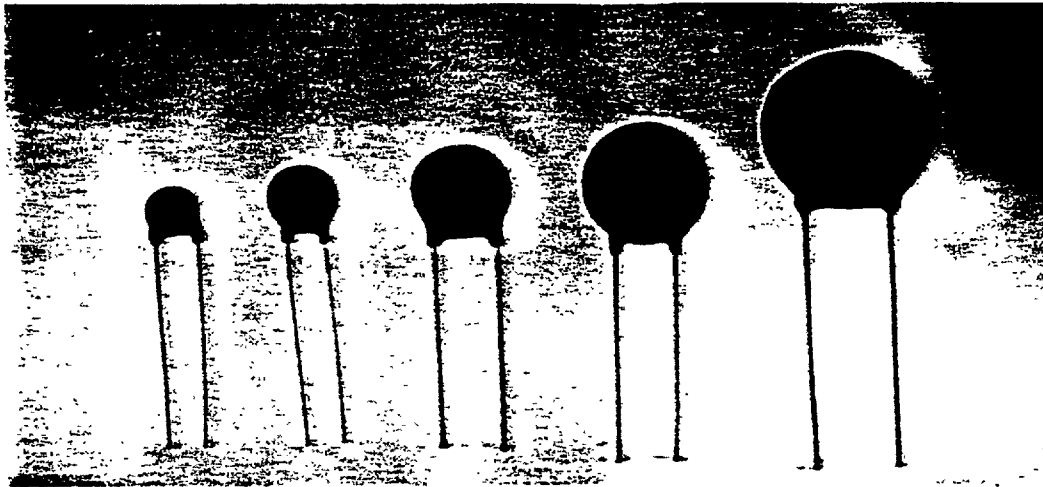


**EDAL****Metal Oxide Varistors****MOV Transient Voltage Suppressors****Description/Features**

**EDAL** Metal Oxide Varistors and Transient Voltage Suppressors having a non-linear current-voltage characteristic which sustains an almost constant voltage over a wide range of current. They are ideally suited to all transient voltage protection applications and their high clamping efficiency and low steady state power dissipation offer considerable circuit advantages over most existing methods of protection.

During operation, the —MOV idles at a low current level at the nominal voltage. When a transient over voltage occurs, —MOV current increases rapidly, its voltage remaining virtually constant, and the transient energy content is thus absorbed.

**FEATURES**

- High surge current capability
- Excellent voltage clamping characteristic
- Symmetrical characteristic — use on AC or DC
- Instantaneous response
- Compact and robust
- Low idling current

**APPLICATIONS**

- Protection of all types of semiconductors
- Absorption of surges associated with lightning
- Suppression of switching surges
- Protection in inductive switching circuits
- Prolongation of contact life
- Voltage clipping

**Selection Procedure**

- 1) Choose the AC or DC voltage rating, from columns 3 or 4 to be equal or marginally greater than the maximum steady state circuit value.
- 2) Calculate or estimate the maximum transient energy possible in the circuit. For example, a transient produced by switching a transformer will have an energy content of  $\frac{1}{2}LI^2$ , where L is the transformer leakage inductance and I is the peak current flowing through the winding.
- 3) Ensure that peak current will not be exceeded for the selected varistor.
- 4) The chosen varistor can now be assessed from the VI curves for its voltage clamping characteristics at a specified current.

**Other Edal Products****Silicon Power Rectifiers****Silicon Diodes****Silicon High Voltage Rectifiers****High Current Bridges****Printed Circuit Board Bridges****Special Designs****Selenium Power Rectifiers**

