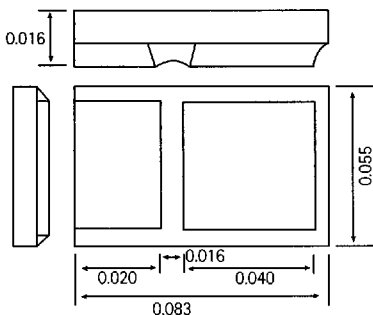


## FSA Series

500 WATT UNI-DIRECTIONAL SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR FLIP CHIP

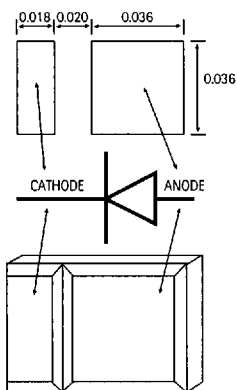
### Dimensions

Inches

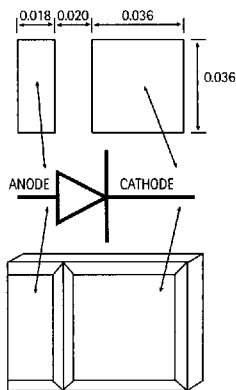


### Polarity and Pad size

VBR 10V and above



VBR 9.1V and below



Features:

- Fully Glass Passivated
- 500 Watt
- 6.8 to 400 Volts
- Eliminates Wire Bonding
- Solderable up to 425 Degrees Centigrade/2 Mins
- Flip - Chip

