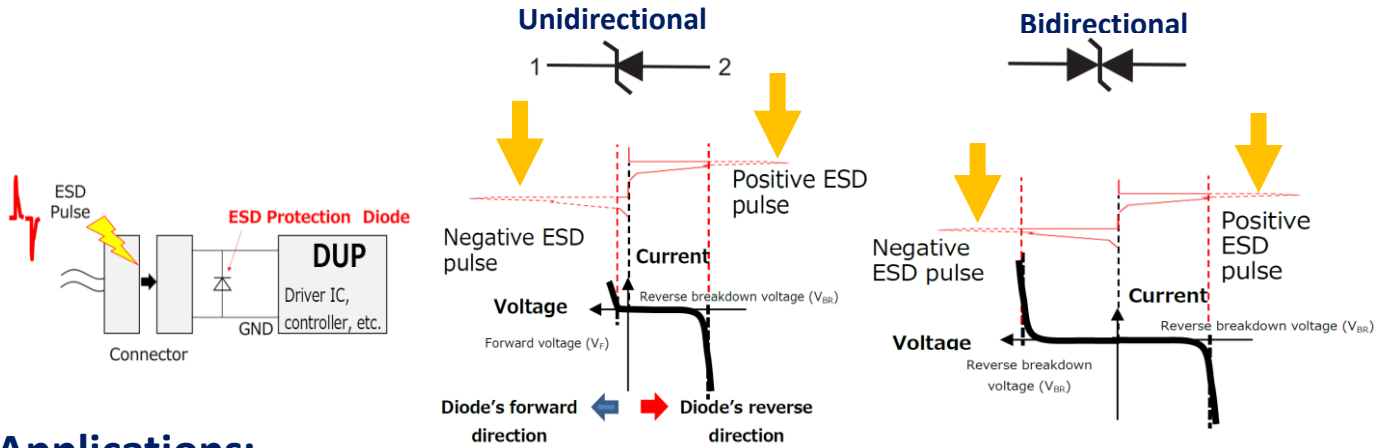


Absorption of positive and negative ESD pulses

Operations of an ESD protection diode to absorb ESD pulses with different polarities
Both unidirectional and bidirectional ESD protection diodes can absorb positive and negative ESD pulses, as highlighted by the arrows in the following figure.



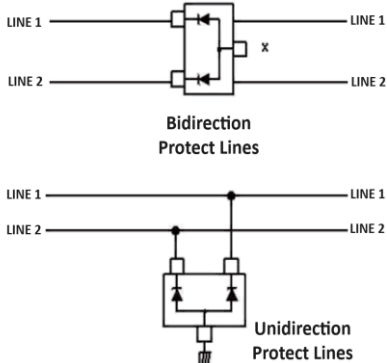
Applications:

Electrostatic Discharge (ESD) Transient Voltage Suppressor Diode protects the Applications of:

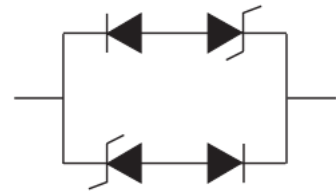
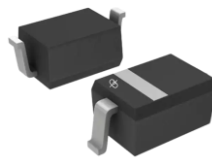
- Serial ATA
- PCI Express
- Desktop, Servers and Notebooks
- MDDI Ports
- USB2.0/3.0 power and data line protection
- Display Ports
- High Definition multi-media interface (HDMI)
- Digital Visual Interface (DVI)
- Cell phone handsets and accessories
- Microprocessor based equipment
- Personal digital assistants (PDA's)
- Portable instrumentation

Array Configuration

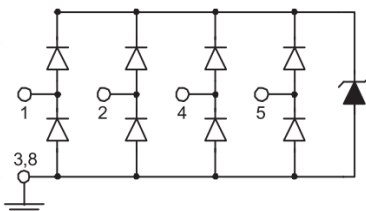
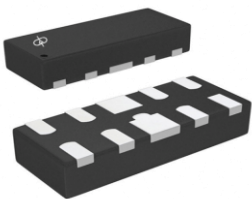
SOT-23



SOD-323F



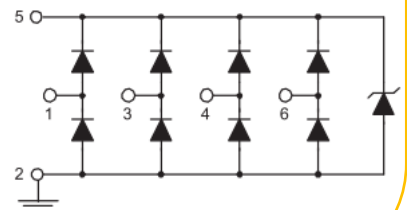
T2510P10



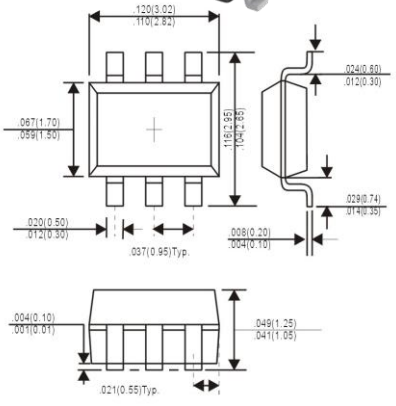
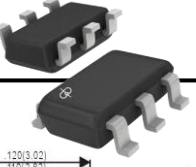
SOT-363



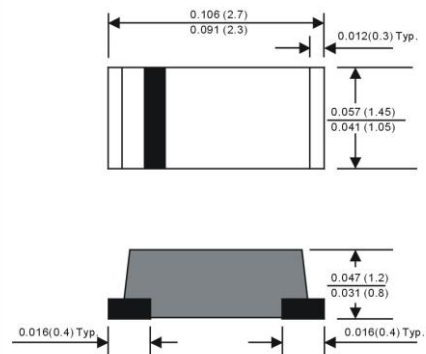
TSOP-6



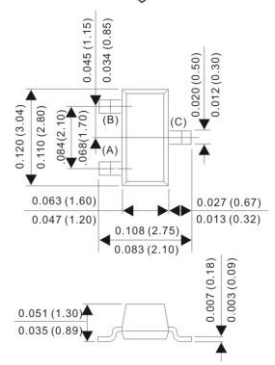
SOT23-6



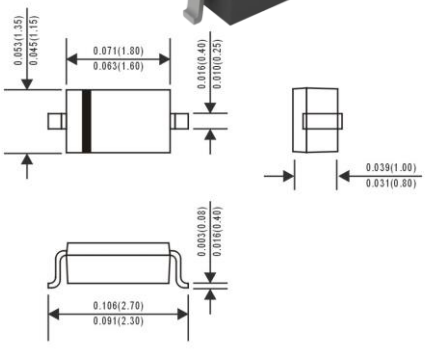
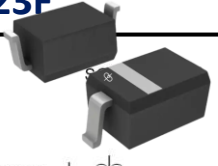
SOD-323