**EDAL**  
 INDUSTRIES, Inc.

# Line Voltage MOV's

| Part Number | Max. Applied Continuous Voltage |      | Nominal Voltage @ 1 ms OC | Energy 2 ms | Max. Clamping Voltage 1/25 us |      | Peak Current | Typical Capacitance | Dimensions (mm) |      |      |     |
|-------------|---------------------------------|------|---------------------------|-------------|-------------------------------|------|--------------|---------------------|-----------------|------|------|-----|
|             | AC                              | DC   |                           |             | Volts                         | Amps |              |                     | Q-Max           | T    | W    | d   |
| M130LA2     | 130                             | 175  | 200(185-225)              | 11          | 340                           | 10   | 1200         | 250                 | 9.0             | 4.2  | 5.0  | 0.8 |
| M130LA5     | 130                             | 175  | 200(185-225)              | 20          | 340                           | 25   | 2500         | 500                 | 13.5            | 4.6  | 7.5  | 0.8 |
| M130LA10A   | 130                             | 175  | 200(185-225)              | 38          | 340                           | 50   | 4500         | 1000                | 17.0            | 4.8  | 7.5  | 0.8 |
| M130LA20A   | 130                             | 175  | 200(185-225)              | 70          | 340                           | 100  | 6500         | 2000                | 23.0            | 5.0  | 10.0 | 0.8 |
| M130LA20B   | 130                             | 175  | 200(185-215)              | 70          | 325                           | 100  | 6500         | 2000                | 23.0            | 5.0  | 10.0 | 0.8 |
| M140LA2     | 140                             | 180  | 220(198-242)              | 12          | 380                           | 10   | 1200         | 250                 | 9.0             | 4.3  | 5.0  | 0.8 |
| M140LA5     | 140                             | 180  | 220(198-242)              | 23          | 380                           | 25   | 2500         | 450                 | 13.5            | 4.7  | 7.5  | 0.8 |
| M140LA10A   | 140                             | 180  | 220(198-242)              | 42          | 380                           | 50   | 4500         | 1000                | 17.0            | 4.7  | 7.5  | 0.8 |
| M140LA20A   | 140                             | 180  | 220(198-242)              | 75          | 380                           | 100  | 6500         | 2000                | 23.0            | 5.2  | 10.0 | 0.8 |
| M150LA2     | 150                             | 200  | 240(216-264)              | 13          | 395                           | 10   | 1200         | 200                 | 9.0             | 5.0  | 5.0  | 0.8 |
| M150LA5     | 150                             | 200  | 240(216-264)              | 25          | 395                           | 25   | 2500         | 400                 | 13.5            | 7.5  | 7.5  | 0.8 |
| M150LA10A   | 150                             | 200  | 240(216-264)              | 46          | 395                           | 50   | 4500         | 900                 | 17.0            | 7.5  | 7.5  | 0.8 |
| M150LA20A   | 150                             | 200  | 240(216-264)              | 80          | 395                           | 100  | 6500         | 1800                | 23.0            | 10.0 | 10.0 | 0.8 |
| M150LA20B   | 150                             | 200  | 240(216-240)              | 80          | 380                           | 100  | 6500         | 1800                | 23.0            | 10.0 | 10.0 | 0.8 |
| M175LA2     | 175                             | 225  | 270(247-303)              | 15          | 465                           | 10   | 1200         | 170                 | 9.0             | 4.6  | 5.0  | 0.8 |
| M175LA10A   | 175                             | 225  | 270(247-303)              | 55          | 465                           | 50   | 4500         | 750                 | 17.0            | 5.1  | 7.5  | 0.8 |
| M175LA20A   | 175                             | 225  | 270(247-303)              | 90          | 465                           | 100  | 6500         | 1800                | 23.0            | 5.5  | 10.0 | 0.8 |
| M230LA4     | 230                             | 300  | 360(324-396)              | 15          | 595                           | 10   | 1200         | 130                 | 9.0             | 5.2  | 5.0  | 0.8 |
| M230LA10    | 230                             | 300  | 360(324-396)              | 35          | 595                           | 25   | 2500         | 300                 | 14.0            | 5.7  | 7.5  | 0.8 |
