                 | 4.97                                              | 80.5                                                                          |
| SMA56A                        | SMA56CA                      | CKK                    | CKM  | 53.2                           | 58.8 | 1.0      | 47.8                                             | 5.0                                                 | 5.19                                              | 77.0                                                                          |
| SMA62                         | SMA62C                       | CLK                    | CLM  | 55.8                           | 68.2 | 1.0      | 50.2                                             | 5.0                                                 | 4.49                                              | 89.0                                                                          |
| SMA62A                        | SMA62CA                      | CMK                    | CMM  | 58.9                           | 65.1 | 1.0      | 53.0                                             | 5.0                                                 | 4.71                                              | 85.0                                                                          |
| SMA68                         | SMA68C                       | CNK                    | CNM  | 61.2                           | 74.8 | 1.0      | 55.1                                             | 5.0                                                 | 4.08                                              | 98.0                                                                          |
| SMA68A                        | SMA68CA                      | CPK                    | CPM  | 64.6                           | 71.4 | 1.0      | 58.1                                             | 5.0                                                 | 4.35                                              | 92.0                                                                          |
| SMA75                         | SMA75C                       | CQK                    | CQM  | 67.5                           | 82.5 | 1.0      | 60.7                                             | 5.0                                                 | 3.70                                              | 108                                                                           |
| SMA75A                        | SMA75CA                      | CRK                    | CRM  | 71.3                           | 78.8 | 1.0      | 64.1                                             | 5.0                                                 | 3.88                                              | 103                                                                           |
| SMA82                         | SMA82C                       | CSK                    | CSM  | 73.8                           | 90.2 | 1.0      | 66.4                                             | 5.0                                                 | 3.39                                              | 118                                                                           |
| SMA82A                        | SMA82CA                      | CTK                    | CTM  | 77.8                           | 86.0 | 1.0      | 70.1                                             | 5.0                                                 | 3.54                                              | 113                                                                           |
| SMA91                         | SMA91C                       | CUK                    | CUM  | 81.9                           | 100  | 1.0      | 73.7                                             | 5.0                                                 | 3.05                                              | 131                                                                           |
| SMA91A                        | SMA91CA                      | CVK                    | CVM  | 86.5                           | 95.5 | 1.0      | 77.8                                             | 5.0                                                 | 3.20                                              | 125                                                                           |
| SMA100                        | SMA100C                      | CWK                    | CWM  | 90.0                           | 110  | 1.0      | 81.0                                             | 5.0                                                 | 2.78                                              | 144                                                                           |
| SMA100A                       | SMA100CA                     | CXK                    | CXM  | 95.0                           | 105  | 1.0      | 85.5                                             | 5.0                                                 | 2.92                                              | 137                                                                           |
| SMA110                        | SMA110C                      | CYK                    | CYM  | 99.0                           | 121  | 1.0      | 89.2                                             | 5.0                                                 | 2.53                                              | 158                                                                           |
| SMA110A                       | SMA110CA                     | CZK                    | CZM  | 105                            | 116  | 1.0      | 94.0                                             | 5.0                                                 | 2.63                                              | 152                                                                           |
| SMA120                        | SMA120C                      | RDK                    | RDM  | 108                            | 132  | 1.0      | 97.2                                             | 5.0                                                 | 2.31                                              | 173                                                                           |
| SMA120A                       | SMA120CA                     | REK                    | REM  | 114                            | 126  | 1.0      | 102                                              | 5.0                                                 | 2.42                                              | 165                                                                           |
| SMA130                        | SMA130C                      | RFK                    | RFM  | 117                            | 143  | 1.0      | 105                                              | 5.0                                                 | 2.14                                              | 187                                                                           |
| SMA130A                       | SMA130CA                     | RGK                    | RGM  | 124                            | 137  | 1.0      | 111                                              | 5.0                                                 | 2.23                                              | 179                                                                           |
| SMA150                        | SMA150C                      | RHK                    | RHM  | 135                            | 165  | 1.0      | 121                                              | 5.0                                                 | 1.86                                              | 215                                                                           |
| SMA150A                       | SMA150CA                     | RKK                    | RKM  | 143                            | 158  | 1.0      | 128                                              | 5.0                                                 | 1.93                                              | 207                                                                           |
| SMA160                        | SMA160C                      | RLK                    | RLM  | 144                            | 176  | 1.0      | 130                                              | 5.0                                                 | 1.74                                              | 230                                                                           |
| SMA160A                       | SMA160CA                     | RMK                    | RMM  | 152                            | 168  | 1.0      | 136                                              | 5.0                                                 | 1.83                                              | 219                                                                           |
| SMA170                        | SMA170C                      | RNK                    | RNM  | 153                            | 187  | 1.0      | 138                                              | 5.0                                                 | 1.64                                              | 244                                                                           |
| SMA170A                       | SMA170CA                     | RPK                    | RPM  | 162                            | 179  | 1.0      | 145                                              | 5.0                                                 | 1.71                                              | 234                                                                           |
| SMA180                        | SMA180C                      | RQK                    | RQM  | 162                            | 198  | 1.0      | 146                                              | 5.0                                                 | 1.55                                              | 258                                                                           |
| SMA180A                       | SMA180CA                     | RRK                    | RRM  | 171                            | 189  | 1.0      | 154                                              | 5.0                                                 | 1.63                                              | 246                                                                           |
| SMA200                        | SMA200C                      | RSK                    | RSM  | 180                            | 220  | 1.0      | 162                                              | 5.0                                                 | 1.39                                              | 287                                                                           |
| SMA200A                       | SMA200CA                     | RTK                    | RTM  | 190                            | 210  | 1.0      | 171                                              | 5.0                                                 | 1.46                                              | 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.