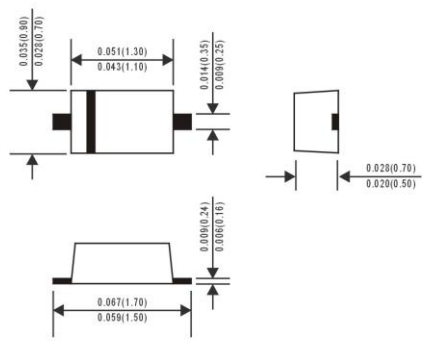
SOT-23



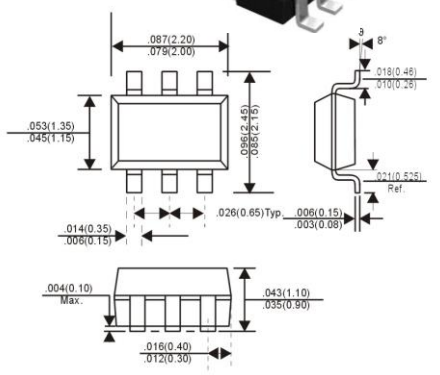
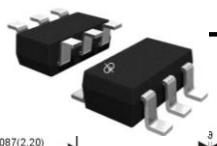
SOD-323F



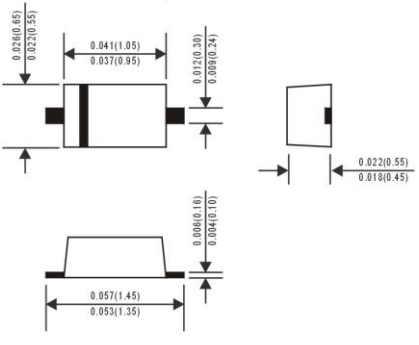
SOD-523FL



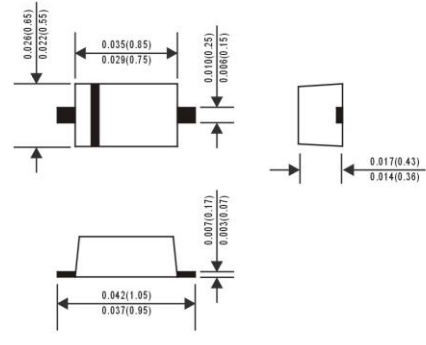
SOT-363



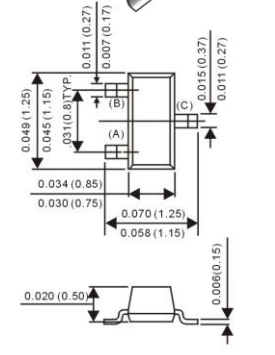
SOD-723FL



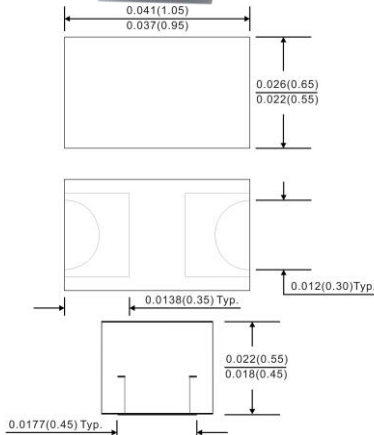
SOD-923FL



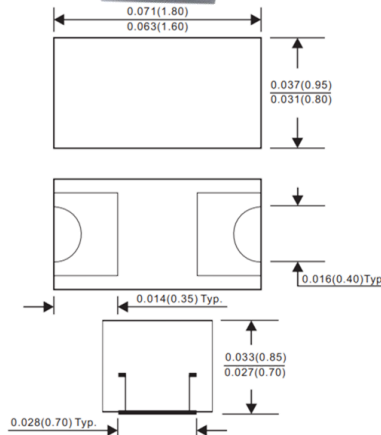
SOT-723



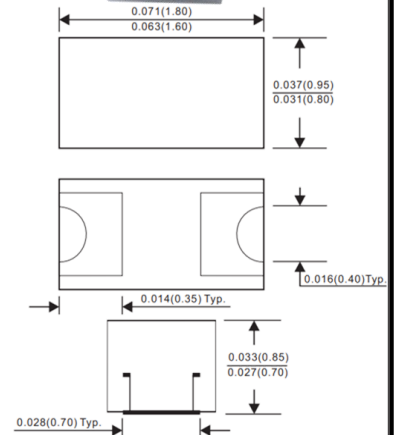
402



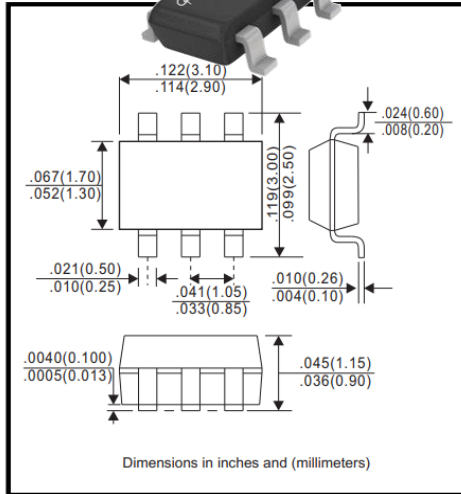
603



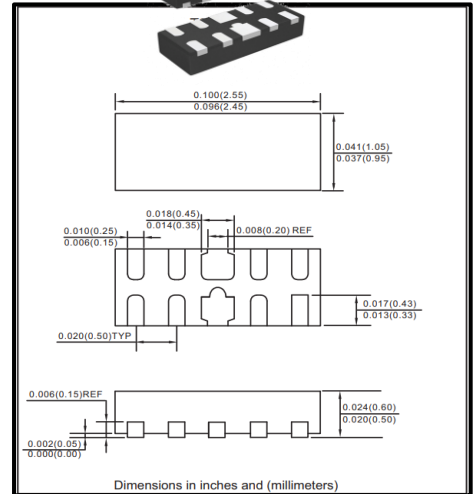
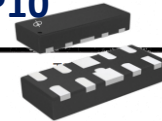
DFV060