| M230LA20A   | 230                             | 300  | 360(324-396)              | 65          | 595                           | 50   | 4500         | 550                 | 17.5            | 5.7  | 7.5  | 0.8 |
| M230LA20A   | 230                             | 300  | 360(324-396)              | 120         | 595                           | 100  | 6500         | 1200                | 24.0            | 8.5  | 10.0 | 0.8 |
| M250LA4..   | 250                             | 330  | 390(351-429)              | 21          | 660                           | 10   | 1200         | 130                 | 9.0             | 5.4  | 5.0  | 0.8 |
| M250LA10    | 250                             | 330  | 390(351-429)              | 40          | 660                           | 25   | 2500         | 270                 | 14.0            | 5.8  | 7.5  | 0.8 |
| M250LA20A   | 250                             | 330  | 390(351-429)              | 72          | 660                           | 50   | 4500         | 500                 | 17.5            | 5.8  | 7.5  | 0.8 |
| M250LA40A   | 250                             | 330  | 390(351-429)              | 130         | 660                           | 100  | 6500         | 1000                | 24.0            | 6.4  | 10.0 | 0.8 |
| M250LA40B   | 250                             | 330  | 390(351-413)              | 130         | 620                           | 100  | 6500         | 1000                | 24.0            | 6.4  | 10.0 | 0.8 |
| M275LA4     | 275                             | 350  | 430(387-473)              | 23          | 710                           | 10   | 1200         | 110                 | 9.0             | 5.7  | 5.0  | 0.8 |
| M275LA10    | 275                             | 350  | 430(387-473)              | 46          | 710                           | 25   | 2500         | 250                 | 14.0            | 6.2  | 7.5  | 0.8 |
| M275LA20A   | 275                             | 350  | 430(387-473)              | 75          | 710                           | 50   | 4500         | 460                 | 17.5            | 6.2  | 7.5  | 0.8 |
| M275LA40A   | 275                             | 350  | 430(387-473)              | 140         | 710                           | 100  | 6500         | 900                 | 24.0            | 6.7  | 10.0 | 0.8 |
| M275LA40B   | 275                             | 350  | 430(387-453)              | 140         | 680                           | 100  | 6500         | 900                 | 24.0            | 6.7  | 10.0 | 0.8 |
| M300LA4     | 300                             | 385  | 470(423-517)              | 25          | 775                           | 10   | 1200         | 100                 | 9.0             | 6.5  | 5.0  | 0.8 |
| M320LA15A   | 320                             | 420  | 510(462-565)              | 90          | 850                           | 50   | 4500         | 270                 | 17.5            | 6.7  | 7.5  | 0.8 |
| M320LA40A   | 320                             | 420  | 510(462-565)              | 160         | 850                           | 100  | 6500         | 550                 | 24.0            | 7.2  | 10.0 | 0.8 |
| M320LA40B   | 320                             | 420  | 510(462-540)              | 160         | 810                           | 100  | 6500         | 550                 | 24.0            | 7.2  | 10.0 | 0.8 |
| M420LA10    | 420                             | 560  | 680(612-748)              | 45          | 1120                          | 25   | 2500         | 130                 | 14.0            | 6.5  | 7.5  | 0.8 |
| M420LA20A   | 420                             | 560  | 680(612-748)              | 90          | 1120                          | 50   | 4500         | 250                 | 17.5            | 6.5  | 7.5  | 0.8 |
| M420LA40A   | 420                             | 560  | 680(612-748)              | 160         | 1120                          | 100  | 6500         | 460                 | 24.0            | 6.9  | 10.0 | 0.8 |
| M420LA40B   | 420                             | 560  | 680(612-710)              | 160         | 1080                          | 100  | 6500         | 460                 | 24.0            | 6.9  | 10.0 | 0.8 |
| M460LA20A   | 460                             | 615  | 750(675-825)              | 100         | 1240                          | 50   | 4500         | 230                 | 17.5            | 6.8  | 7.5  | 0.8 |