# FSA Series

| Device  | VSO Volts | Breakdown Voltage VBR @ IT |      | IT   | Maximum Reverse Leakage IR | Maximum Clamping Voltage VPPM | Maximum Peak-Pulse Current IPPM | Maximum Voltage Temp. Variation |
|---------|-----------|----------------------------|------|------|----------------------------|-------------------------------|---------------------------------|---------------------------------|
|         |           | Min                        | Max  |      |                            |                               |                                 |                                 |
| FSA6.8  | 5.5       | 6.12                       | 7.48 | 10.0 | 1000.0                     | 10.8                          | 46.2                            | 5                               |
| FSA6.8A | 5.8       | 6.45                       | 7.14 | 10.0 | 1000.0                     | 10.5                          | 47.61                           | 5                               |
| FSA7.5  | 6.05      | 6.75                       | 8.25 | 10.0 | 500.0                      | 11.7                          | 42.73                           | 5                               |
| FSA7.5A | 6.4       | 7.13                       | 7.88 | 10.0 | 500.0                      | 11.3                          | 44.24                           | 5                               |
| FSA8.2  | 6.63      | 7.38                       | 9.02 | 10.0 | 200.0                      | 12.5                          | 40.00                           | 6                               |
| FSA8.2A | 7.02      | 7.79                       | 8.61 | 10.0 | 200.0                      | 12.1                          | 41.32                           | 6                               |
| FSA9.1  | 7.37      | 8.19                       | 10   | 1.0  | 50.0                       | 13.8                          | 36.23                           | 7                               |
| FSA9.1A | 7.78      | 8.65                       | 9.55 | 1.0  | 50.0                       | 13.4                          | 37.31                           | 7                               |
| FSA10   | 8.1       | 9                          | 11   | 1.0  | 10.0                       | 15.0                          | 33.33                           | 8                               |
| FSA10A  | 8.55      | 9.5                        | 10.5 | 1.0  | 10.0                       | 14.5                          | 34.48                           | 8                               |
| FSA11   | 8.92      | 9.9                        | 12.1 | 1.0  | 5.0                        | 16.2                          | 30.86                           | 9                               |
| FSA11A  | 9.4       | 10.5                       | 11.6 | 1.0  | 5.0                        | 15.8                          | 31.64                           | 9                               |
| FSA12   | 9.72      | 10.8                       | 13.2 | 1.0  | 5.0                        | 17.3                          | 28.90                           | 10                              |
| FSA12A  | 10.2      | 11.4                       | 12.6 | 1.0  | 5.0                        | 16.7                          | 29.94                           | 10                              |
| FSA13   | 10.5      | 11.7                       | 14.3 | 1.0  | 5.0                        | 19.0                          | 26.31                           | 11                              |
| FSA13A  | 11.1      | 12.4                       | 13.7 | 1.0  | 5.0                        | 18.2                          | 27.47                           | 11                              |
| FSA15   | 12.1      | 13.5                       | 16.5 | 1.0  | 5.0                        | 22.0                          | 22.72                           | 13                              |
| FSA15A  | 12.8      | 14.3                       | 15.8 | 1.0  | 5.0                        | 21.2                          | 23.58                           | 12                              |
| FSA16   | 12.9      | 14.4                       | 17.6 | 1.0  | 5.0                        | 23.5                          | 21.27                           | 16                              |
| FSA16A  | 13.6      | 15.2                       | 16.8 | 1.0  | 5.0                        | 22.5                          | 22.22                           | 14                              |