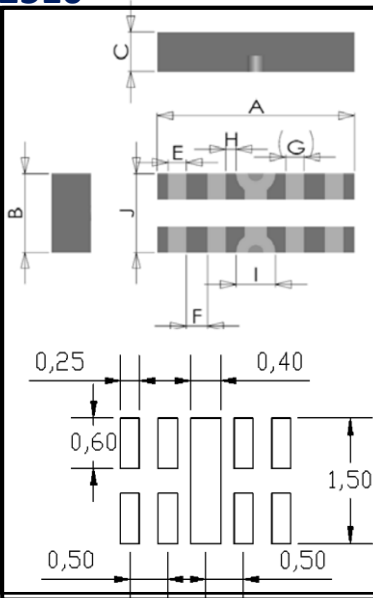
TSOP-6



T2510P10

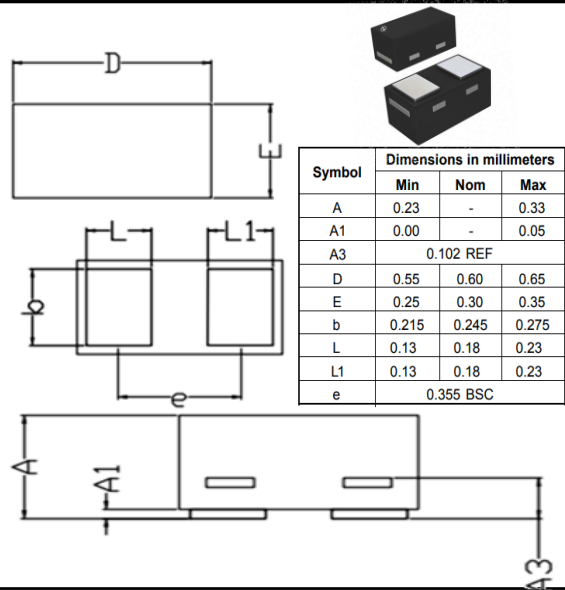


2510

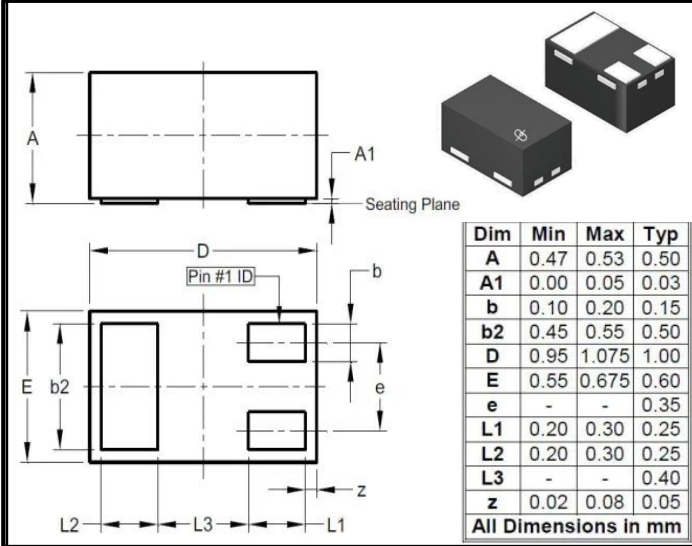


| Symbol | Dimension | | | Unit |
|--------|-----------|------|------|------|
| | Min | Typ | Max | |
| A | 2.40 | 2.50 | 2.60 | mm |
| B | 0.90 | 1.00 | 1.10 | |
| C | 0.40 | 0.50 | 0.60 | |
| E | 0.21 | 0.23 | 0.25 | |
| F | 0.25 | 0.27 | 0.29 | |
| G | 0.21 | 0.23 | 0.25 | |
| H | 0.15 | 0.17 | 0.19 | |
| I | 0.40 | 0.42 | 0.44 | |
| J | 0.90 | 0.96 | 1.10 | |