| M460LA40A   | 460                             | 615  | 750(675-825)              | 175         | 1240                          | 100  | 6500         | 420                 | 24.0            | 7.3  | 10.0 | 0.8 |
| M460LA40B   | 460                             | 615  | 750(675-773)              | 175         | 1160                          | 100  | 6500         | 420                 | 24.0            | 7.3  | 10.0 | 0.8 |
| M480LA40A   | 480                             | 640  | 780(702-858)              | 105         | 1290                          | 50   | 4500         | 230                 | 17.5            | 6.9  | 7.5  | 0.8 |
| M480LA80A   | 480                             | 640  | 780(702-858)              | 180         | 1290                          | 100  | 6500         | 420                 | 24.0            | 7.4  | 10.0 | 0.8 |
| M480LA80B   | 480                             | 640  | 780(702-773)              | 180         | 1160                          | 100  | 6500         | 420                 | 24.0            | 7.4  | 10.0 | 0.8 |
| M510LA40A   | 510                             | 675  | 820(738-902)              | 110         | 1355                          | 50   | 4500         | 200                 | 17.5            | 7.1  | 7.5  | 0.8 |
| M510LA80A   | 510                             | 675  | 820(738-902)              | 190         | 1355                          | 100  | 6500         | 400                 | 24.0            | 7.6  | 10.0 | 0.8 |
| M510LA80B   | 510                             | 675  | 820(738-853)              | 190         | 1280                          | 100  | 6500         | 400                 | 24.0            | 7.6  | 10.0 | 0.8 |
| M550LA40A   | 550                             | 700  | 910(819-1000)             | 120         | 1500                          | 50   | 4500         | 180                 | 17.5            | 7.6  | 7.5  | 0.8 |
| M550LA80A   | 550                             | 700  | 910(819-1000)             | 220         | 1500                          | 100  | 6500         | 350                 | 24.0            | 8.1  | 10.0 | 0.8 |
| M550LA80B   | 550                             | 700  | 910(819-940)              | 220         | 1410                          | 100  | 6500         | 350                 | 24.0            | 8.1  | 10.0 | 0.8 |
| M575LA40A   | 575                             | 745  | 920(819-1000)             | 120         | 1500                          | 50   | 4500         | 180                 | 17.5            | 7.6  | 7.5  | 0.8 |
| M575LA80A   | 575                             | 745  | 920(819-1000)             | 220         | 1500                          | 100  | 6500         | 350                 | 24.0            | 8.1  | 10.0 | 0.8 |
| M575LA80B   | 575                             | 745  | 920(819-940)              | 220         | 1410                          | 100  | 6500         | 350                 | 24.0            | 8.1  | 10.0 | 0.8 |
| M600LA50A   | 625                             | 825  | 1000(900-1100)            | 130         | 1650                          | 50   | 4500         | 150                 | 17.5            | 8.0  | 7.5  | 0.8 |
| M600LA100A  | 625                             | 825  | 1000(900-1100)            | 230         | 1650                          | 100  | 6500         | 320                 | 24.0            | 8.5  | 10.0 | 0.8 |
| M660LA50A   | 660                             | 895  | 1100(990-1210)            | 140         | 1815                          | 50   | 4500         | 150                 | 17.5            | 8.5  | 7.5  | 0.8 |
| M660LA100A  | 660                             | 895  | 1100(990-1210)            | 250         | 1815                          | 100  | 6500         | 300                 | 24.0            | 9.0  | 10.0 | 0.8 |
| M660LA100B  | 660                             | 895  | 1100(990-1100)            | 250         | 1650                          | 100  | 6500         | 300                 | 24.0            | 9.0  | 10.0 | 0.8 |
| M1000LA80A  | 1000                            | 1465 | 1800(1620-1980)           | 240         | 2970                          | 50   | 4500         | 100                 | 17.5            | 12.0 | 15.0 | 0.8 |
| M1000LA180A | 1000                            | 1465 | 1800(1620-1980)           | 400         | 2970                          | 100  | 6500         | 200                 | 25.0            | 12.0 | 15.0 | 0.8 |
| M1000LA180B | 1000                            | 1465 | 1800(1620-1900)           | 400         | 2700                          | 100  | 6500         | 200                 | 25.0            | 12.0 | 15.0 | 0.8 |