| FSA18   | 14.5      | 16.2                       | 19.8 | 1.0  | 5.0                        | 26.5                          | 18.86                           | 17                              |
| FSA18A  | 15.3      | 17.1                       | 18.9 | 1.0  | 5.0                        | 25.2                          | 19.84                           | 19                              |
| FSA20   | 16.2      | 18                         | 22   | 1.0  | 5.0                        | 29.1                          | 17.18                           | 20                              |
| FSA20A  | 17.1      | 19                         | 21   | 1.0  | 5.0                        | 27.7                          | 18.05                           | 19                              |
| FSA22   | 17.8      | 19.8                       | 24.2 | 1.0  | 5.0                        | 31.9                          | 15.67                           | 21                              |
| FSA22A  | 18.8      | 20.9                       | 23.1 | 1.0  | 5.0                        | 30.6                          | 16.33                           | 20                              |
| FSA24   | 19.4      | 21.6                       | 26.4 | 1.0  | 5.0                        | 34.7                          | 14.40                           | 25                              |
| FSA24A  | 20.5      | 22.8                       | 25.2 | 1.0  | 5.0                        | 33.2                          | 15.06                           | 23                              |
| FSA27   | 21.8      | 24.3                       | 29.7 | 1.0  | 5.0                        | 39.1                          | 12.78                           | 28                              |
| FSA27A  | 23.1      | 25.7                       | 28.4 | 1.0  | 5.0                        | 37.5                          | 13.33                           | 25                              |
| FSA30   | 24.3      | 27                         | 33   | 1.0  | 5.0                        | 43.5                          | 11.49                           | 31                              |
| FSA30A  | 25.6      | 38.5                       | 31.5 | 1.0  | 5.0                        | 41.4                          | 12.07                           | 28                              |
| FSA33   | 26.8      | 29.7                       | 36.3 | 1.0  | 5.0                        | 47.7                          | 10.48                           | 31                              |
| FSA33A  | 28.2      | 31.4                       | 34.7 | 1.0  | 5.0                        | 45.7                          | 10.94                           | 30                              |
| FSA36   | 29.1      | 32.4                       | 39.6 | 1.0  | 5.0                        | 52.0                          | 9.61                            | 35                              |
| FSA36A  | 30.8      | 34.2                       | 37.8 | 1.0  | 5.0                        | 49.9                          | 10.02                           | 31                              |
| FSA39   | 31.6      | 35.1                       | 42.9 | 1.0  | 5.0                        | 56.4                          | 8.86                            | 39                              |
| FSA39A  | 33.3      | 37.1                       | 41   | 1.0  | 5.0                        | 53.9                          | 9.27                            | 36                              |
| FSA43   | 34.8      | 38.7                       | 47.3 | 1.0  | 5.0                        | 61.9                          | 8.07                            | 46                              |
| FSA43A  | 36.8      | 40.9                       | 45.2 | 1.0  | 5.0                        | 59.3                          | 8.43                            | 44                              |
| FSA47   | 38.1      | 42.3                       | 51.7 | 1.0  | 5.0                        | 67.3                          | 7.42                            | 50                              |
| FSA47A  | 40.2      | 44.7                       | 49.4 | 1.0  | 5.0                        | 64.8                          | 7.71                            | 48                              |
| FSA51   | 441.3     | 45.9                       | 56.1 | 1.0  | 5.0                        | 73.5                          | 6.80                            | 55                              |
| FSA51A  | 43.6      | 48.5                       | 53.6 | 1.0  | 5.0                        | 70.1                          | 7.13                            | 51                              |