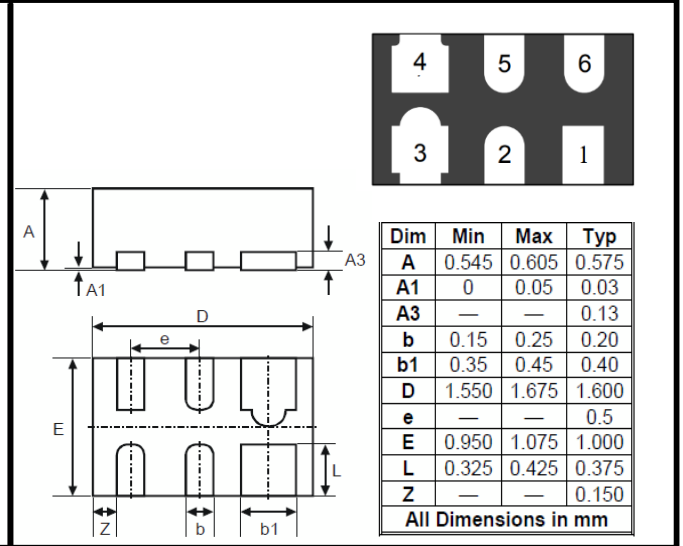
DFN0603



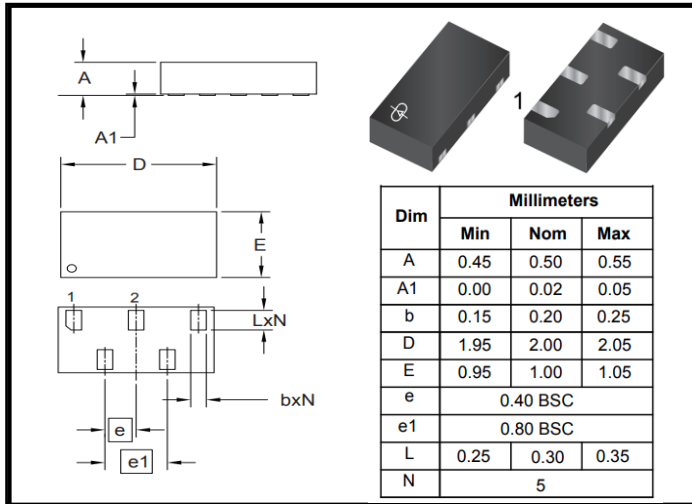
DFN1006



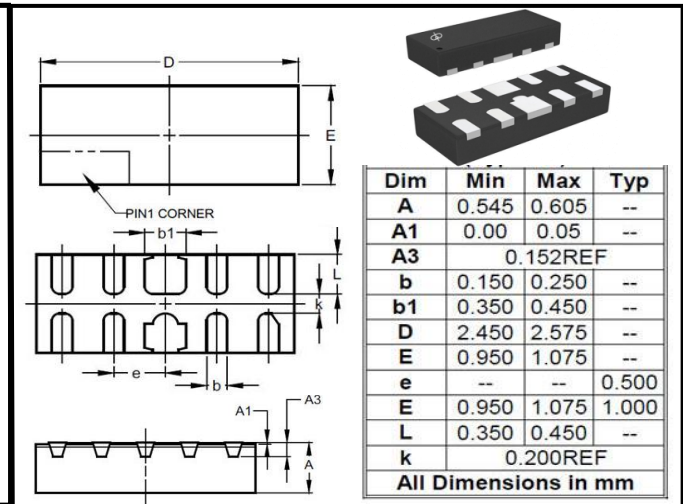
DFN1610



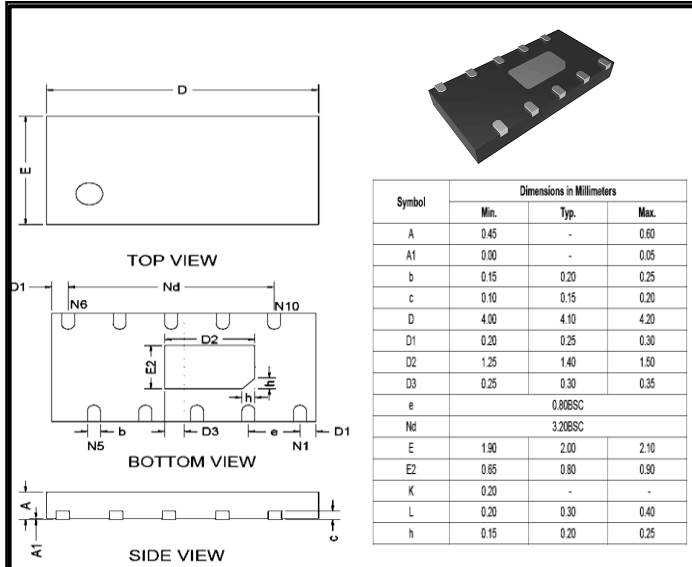
DFN2010



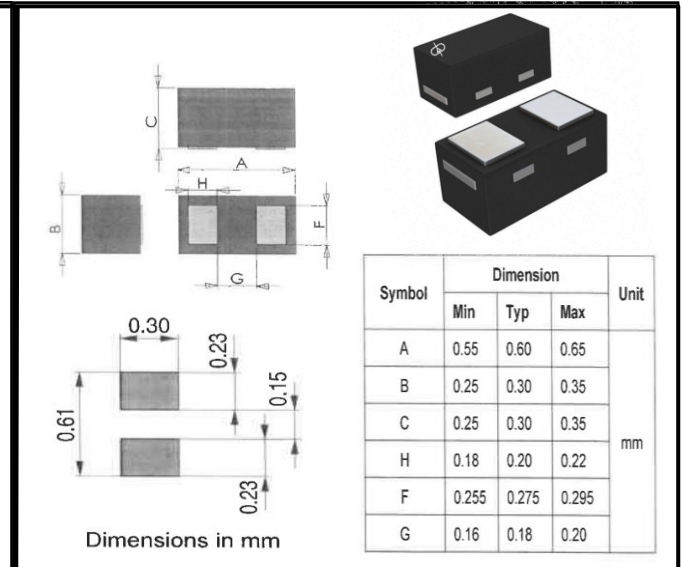
DFN2510



DFN4120



201



ECP01005

| Symbol | NOM | Toler. |
|--------|-------|--------|
| A | 0.145 | ±0.025 |
| A1 | 0.011 | ±0.003 |
| D | 0.430 | ±0.025 |
| E | 0.230 | ±0.025 |
| d | 0.090 | ±0.006 |
| e | 0.123 | ±0.008 |
| H | 0.240 | NA |

ECP0201

| DIM | DIMENSIONS MILLIMETERS | | |
|-----|---------------------------|-------|-------|
| | MIN | NOM | MAX |
| A | 0.185 | 0.206 | 0.227 |
| A1 | 0.000 | 0.010 | 0.050 |
| b | 0.200 | 0.220 | 0.240 |
| D | 0.590 | 0.615 | 0.640 |
| E | 0.290 | 0.315 | 0.340 |
| e | 0.355 BSC | | |
| L | 0.140 | 0.160 | 0.180 |

SOD-523

| Dim | Millimeters | |
|-----|-------------|------|
| | Min | Max |
| A | 0.50 | 0.70 |
| C | 0.07 | 0.20 |
| D | 0.70 | 0.90 |
| E | 1.10 | 1.30 |
| F | 1.50 | 1.70 |
| G | 0.15 | 0.25 |
| H | 0.25 | 0.35 |
| L | 0.15 | 0.25 |
| I | 1.35 | |
| J | 0.35 | |
| K | 0.39 | |

SOD-882

| Symbol | Dimensions in Millimeters | | |
|--------|---------------------------|------|------|
| | Min | Nom | Max |
| D | 0.95 | 1.00 | 1.05 |
| E | 0.55 | 0.60 | 0.65 |
| A | 0.45 | 0.50 | 0.55 |
| b | 0.45 | 0.50 | 0.55 |
| L | 0.20 | 0.25 | 0.30 |
| e | 0.65 BSC | | |

SOD-923

| Dim. | Min. | Max. |
|------|------|------|
| A | 0.75 | 0.85 |
| B | 0.55 | 0.65 |
| C | 0.90 | 1.10 |
| D | 0.35 | 0.43 |
| E | 0.15 | 0.25 |
| F | 0.05 | 0.15 |
| H | 0.07 | 0.17 |
| H1 | 0.00 | 0.05 |

SOT-143

| DIM | MILLIMETERS | |
|-----|-------------|------|
| | MIN | MAX |
| A | 2.80 | 3.04 |
| B | 1.20 | 1.39 |
| C | 0.84 | 1.14 |
| D | 0.39 | 0.50 |
| F | 0.79 | 0.93 |
| G | 1.78 | 2.03 |
| H | 0.013 | 0.10 |
| J | 0.08 | 0.15 |
| K | 0.46 | 0.60 |
| L | 0.445 | 0.60 |
| R | 0.72 | 0.83 |
| S | 2.11 | 2.48 |