BULLETIN 106

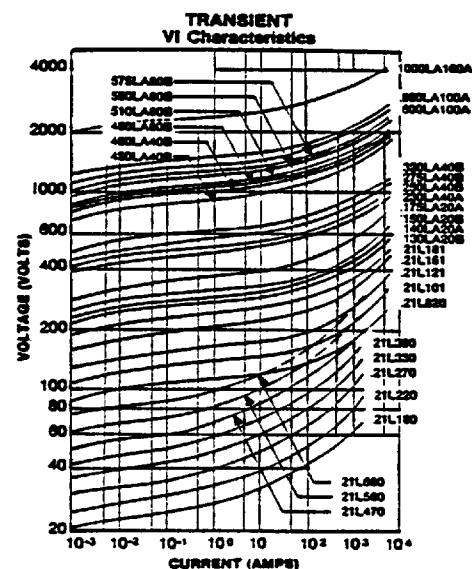
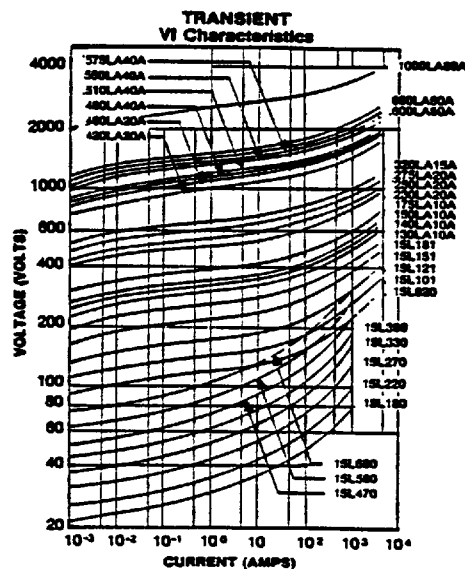
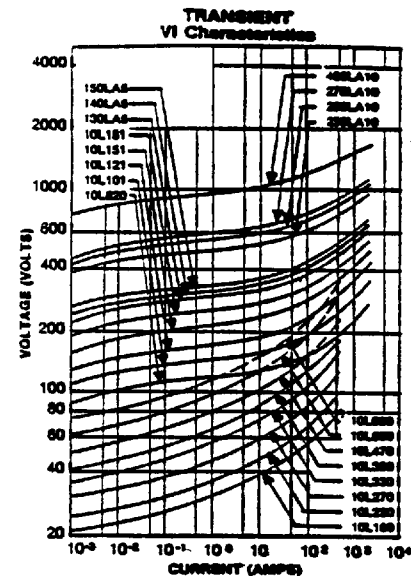
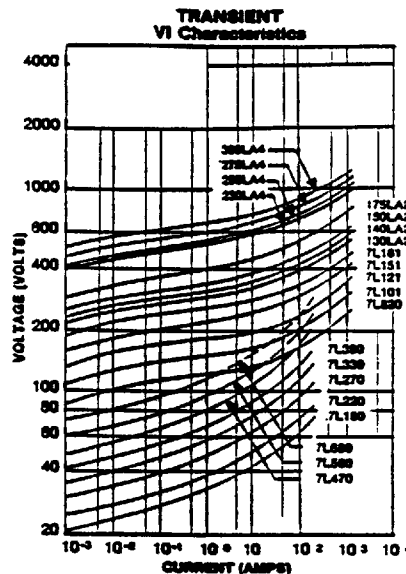
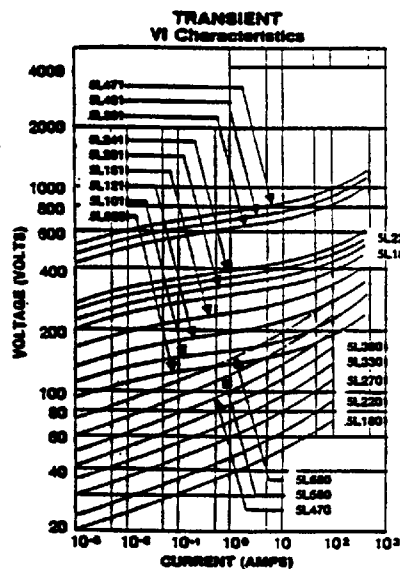
**EDAL**  
 INDUSTRIES, Inc.