# FSA Series

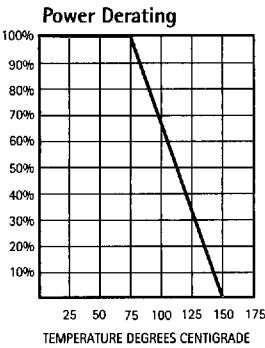
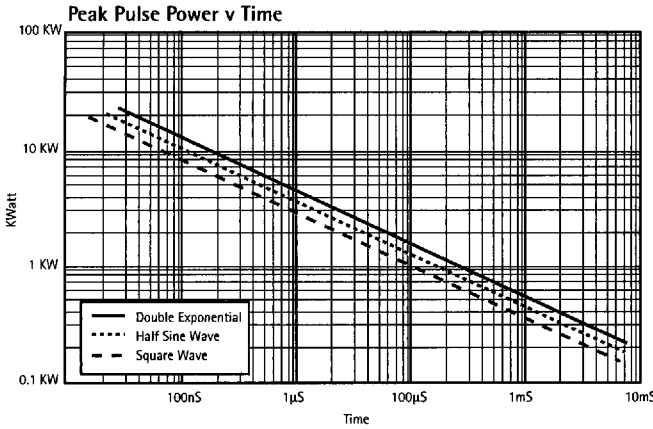
| Device  | VSO Volts | Breakdown Voltage VBR @ IT |      | IT   | Maximum Reverse Leakage IR | Maximum Clamping Voltage VPPM | Maximum Peak-Pulse Current IPPM | Maximum Voltage Temp. Variation |
|---------|-----------|----------------------------|------|------|----------------------------|-------------------------------|---------------------------------|---------------------------------|
|         |           | Min                        | Max  |      |                            |                               |                                 |                                 |
|         | VOLTS     |                            |      | mA   | uA                         | Volts                         | Amps                            | mV/deg C                        |
| FSA56   | 45.4      | 50.4                       | 61.6 | 10.0 | 5.0                        | 80.5                          | 6.21                            | 58                              |
| FSA56A  | 47.8      | 53.2                       | 58.8 | 10.0 | 5.0                        | 77.0                          | 6.49                            | 56                              |
| FSA62   | 50.2      | 55.8                       | 68.2 | 10.0 | 5.0                        | 89.0                          | 5.61                            | 65                              |
| FSA62A  | 53        | 58.9                       | 65.1 | 10.0 | 5.0                        | 85.0                          | 5.88                            | 62                              |
| FSA68   | 55.1      | 61.2                       | 74.8 | 10.0 | 5.0                        | 98.0                          | 5.10                            | 71                              |
| FSA68A  | 58.1      | 64.6                       | 71.4 | 10.0 | 5.0                        | 92.0                          | 5.43                            | 69                              |
| FSA75   | 60.7      | 67.5                       | 82.5 | 1.0  | 5.0                        | 108.0                         | 4.62                            | 80                              |
| FSA75A  | 64.1      | 71.3                       | 78.8 | 1.0  | 5.0                        | 103                           | 4.85                            | 76                              |
| FSA82   | 66.4      | 73.8                       | 90.2 | 1.0  | 5.0                        | 118                           | 4.23                            | 90                              |
| FSA82A  | 70.1      | 77.9                       | 86.1 | 1.0  | 5.0                        | 113                           | 4.42                            | 86                              |
| FSA91   | 73.7      | 81.9                       | 100  | 1.0  | 5.0                        | 131                           | 3.81                            | 99                              |
| FSA91A  | 7.8       | 86.5                       | 95.5 | 1.0  | 5.0                        | 125                           | 4.00                            | 94                              |
| FSA100  | 81        | 90                         | 110  | 1.0  | 5.0                        | 144                           | 3.47                            | 109                             |
| FSA100A | 85.5      | 95                         | 105  | 1.0  | 5.0                        | 137                           | 3.64                            | 104                             |
| FSA110  | 89.2      | 99                         | 121  | 1.0  | 5.0                        | 158                           | 3.16                            | 120                             |
| FSA110A | 94        | 105                        | 116  | 1.0  | 5.0                        | 152                           | 3.28                            | 115                             |
| FSA120  | 97.2      | 108                        | 132  | 1.0  | 5.0                        | 173                           | 2.89                            | 131                             |
| FSA120A | 102       | 114                        | 126  | 1.0  | 5.0                        | 165                           | 3.03                            | 125                             |
| FSA130  | 105       | 117                        | 143  | 1.0  | 5.0                        | 187                           | 2.67                            | 142                             |
| FSA130A | 111       | 124                        | 137  | 1.0  | 5.0                        | 179.                          | 2.79                            | 136                             |
| FSA150  | 121       | 135                        | 165  | 1.0  | 5.0                        | 215                           | 2.32                            | 164                             |
| FSA150A | 128       | 143                        | 158  | 1.0  | 5.0                        | 207                           | 2.41                            | 157                             |
| FSA160  | 130       | 144                        | 176  | 1.0  | 5.0                        | 230                           | 2.17                            | 175                             |
| FSA160A | 136       | 152                        | 168  | 1.0  | 5.0                        | 219                           | 2.28                            | 167                             |
| FSA170  | 138       | 153                        | 187  | 1.0  | 5.0                        | 244                           | 2.04                            | 186                             |
| FSA170A | 145       | 162                        | 179  | 1.0  | 5.0                        | 234                           | 2.13                            | 188                             |
| FSA180  | 146       | 162                        | 198  | 1.0  | 5.0                        | 258                           | 1.93                            | 197                             |
| FSA180A | 154       | 171                        | 189  | 1.0  | 5.0                        | 246                           | 2.03                            | 188                             |
| FSA200  | 162       | 180                        | 220  | 1.0  | 5.0                        | 287                           | 1.74                            | 219                             |
| FSA200A | 171       | 190                        | 210  | 1.0  | 5.0                        | 274                           | 1.82                            | 209                             |

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# FSA Series

# FSA Series



## Ratings

|           |  |                       |
|-----------|--|-----------------------|
| $P_{SM}$  | Maximum non-repetitive peak pulse power (10/1000 $\mu$ s)    | 500 W                 |
| $P_{TOT}$ | Total continuous power dissipation @ $T_{lead}=100^{\circ}C$ | 1.75 W                |
| $I_{SM}$  | Maximum non-repetitive peak pulse current (10/1000 $\mu$ s)  | See tables            |
| $V_R$     | Stand-off voltage  | See tables            |
| $T_J$     | Max Junction Temperature                                     | 175°C                 |
| $T_{STG}$ | Storage Temperature Range                                    | -55 to + 175°C        |
| $T_{ON}$  | Turn-on time (theoretical)                                   | $1 \times 10E-12$ sec |

## Order Code

FSA27

Flip Chip "F"      Voltage Breakdown VBR 27V @ 1mA "27"  
 Size 500W "SA"

• Specify tape and reel or waffle pack suffix TR or WP