| Alpinesemi™ Part Number | Direction | Configuration | V _{RWM} (V) | I _{R_MAX} (μA) | V _{BR_MIN} (V) | C _{J_TYP} (pF) | I _{PP} (A) | P _{PP} (W) | V _C (V) | Package |
|-------------------------|-----------|---------------|----------------------|-------------------------|-------------------------|-------------------------|---------------------|---------------------|---|-----------|
| ALPES2.5VD523 | Uni-Dir | Single | 2.5 | 6 | 4 | 145 | 11 | 200 | 10.9 | SOD-523FL |
| ALPES3.3VD323 | Uni-Dir | Single | 3.3 | 40 | 4 | 450 | 20 | 210 | 10.5 | SOD-323F |
| ALPES3.3VD323C | Bi-Dir | Single | 3.3 | 40 | 4 | 450 | 20 | 260 | 13 | SOD-323F |
| ALPES3.3VD523 | Uni-Dir | Single | 3.3 | 1 | 5 | 105 | 11.2 | 158 | 14.1 | SOD-523FL |
| ALPES3.3VD523C | Bi-Dir | Single | 3.3 | 1 | 3.5 | 15 | 8 | 96 | 12 | SOD-523FL |
| ALPES3.3VD603 | Uni-Dir | Single | 3.3 | 3 | 5 | 45 | 6 | 72 | 12 @ I _{pp} =6A | 603 |
| ALPES3.3VD603C | Bi-Dir | Single | 3.3 | 2 | 3.8 | 15 | 5 | 60 | 12 @ I _{pp} =5A | 603 |
| ALPES3.3VD723 | Uni-Dir | Single | 3.3 | 2.5 | 5 | 80 | 9.8 | 102 | 10.4 | SOD-723FL |
| ALPES3.3VD923 | Uni-Dir | Single | 3.3 | 2.5 | 5 | 80 | 9.8 | 102 | 10.4 | SOD-923FL |
| ALPES3.3VD923C | Bi-Dir | Single | 3.3 | 1 | 5 | 25 | 11.2 | 158 | 14.1 | SOD-923FL |
| ALPES3V3D0603C | Bi-Dir | Single | 3.3 | 1 | 3.7 | 12 | 7 | 70 | | DFN0603 |
| ALPES3V3D1006LC | Bi-Dir | Single | 3.3 | 0.5 | 3.7 | 10 | 7 | 100 | | DFN1006 |
| ALPES3V3D323C | Bi-Dir | Single | 3.3 | 1 | 4 | 100 | 20 | 350 | | SOD-323 |
| ALPES3V3D523 | Uni-Dir | Single | 3.3 | 1 | 5 | 100 | 11.2 | 158 | | SOD-523 |
| ALPESL3.3VD323C | Bi-Dir | Array | 3.3 | 40 | 4 | 1 | 8 | 111 | 13.9 | SOD-323F |
| ALPESLC3V3D323C | Bi-Dir | Single | 3.3 | 1 | 4 | 1 | 20 | 350 | | SOD-323 |
| ALPN032AT23 | Uni-Dir | Array | 3.3 | 20 | 4 | 450 | 25 | 250 | 10 | SOT-23 |
| ALPES5VD0603C | Bi-Dir | Single | 5 | 0.1 | 5.6 | 15 | 6 | 70 | | DFN0603 |
| ALPES5VD1006 | Uni-Dir | Single | 5 | 1 | 6 | 53 | 8.7 | 130 | | DFN1006 |
| ALPES5VD1006C | Bi-Dir | Single | 5 | 1 | 5.6 | 15 | 9.4 | 174 | | DFN1006 |
| ALPES5VD1006HC | Bi-Dir | Single | 5 | 1 | 6 | 30 | 20 | 300 | | DFN1006 |
| ALPES5VD323 | Uni-Dir | Single | 5 | 10 | 6 | 300 | 17 | 306 | 18 | SOD-323F |
| ALPES5VD323-2 | Uni-Dir | Single | 5 | 1 | 6 | 90 | 9.8 | 350 | | SOD-323 |
| ALPES5VD323-2C | Bi-Dir | Single | 5 | 1 | 6 | 25 | 13.5 | 350 | | SOD-323 |
| ALPES5VD323C | Bi-Dir | Single | 5 | 10 | 6 | 200 | 17 | 306 | 18 | SOD-323F |
| ALPES5VD323HC | Bi-Dir | Single | 5 | 1 | 6 | 60 | 20 | 350 | | SOD-323 |
| ALPES5VD523 | Uni-Dir | Single | 5 | 1 | 6.2 | 80 | 9.4 | 174 | 18.6 | SOD-523FL |
| ALPES5VD523-2 | Uni-Dir | Single | 5 | 1 | 6.2 | 80 | 13 | 250 | | SOD-523 |
| ALPES5VD523-2C | Bi-Dir | Single | 5 | 1 | 5.6 | 25 | 9.4 | 174 | | SOD-523 |
| ALPES5VD523C | Bi-Dir | Single | 5 | | 5.6 | 25 | 9.4 | | | SOD-523FL |
| ALPES5VD603 | Uni-Dir | Single | 5 | 2 | 6 | 120 | 13 | 200 | 15.5 @ I _{pp} =13A | 603 |
| ALPES5VD603C | Bi-Dir | Single | 5 | 1.2 | 5.6 | 20 | 10 | 170 | 17 @ I _{pp} =10A 10 @ I _{pp} =1A | 603 |
| ALPES5VD723 | Uni-Dir | Single | 5 | 1 | 6.2 | 65 | 8.7 | 107 | 12.3 | SOD-723FL |
| ALPES5VD723C | Bi-Dir | Single | 5 | 1 | 5.6 | 15 | 9.4 | 174 | 18.6 | SOD-923FL |
| ALPES5VD882C | Bi-Dir | Single | 5 | 1 | 5.6 | 15 | 9.4 | 174 | | SOD-882 |
| ALPES5VD923 | Uni-Dir | Single | 5 | 1 | 6.2 | 65 | 8.7 | 107 | 12.3 | SOD-923FL |
| ALPES5VD923-2 | Uni-Dir | Single | 5 | 1 | 6 | 30 | 8.7 | 100 | | SOD-923 |
| ALPES5VD923C | Bi-Dir | Single | 5 | 1 | 6 | 15 | 8 | 100 | | SOD-923 |
| ALPES5VT23-3 | Uni-Dir | Array | 5 | 1 | 6 | 60 | 16.7 | 300 | | SOT-23 |