# Low Voltage MOV's

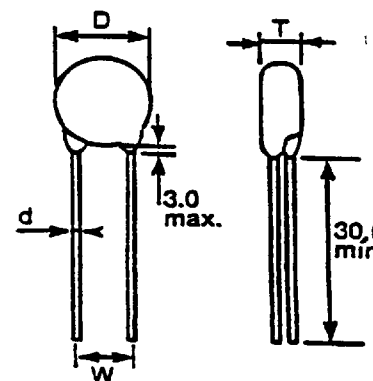
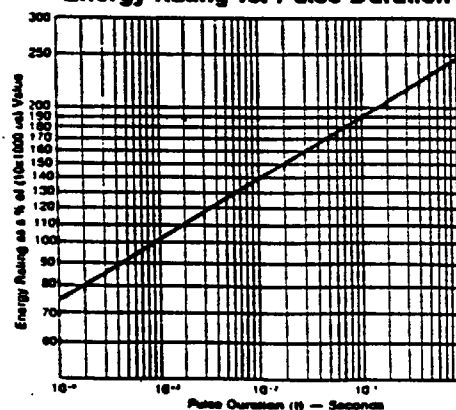
| Part Number | Max. Applied Continuous Voltage |     | Varistor Voltage<br>@ 1 ma DC | Energy<br>2 ms | Max. Clamping<br>Voltage 8/20 us |      | Peak<br>Current | Typical<br>Capacitance | Dimensions (mm) |     |      |     |
|-------------|---------------------------------|-----|-------------------------------|----------------|----------------------------------|------|-----------------|------------------------|-----------------|-----|------|-----|
|             | AC                              | DC  |                               |                | Volts                            | Amps |                 |                        | ± 1 mm          |     |      |     |
| M5L180      | 11                              | 14  | 18(16-20)                     | 0.3            | 40                               | 1    | 100             | 1800                   | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L220      | 14                              | 18  | 22(20-24)                     | 0.4            | 48                               | 1    | 100             | 1300                   | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L270      | 17                              | 22  | 27(24-30)                     | 0.5            | 60                               | 1    | 100             | 1050                   | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L330      | 20                              | 26  | 33(30-36)                     | 0.6            | 73                               | 1    | 100             | 900                    | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L390      | 25                              | 31  | 39(35-43)                     | 0.8            | 86                               | 1    | 100             | 500                    | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L470      | 30                              | 38  | 47(42-52)                     | 1.0            | 104                              | 1    | 100             | 450                    | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L560      | 35                              | 45  | 56(50-62)                     | 1.0            | 123                              | 1    | 100             | 400                    | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L680      | 40                              | 56  | 68(61-75)                     | 1.2            | 150                              | 1    | 100             | 350                    | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L820      | 50                              | 65  | 82(74-90)                     | 1.7            | 145                              | 5    | 400             | 250                    | 7.5             | 3.5 | 5.0  | 0.8 |
| M5L101      | 60                              | 85  | 100(90-110)                   | 2.0            | 175                              | 5    | 400             | 200                    | 7.0             | 3.7 | 5.0  | 0.8 |
| M5L121      | 75                              | 100 | 120(108-132)                  | 2.5            | 210                              | 5    | 400             | 170                    | 7.0             | 3.8 | 5.0  | 0.8 |
| M5L151      | 95                              | 125 | 150(135-165)                  | 3.0            | 280                              | 5    | 400             | 140                    | 7.0             | 4.0 | 5.0  | 0.8 |
| M5L181      | 115                             | 153 | 180(162-198)                  | 3.5            | 300                              | 5    | 400             | 100                    | 7.0             | 4.1 | 5.0  | 0.8 |
| M5L201      | 130                             | 170 | 200(185-225)                  | 4.0            | 355                              | 5    | 400             | 80                     | 7.0             | 4.2 | 5.0  | 0.8 |
| M5L221      | 140                             | 180 | 220(198-242)                  | 4.5            | 380                              | 5    | 400             | 70                     | 7.0             | 4.3 | 5.0  | 0.8 |
| M5L241      | 150                             | 200 | 240(216-264)                  | 5.0            | 415                              | 5    | 400             | 70                     | 7.0             | 4.4 | 5.0  | 0.8 |
| M5L291      | 250                             | 320 | 390(351-429)                  | 8.0            | 675                              | 5    | 400             | 50                     | 7.0             | 5.4 | 5.0  | 0.8 |
| M5L431      | 275                             | 350 | 430(387-473)                  | 9.0            | 745                              | 5    | 400             | 45                     | 7.0             | 5.7 | 5.0  | 0.8 |
| M5L471      | 300                             | 385 | 470(423-517)                  | 10.0           | 810                              | 5    | 400             | 40                     | 7.0             | 6.0 | 5.0  | 0.8 |
| M7L180      | 11                              | 14  | 18(16-20)                     | 0.8            | 38                               | 2.5  | 250             | 3500                   | 9.0             | 3.5 | 5.0  | 0.8 |
| M7L220      | 14                              | 18  | 22(20-24)                     | 0.9            | 43                               | 2.5  | 250             | 2800                   | 9.0             | 3.6 | 5.0  | 0.8 |
| M7L270      | 17                              | 22  | 27(24-30)                     | 1.0            | 53                               | 2.5  | 250             | 2000                   | 9.0             | 3.7 | 5.0  | 0.8 |