| Alpinesemi™ Part Number | Direction | Configuration | V _{RWM} (V) | I _{R_MAX} (μA) | V _{BR_MIN} (V) | C _{J_TYP} (pF) | I _{PP} (A) | P _{PP} (W) | V _C (V) | Package |
|----------------------------|-----------|---------------|-------------------------|----------------------------|----------------------------|----------------------------|---------------------|------------------------|--|-----------|
| ALPES5VT23-3C | Bi-Dir | Array | 5 | 1 | 5.8 | 12 | 5 | 50 | | SOT-23 |
| ALPESC5VD1006 | Uni-Dir | Single | 5 | 1 | 6 | 0.45 | 6 | 120 | | DFN1006 |
| ALPESL05VD323C | Bi-Dir | Array | 5 | 5 | 6 | 1 | 8 | 146 | 18.3 | SOD-323F |
| ALPESL5VD0603C | Bi-Dir | Single | 5 | 0.5 | 5.5 | 2.7 | 3.5 | 40 | | DFN0603 |
| ALPESL5VD1610-6 | Uni-Dir | Array | 5 | 1 | 5.6 | 0.25 | 5 | 100 | | DFN1610 |
| ALPESL5VD2510L-10 | Uni-Dir | Array | 5 | 1 | 6 | 0.2 | 6 | 80 | | DFN2510 |
| ALPESL5VD323SC | Bi-Dir | Single | 5 | 1 | 6 | 1 | 17 | 350 | | SOD-323 |
| ALPESL5VD523 | Uni-Dir | Single | 5 | 1 | 5.4 | 0.9 | | 40 | 9.8 @I _{pp} =1A | SOD-523FL |
| ALPESL5VD523C | Bi-Dir | Single | 5 | 0.1 | 5.5 | 2.7 | 3.5 | 40 | | SOD-523 |
| ALPESL5VD603 | Uni-Dir | Single | 5 | 2 | 6 | 0.8 | 2 | 40 | 20 @I _{pp} =2A | 603 |
| ALPESL5VD603C | Bi-Dir | Single | 5 | 2 | 6 | 0.4 | 1 | 15 | 15 @I _{pp} =1A | 603 |
| ALPESL5VD723 | Uni-Dir | Single | 5 | 1 | 5.4 | 0.5 | | 50 | 9.8 @I _{pp} =1A | SOD-923FL |
| ALPESL5VD882C | Bi-Dir | Single | 5 | 0.5 | 5.5 | 2.7 | 3.5 | 40 | | SOD-882 |
| ALPESL5VD882SC | Bi-Dir | Single | 5 | 0.1 | 6.5 | 0.3 | 5 | 100 | | SOD-882 |
| ALPESL5VT143L-4 | Uni-Dir | Array | 5 | 1 | 6 | 0.4 | 6.5 | 100 | | SOT-143 |
| ALPESL5VT143S-4 | Uni-Dir | Array | 5 | 1 | 6 | 1.3 | 13 | 300 | | SOT-143 |
| ALPESL5VT23-3 | Uni-Dir | Array | 5 | 1 | 6 | 0.25 | 5 | 100 | | SOT-23 |
| ALPESL5VT236L-6 | Uni-Dir | Array | 5 | 1 | 6 | 0.2 | 6 | 80 | | SOT23-6 |
| ALPESU5VD0603 | Uni-Dir | Single | 5 | 0.1 | 6 | 0.3 | 3 | 30 | | DFN0603 |
| ALPESU5VD0603C | Bi-Dir | Single | 5 | 0.1 | 6.5 | 0.2 | 5 | 100 | | DFN0603 |
| ALPESU5VD0603LC | Bi-Dir | Single | 5 | 0.1 | 6.5 | 0.2 | 3 | 60 | | DFN0603 |
| ALPESU5VD2010-5 | Uni-Dir | Array | 5 | 1 | 6 | 0.15 | 3 | 30 | | DFN2010 |
| ALPESU5VD2510-10 | Uni-Dir | Single | 5 | 1 | 6 | 0.15 | 3 | 30 | | DFN2510 |
| ALPESU5VD4120-10 | Uni-Dir | Array | 5 | 1 | 6 | 0.15 | 3 | 30 | | DFN4120 |
| ALPESU5VD882C | Bi-Dir | Single | 5 | 0.1 | 6.5 | 0.3 | 3 | 60 | | SOD-882 |
| ALPLL054BT2510 | Uni-Dir | Array | 5 | 1 | 6 | 0.8 | | 30 | | T2510P10 |
| ALPLL054BT36 | Uni-Dir | Array | 5 | 1 | 6 | 0.9 | | 150 | | SOT-363 |
| ALPLL054BT6 | Uni-Dir | Array | 5 | 1 | 6 | 0.9 | | 150 | | TSOP-6 |
| ALPN052AT23 | Uni-Dir | Array | 5 | 5 | 6 | 350 | 20 | 240 | 12 | SOT-23 |
| ALPU054BT2510 | Uni-Dir | Array | 5 | 1 | 6 | 0.6 | | 75 | | T2510P10 |
| ALPES7VD1006 | Uni-Dir | Single | 7 | 0.5 | 7.8 | 63 | 13 | 220 | | DFN1006 |
| ALPES7VD1006C | Bi-Dir | Single | 7 | 0.5 | 8.5 | 30 | 10 | 200 | | DFN1006 |
| ALPES7VD523 | Uni-Dir | | 7 | 1 | 7.5 | 65 | 8.8 | 200 | 22.7 | SOD-523FL |
| ALPES7VD523-2 | Uni-Dir | Single | 7 | 1 | 7.5 | 80 | 10 | 160 | | SOD-523 |
| ALPESL08VD323C | Bi-Dir | Array | 8 | 2 | 8.5 | 1 | 8 | 148 | 18.5 | SOD-323F |
| ALPESL8VD323SC | Bi-Dir | Single | 8 | 1 | 8.5 | 1 | 20 | 350 | | SOD-323 |
| ALPES12V603 | Uni-Dir | Single | 12 | 2 | 13.5 | 150 | 6 | 150 | 25 @I _{pp} =6A | 603 |
| ALPES12V603C | Bi-Dir | Single | 12 | 2 | 14 | 15 | 3 | 90 | 30 @I _{pp} =3A 22 @I _{pp} =1A | 603 |
| ALPES12VD0603C | Bi-Dir | Single | 12 | 0.2 | 13.4 | 3.5 | 5.5 | 150 | | DFN0603 |

| Alpinesemi™ Part Number | Direction | Configuration | V _{RWM} (V) | I _{R_MAX} (μA) | V _{BR_MIN} (V) | C _{J_TYP} (pF) | I _{PP} (A) | P _{PP} (W) | V _C (V) | Package |
|-------------------------|-----------|---------------|----------------------|-------------------------|-------------------------|-------------------------|---------------------|---------------------|---------------------------------------|-----------|
| ALPES12VD1006C | Bi-Dir | Single | 12 | 0.2 | 13.3 | 9 | 5 | 150 | | DFN1006 |
| ALPES12VD323 | Uni-Dir | Single | 12 | 1 | 13.3 | 130 | 11 | 352 | 32 | SOD-323F |
| ALPES12VD323-2 | Uni-Dir | Single | 12 | 1 | 13.3 | 150 | 15 | 375 | | SOD-323 |
| ALPES12VD323-2C | Bi-Dir | Single | 12 | 1 | 13.3 | 50 | 12 | 300 | | SOD-323 |
| ALPES12VD323C | Bi-Dir | Single | 12 | 1 | 13.3 | 75 | 11 | 352 | 32 | SOD-323F |
| ALPES12VD523 | Uni-Dir | Single | 12 | 1 | 13.5 | 55 | 9.6 | 240 | 25 | SOD-523FL |
| ALPES12VD723 | Uni-Dir | Single | 12 | 1 | 13.5 | 30 | 5.9 | 140 | 23.7 | SOD-923FL |
| ALPES12VT23-3 | Uni-Dir | Array | 12 | 1 | 13.3 | 50 | 12 | 300 | | SOT-23 |
| ALPES17VT23-3C | Bi-Dir | Array | 12 | 1 | 13.3 | 45 | 12 | 400 | | SOT-23 |
| ALPESL12VD323C | Bi-Dir | Array | 12 | 1 | 13.3 | 1 | 6 | 172 | 28.6 | SOD-323F |
| ALPESL12VD323SC | Bi-Dir | Single | 12 | 1 | 13.3 | 1 | 11 | 350 | | SOD-323 |
| ALPN122AT23 | Uni-Dir | Array | 12 | 1 | 13.3 | 150 | 15 | 360 | 24 | SOT-23 |
| ALPES15VD323 | Uni-Dir | Single | 15 | 1 | 16.7 | 120 | 10 | 380 | 38 | SOD-323F |
| ALPES15VD323C | Bi-Dir | Single | 15 | 1 | 16.7 | 68 | 10 | 380 | 38 | SOD-323F |
| ALPES15VD523 | Uni-Dir | Single | 15 | 1 | 16.5 | 65 | 10 | 260 | 26 | SOD-523FL |
| ALPESL15VD323C | Bi-Dir | Array | 15 | 1 | 16.7 | 1 | 5 | 159 | 31.8 | SOD-323F |
| ALPESL15VD323SC | Bi-Dir | Single | 15 | 1 | 16.7 | 1 | 10 | 350 | | SOD-323 |
| ALPES24V603 | Uni-Dir | Single | 24 | 2 | 27 | 60 | 4 | 240 | 60 @I _{pp} =4A 45 @IPP=1A | 603 |
| ALPES24V603C | Bi-Dir | Single | 24 | 1 | 25.5 | 18 | 1.5 | 65 | 43 @I _{pp} =1.5A | 603 |
| ALPES24VD23C | Bi-Dir | Array | 24 | 1 | 26.7 | 1 | 3 | 168 | 56 | SOD-323F |
| ALPES24VD323 | Uni-Dir | Single | 24 | 1 | 26.7 | 80 | 7 | 364 | 52 | SOD-323F |
| ALPES24VD323-2C | Bi-Dir | Single | 24 | 1 | 26.7 | 25 | 8 | 400 | | SOD-323 |
| ALPES24VD323C | Bi-Dir | Single | 24 | 1 | 26.7 | 50 | 7 | 364 | 52 | SOD-323F |
| ALPES24VT23-3C | Bi-Dir | Array | 24 | 1 | 26.7 | 15 | 5 | 250 | | SOT-23 |
| ALPESL24VD323SC | Bi-Dir | Single | 24 | 1 | 26.7 | 1 | 9 | 350 | | SOD-323 |
| ALPN242AT23 | Uni-Dir | Array | 24 | 1 | 26.7 | 88 | 10 | 470 | 47 | SOT-23 |
| ALPES36VD1006 | Uni-Dir | Single | 36 | 0.5 | 40 | 25 | 4 | 280 | | DFN1006 |
| ALPES36VD323 | Uni-Dir | Single | 36 | 1 | 40 | 30 | 5 | 375 | 75 | SOD-323F |
| ALPES36VD323C | Bi-Dir | Single | 36 | 1 | 40 | 35 | 4.5 | 338 | 75 | SOD-323F |
| ALPN362AT23 | Uni-Dir | Array | 36 | 1 | 40 | 80 | 5 | 375 | 75 | SOT-23 |

| Alpinesemi™ Part Number | Direction | Configuration | V _{RWM} | I _R @V _{RWM} (nA) | V _{BR} @1mA (V) | C _{J_TYP} (pF) | I _{PP_MAX} (A) | V _T @I _{PP} (V) | V _C @I _{PP} (V) | Package |
|-------------------------|-----------|---------------|------------------|---------------------------------------|--------------------------|-------------------------|-------------------------|-------------------------------------|-------------------------------------|----------|
| ALPESL3V3D1006LSNC | Bi-Dir | Single | 3.3 | 50 | 5 | 0.8 | 15 | 9 | 8.8 | DFN1006 |
| ALPESU3V3D1006LSNC | Bi-Dir | Single | 3.3 | 100 | 5 | 0.25 | 5 | 9 | 6 | DFN1006 |
| ALPESU3V3D1006SNHC | Bi-Dir | Single | 3.3 | 50 | 5 | 0.3 | 10 | 9 | 7 | DFN1006 |
| ALPESU3V3D1610SNC-6 | Bi-Dir | Array | 3.3 | 100 | 5 | 0.4 | 10 | 9 | 7 | DFN1610 |
| ALPESU3V3D2510SN-10 | Uni-Dir | Array | 3.3 | 100 | 5 | 0.2 | 5 | 8 | 4 | DFN2510 |
| ALPESU3V3E01005SNC | Bi-Dir | Single | 3.3 | 100 | 5 | 0.2 | 5 | 9 | 6 | ECP01005 |
| ALPESU3V3E0201SNC | Bi-Dir | Single | 3.3 | 50 | 5 | 0.3 | 10 | 9 | 6 | ECP0201 |
| ALPESL5VD1006LSNC | Bi-Dir | Single | 5 | 50 | 5.5 | 0.8 | 15 | 9 | 8.8 | DFN1006 |
| ALPESU5VD1006LSNC | Bi-Dir | Single | 5 | 100 | 5.5 | 0.25 | 5 | 9 | 6 | DFN1006 |
| ALPESU5VD1006SNC | Bi-Dir | Single | 5 | 50 | 5.5 | 0.3 | 10 | 9 | 7 | DFN1006 |
| ALPESU5VD2510SN-10 | Uni-Dir | Array | 5 | 100 | 5.5 | 0.2 | 5 | 8 | 4 | DFN2510 |
| ALPESU5VE01005SNC | Bi-Dir | Single | 5 | 100 | 5.5 | 0.2 | 5 | 9 | 6 | ECP01005 |
| ALPESU5VE0201SNC | Bi-Dir | Single | 5 | 50 | 5.5 | 0.3 | 10 | 9 | 6 | ECP0201 |
| ALPESU9VE0201SNC | Bi-Dir | Single | 9 | 50 | 9.5 | 0.35 | 10 | 13 | 6 | ECP0201 |
| ALPESU18VE0201SNC | Bi-Dir | Single | 18 | 100 | 20 | 0.35 | 10 | 35 | 10 | ECP0201 |

PROTECTION DEVICES ♦ Normal ESD List (Ultra Low Capacitance TVS & TVS Array)

| Alpinesemi™ Part Number | Direction | Configuration | V _{RWM} (V) | I _{R_MAX} (μA) | V _{BR_MIN} (V) | C _{TYP.} (pF) | I _{PP} (A) | P _{PP} (W) | Package |
|-------------------------|-----------|---------------|----------------------|-------------------------|-------------------------|------------------------|---------------------|---------------------|---------|
| ALPESU3V3D0603 | Uni-Dir | Single | 3.3 | 0.1 | 5 | 0.3 | 3 | 30 | DFN0603 |
| ALPESU3V3D0603LC | Bi-Dir | Single | 3.3 | 0.1 | 5 | 0.2 | 3 | 60 | DFN0603 |
| ALPESU3V3D882 | Uni-Dir | Single | 3.3 | 0.1 | 5 | 0.3 | 3 | 30 | SOD-882 |
| ALPESU3V3D882C | Bi-Dir | Single | 3.3 | 0.1 | 5 | 0.3 | 3 | 60 | SOD-882 |
| ALPESU5VD2510-10 | Uni-Dir | Array | 3.3 | 1 | 5 | 0.15 | 3 | 30 | DFN2510 |
| ALPESL5VD2510L-10 | Uni-Dir | Array | 5 | 1 | 6 | 0.2 | 6 | 80 | DFN2510 |
| ALPESL5VT723-3 | Uni-Dir | Array | 5 | 1 | 6 | 0.3 | 3 | 30 | SOT-723 |
| ALPESU5VD0603 | Uni-Dir | Single | 5 | 0.1 | 6 | 0.3 | 3 | 30 | DFN0603 |
| ALPESU5VD0603LC | Bi-Dir | Single | 5 | 0.1 | 6.5 | 0.2 | 3 | 60 | DFN0603 |
| ALPESU5VD2010-5 | Uni-Dir | Array | 5 | 1 | 6 | 0.15 | 3 | 30 | DFN2010 |
| ALPESU5VD2510-10 | Uni-Dir | Array | 5 | 1 | 6 | 0.15 | 3 | 30 | DFN2510 |
| ALPESU5VD4120-10 | Uni-Dir | Array | 5 | 1 | 6 | 0.15 | 3 | 30 | DFN4120 |
| ALPESU5VD882 | Uni-Dir | Single | 5 | 0.1 | 6 | 0.3 | 3 | 30 | SOD-882 |
| ALPESU5VD882C | Bi-Dir | Single | 5 | 0.1 | 6.5 | 0.3 | 3 | 60 | SOD-882 |