| M7L330      | 20                              | 26  | 33(30-36)                     | 1.2            | 65                               | 2.5  | 250             | 1500                   | 9.0             | 3.9 | 5.0  | 0.8 |
| M7L390      | 25                              | 31  | 39(35-43)                     | 1.5            | 77                               | 2.5  | 250             | 1350                   | 9.0             | 3.8 | 5.0  | 0.8 |
| M7L470      | 30                              | 38  | 47(42-52)                     | 1.8            | 90                               | 2.5  | 250             | 1150                   | 9.0             | 3.9 | 5.0  | 0.8 |
| M7L560      | 35                              | 45  | 56(50-62)                     | 2.3            | 105                              | 2.5  | 250             | 950                    | 9.0             | 4.0 | 5.0  | 0.8 |
| M7L680      | 40                              | 56  | 68(61-75)                     | 3.0            | 125                              | 2.5  | 250             | 700                    | 9.0             | 4.2 | 5.0  | 0.8 |
| M7L820      | 50                              | 65  | 82(74-90)                     | 4.0            | 135                              | 10   | 1200            | 550                    | 9.0             | 3.6 | 5.0  | 0.8 |
| M7L101      | 60                              | 85  | 100(90-110)                   | 5.0            | 165                              | 10   | 1200            | 500                    | 9.0             | 3.7 | 5.0  | 0.8 |
| M7L121      | 75                              | 100 | 120(108-132)                  | 6.0            | 200                              | 10   | 1200            | 450                    | 9.0             | 3.8 | 5.0  | 0.8 |
| M7L151      | 95                              | 125 | 150(135-165)                  | 8.0            | 250                              | 10   | 1200            | 350                    | 9.0             | 4.0 | 5.0  | 0.8 |
| M7L181      | 115                             | 153 | 180(162-198)                  | 10.0           | 300                              | 10   | 1200            | 220                    | 9.0             | 4.1 | 5.0  | 0.8 |
| M10L180     | 11                              | 14  | 18(16-20)                     | 1.5            | 38                               | 5    | 500             | 7500                   | 13.5            | 3.6 | 7.5  | 0.8 |
| M10L220     | 14                              | 18  | 22(20-24)                     | 2.0            | 43                               | 5    | 500             | 6000                   | 13.5            | 3.7 | 7.5  | 0.8 |
| M10L270     | 17                              | 22  | 27(24-30)                     | 2.5            | 53                               | 5    | 500             | 4000                   | 13.5            | 3.8 | 7.5  | 0.8 |
| M10L330     | 20                              | 26  | 33(30-36)                     | 3.0            | 65                               | 5    | 500             | 3000                   | 13.5            | 4.0 | 7.5  | 0.8 |
| M10L390     | 25                              | 31  | 39(35-43)                     | 3.5            | 77                               | 5    | 500             | 2600                   | 13.5            | 4.1 | 7.5  | 0.8 |
| M10L470     | 30                              | 38  | 47(42-52)                     | 4.5            | 90                               | 5    | 500             | 2200                   | 13.5            | 4.0 | 7.5  | 0.8 |
| M10L560     | 35                              | 45  | 56(50-62)                     | 5.5            | 105                              | 5    | 500             | 1800                   | 13.5            | 4.1 | 7.5  | 0.8 |
| M10L680     | 40                              | 56  | 68(61-75)                     | 6.5            | 125                              | 5    | 500             | 1300                   | 13.5            | 4.3 | 7.5  | 0.8 |
| M10L820     | 50                              | 65  | 82(74-90)                     | 8.0            | 135                              | 25   | 2500            | 1800                   | 13.5            | 4.0 | 7.5  | 0.8 |
| M10L101     | 60                              | 85  | 100(90-110)                   | 10.0           | 165                              | 25   | 2500            | 1400                   | 13.5            | 4.1 | 7.5  | 0.8 |
| M10L121     | 75                              | 100 | 120(108-132)                  | 12.0           | 200                              | 25   | 2500            | 1100                   | 13.5            | 4.2 | 7.5  | 0.8 |
| M10L151     | 95                              | 125 | 150(135-165)                  | 16.0           | 250                              | 25   | 2500            | 900                    | 13.5            | 4.5 | 7.5  | 0.8 |
| M10L181     | 115                             | 153 | 180(162-198)                  | 18.0           | 300                              | 25   | 2500            | 550                    | 13.5            | 4.5 | 7.5  | 0.8 |
| M15L180     | 11                              | 14  | 18(16-20)                     | 3.5            | 38                               | 10   | 1000            | 18000                  | 17.0            | 3.6 | 7.5  | 0.8 |
| M15L220     | 14                              | 18  | 22(20-24)                     | 4.0            | 43                               | 10   | 1000            | 15000                  | 17.0            | 3.7 | 7.5  | 0.8 |
| M15L270     | 17                              | 22  | 27(24-30)                     | 5.0            | 53                               | 10   | 1000            | 10000                  | 17.0            | 3.8 | 7.5  | 0.8 |
| M15L330     | 20                              | 26  | 33(30-36)                     | 6.0            | 65                               | 10   | 1000            | 7500                   | 17.0            | 4.0 | 7.5  | 0.8 |