PROTECTION DEVICES ♦ Normal ESD Capacitance TVS

| Alpinesemi™ Part Number | Direction | Configuration | V _{RWM} (V) | I _{R_MAX} (μA) | V _{BR_MIN} (V) | C _{TYP.} (pF) | I _{PP} (A) | P _{PP} (W) | Package |
|-------------------------|-----------|---------------|----------------------|-------------------------|-------------------------|------------------------|---------------------|---------------------|---------|
| ALPES3V3D0603C | Bi-Dir | Single | 3.3 | 1 | 3.7 | 12 | 7 | 70 | DFV0603 |
| ALPES3V3D1006LC | Bi-Dir | Single | 3.3 | 0.5 | 3.7 | 10 | 7 | 100 | DFN1006 |
| ALPES3V3D323C | Bi-Dir | Single | 3.3 | 1 | 4 | 100 | 20 | 350 | SOD-323 |
| ALPES3V3D523 | Uni-Dir | Single | 3.3 | 1 | 5 | 100 | 11.2 | 158 | SOD-523 |
| ALPES5VD0603C | Bi-Dir | Single | 5 | 0.1 | 5.6 | 15 | 6 | 70 | DFN0603 |
| ALPES5VD1006 | Uni-Dir | Single | 5 | 1 | 6 | 53 | 8.7 | 130 | DFN1006 |
| ALPES5VD1006C | Bi-Dir | Single | 5 | 1 | 5.6 | 15 | 9.4 | 174 | DFN1006 |
| ALPES5VD323 | Uni-Dir | Single | 5 | 1 | 6 | 90 | 9.8 | 350 | SOD-323 |
| ALPES5VD323C | Bi-Dir | Single | 5 | 1 | 6 | 25 | 13.5 | 350 | SOD-323 |
| ALPES5VD523 | Uni-Dir | Single | 5 | 1 | 6.2 | 80 | 13 | 250 | SOD-523 |
| ALPES5VT23-3 | Uni-Dir | Array | 5 | 1 | 6 | 60 | 16.7 | 300 | SOT-23 |
| ALPES5VT23-3C | Bi-Dir | Array | 5 | 1 | 5.8 | 12 | 5 | 50 | SOT-23 |
| ALPES7VD1006 | Uni-Dir | Single | 7 | 0.5 | 7.8 | 63 | 13 | 220 | DFN1006 |
| ALPES7VD523 | Uni-Dir | Single | 7 | 1 | 7.5 | 80 | 10 | 160 | SOD-523 |
| ALPES12VD0603C | Bi-Dir | Single | 12 | 0.2 | 13.4 | 3.5 | 5.5 | 150 | DFN0603 |
| ALPES12VD1006C | Bi-Dir | Single | 12 | 0.2 | 13.3 | 9 | 5 | 150 | DFN1006 |
| ALPES12VD323 | Uni-Dir | Single | 12 | 1 | 13.3 | 150 | 15 | 375 | SOD-323 |
| ALPES12VD323C | Bi-Dir | Single | 12 | 1 | 13.3 | 50 | 12 | 300 | SOD-323 |
| ALPES12VT23-3 | Uni-Dir | Array | 12 | 1 | 13.3 | 50 | 12 | 300 | SOT-23 |
| ALPES24VD323C | Bi-Dir | Single | 24 | 1 | 26.7 | 25 | 8 | 400 | SOD-323 |
| ALPES36VD1006 | Uni-Dir | Single | 36 | 0.5 | 40 | 25 | 4 | 280 | DFN1006 |

PROTECTION DEVICES ♦ Polymer ESD Suppressor

| Alpinesemi™ Part Number | Direction | Configuration | V _{RWM} (V) | I _{R_MAX} (μA) | C _{P_TYP} (pF) | V _{T_TYP} (V) | V _{C_TYP} (V) | Package |
|-------------------------|-----------|---------------|----------------------|-------------------------|-------------------------|------------------------|------------------------|---------|
| ALPMLPS05VA0402C | Bi-Dir | Single | 5 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPMLPS05VA0603C | Bi-Dir | Single | 5 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS05VA0201C | Bi-Dir | Single | 5 | 0.1 | 0.05 | 300 | 35 | 201 |
| ALPPS05VA0402C | Bi-Dir | Single | 5 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPPS05VA0603C | Bi-Dir | Single | 5 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS05VA2510C | Bi-Dir | Array | 5 | 0.1 | 0.2 | 300 | 35 | 2510 |
| ALPMLPS12VA0402C | Bi-Dir | Single | 12 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPMLPS12VA0603C | Bi-Dir | Single | 12 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS12VA0201C | Bi-Dir | Single | 12 | 0.1 | 0.05 | 300 | 35 | 201 |
| ALPPS12VA0402C | Bi-Dir | Single | 12 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPPS12VA0603C | Bi-Dir | Single | 12 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS12VA2510C | Bi-Dir | Array | 12 | 0.1 | 0.2 | 300 | 35 | 2510 |
| ALPMLPS15VA0402C | Bi-Dir | Single | 15 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPMLPS15VA0603C | Bi-Dir | Single | 15 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS15VA0201C | Bi-Dir | Single | 15 | 0.1 | 0.05 | 300 | 35 | 201 |
| ALPPS15VA0402C | Bi-Dir | Single | 15 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPPS15VA0603C | Bi-Dir | Single | 15 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS15VA2510C | Bi-Dir | Array | 15 | 0.1 | 0.2 | 300 | 35 | 2510 |
| ALPMLPS24VA0402C | Bi-Dir | Single | 24 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPMLPS24VA0603C | Bi-Dir | Single | 24 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS24VA0201C | Bi-Dir | Single | 24 | 0.1 | 0.05 | 300 | 35 | 201 |
| ALPPS24VA0402C | Bi-Dir | Single | 24 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPPS24VA0603C | Bi-Dir | Single | 24 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS24VA2510C | Bi-Dir | Array | 24 | 0.1 | 0.2 | 300 | 35 | 2510 |
| ALPMLPS30VA0402C | Bi-Dir | Single | 30 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPMLPS30VA0603C | Bi-Dir | Single | 30 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS30VA0201C | Bi-Dir | Single | 30 | 0.1 | 0.05 | 300 | 35 | 201 |
| ALPPS30VA0402C | Bi-Dir | Single | 30 | 0.1 | 0.05 | 300 | 35 | 402 |
| ALPPS30VA0603C | Bi-Dir | Single | 30 | 0.1 | 0.05 | 300 | 35 | 603 |
| ALPPS30VA2510C | Bi-Dir | Array | 30 | 0.1 | 0.2 | 300 | 35 | 2510 |

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