| M15L390     | 25                              | 31  | 39(35-43)                     | 7.2            | 77                               | 10   | 1000            | 6500                   | 17.0            | 4.1 | 7.5  | 0.8 |
| M15L470     | 30                              | 38  | 47(42-52)                     | 8.8            | 90                               | 10   | 1000            | 5500                   | 17.0            | 4.0 | 7.5  | 0.8 |
| M15L560     | 35                              | 45  | 56(50-62)                     | 10.0           | 105                              | 10   | 1000            | 4500                   | 17.0            | 4.1 | 7.5  | 0.8 |
| M15L680     | 40                              | 56  | 68(61-75)                     | 13.0           | 125                              | 10   | 1000            | 3300                   | 17.0            | 4.3 | 7.5  | 0.8 |
| M15L820     | 50                              | 65  | 82(74-90)                     | 14.5           | 135                              | 50   | 4500            | 2900                   | 17.0            | 4.0 | 7.5  | 0.8 |
| M15L101     | 60                              | 85  | 100(90-110)                   | 20.0           | 165                              | 50   | 4500            | 2400                   | 17.0            | 4.1 | 7.5  | 0.8 |
| M15L121     | 75                              | 100 | 120(108-132)                  | 22.0           | 200                              | 50   | 4500            | 1190                   | 17.0            | 4.2 | 7.5  | 0.8 |
| M15L151     | 95                              | 125 | 150(135-165)                  | 30.0           | 250                              | 50   | 4500            | 1500                   | 17.0            | 4.5 | 7.5  | 0.8 |
| M15L181     | 115                             | 153 | 180(162-198)                  | 35.0           | 300                              | 50   | 4500            | 1250                   | 17.0            | 4.5 | 7.5  | 0.8 |
| M21L180     | 11                              | 14  | 18(16-20)                     | 10.0           | 38                               | 20   | 2000            | 18000                  | 23.0            | 4.1 | 10.0 | 0.8 |
| M21L220     | 14                              | 18  | 22(20-24)                     | 13.0           | 43                               | 20   | 2000            | 15000                  | 23.0            | 4.2 | 10.0 | 0.8 |
| M21L270     | 17                              | 22  | 27(24-30)                     | 15.0           | 53                               | 20   | 2000            | 10000                  | 23.0            | 4.3 | 10.0 | 0.8 |
| M21L330     | 20                              | 26  | 33(30-36)                     | 20.0           | 65                               | 20   | 2000            | 7500                   | 23.0            | 4.5 | 10.0 | 0.8 |
| M21L390     | 25                              | 31  | 39(35-43)                     | 24.0           | 77                               | 20   | 2000            | 6500                   | 23.0            | 4.5 | 10.0 | 0.8 |
| M21L470     | 30                              | 38  | 47(42-52)                     | 30.0           | 90                               | 20   | 2000            | 5500                   | 23.0            | 4.6 | 10.0 | 0.8 |
| M21L560     | 35                              | 45  | 56(50-62)                     | 35.0           | 105                              | 20   | 2000            | 4500                   | 23.0            | 4.7 | 10.0 | 0.8 |
| M21L680     | 40                              | 56  | 68(61-75)                     | 40.0           | 125                              | 20   | 2000            | 3300                   | 23.0            | 4.8 | 10.0 | 0.8 |
| M21L820     | 50                              | 65  | 82(74-90)                     | 27.0           | 135                              | 100  | 6500            | 2900                   | 23.0            | 4.5 | 10.0 | 0.8 |
| M21L101     | 60                              | 85  | 100(90-110)                   | 30.0           | 165                              | 100  | 6500            | 2400                   | 23.0            | 4.6 | 10.0 | 0.8 |
| M21L121     | 75                              | 100 | 120(108-132)                  | 40.0           | 200                              | 100  | 6500            | 1190                   | 23.0            | 4.7 | 10.0 | 0.8 |
| M21L151     | 95                              | 125 | 150(135-165)                  | 50.0           | 250                              | 100  | 6500            | 1500                   | 23.0            | 4.9 | 10.0 | 0.8 |
| M21L181     | 115                             | 153 | 180(162-198)                  | 60.0           | 300                              | 100  | 6500            | 1200                   | 23.0            | 4.9 | 10.0 | 0.8 |

BULLETIN 106

3



### Energy Rating vs. Pulse Duration



### Major Ratings and Characteristics

| P                | Maximum pull on leads, for 1 minute       | N       | 20              |
|------------------|-------------------------------------------|---------|-----------------|
| Sv1              | Temperature coefficient of V <sub>1</sub> | %/deg C | +0.02 to -0.07  |
| T                | Operating and storage temperature range   | °C      | -40 to 125      |
| t                | Response time in typical application      | ns      | < 15            |
| R <sub>ins</sub> | Insulation resistance, element to case    | Ω       | 10 <sup>6</sup> |
| V <sub>ins</sub> | Insulation test voltage, element to case  | V       | 1500 AC         |

# EDAL

INDUSTRIES, Inc.

4 Short Beach Road, East Haven, CT 06512. Phone: (203) 467-2591. FAX: (203) 469-5928.

BULLETIN 106