

GVB SERIES BROADBAND BYPASS CAPACITORS FOR GaN

100V RATED • WIREBONDABLE FOR DRAIN OPERATING FROM 28 TO 65 V

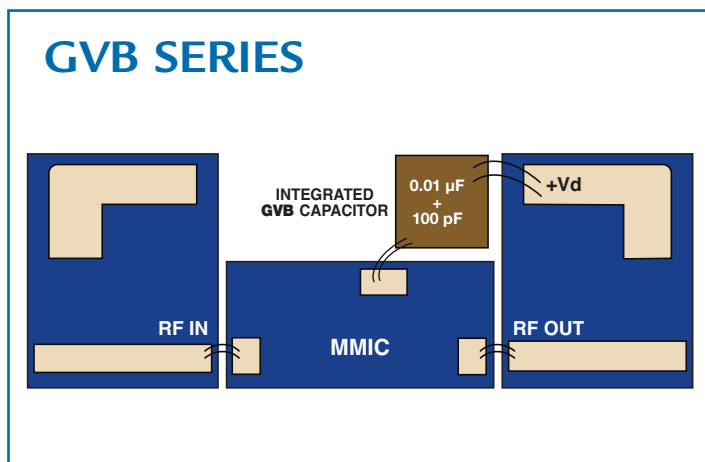
| Part Numbers | L inch (mm) | W inch (mm) | T inch (mm) | Dielectric | Capacitance | Tolerance | Voltage Rating (DC) |
|-------------------|--------------|--------------|--------------|------------|-------------|-----------|---------------------|
| GVB2020X102M3H5C1 | 0.020 (0.51) | 0.020 (0.51) | 0.015 (0.38) | X7R | 1,000 pF | ± 20% | 100V |
| GVB2020Y103Z3H5C1 | 0.020 (0.51) | 0.020 (0.51) | 0.015 (0.38) | Y5V | 10,000 pF | +80/-20% | 100V |
| GVB2040X222M3H5C1 | 0.020 (0.51) | 0.040 (1.02) | 0.017 (0.43) | X7R | 2,200 pF | ± 20% | 100V |
| GVB3030X103M3H5C1 | 0.030 (0.76) | 0.030 (0.76) | 0.022 (0.56) | X7R | 10,000 pF | ± 20% | 100V |
| GVB3060X103M3H5C1 | 0.030 (0.76) | 0.060 (1.52) | 0.017 (0.43) | X7R | 10,000 pF | ± 20% | 100V |
| GVB4080X183M3H5C1 | 0.042 (1.07) | 0.083 (2.11) | 0.017 (0.43) | X7R | 18,000 pF | ± 20% | 100V |

FEATURES:

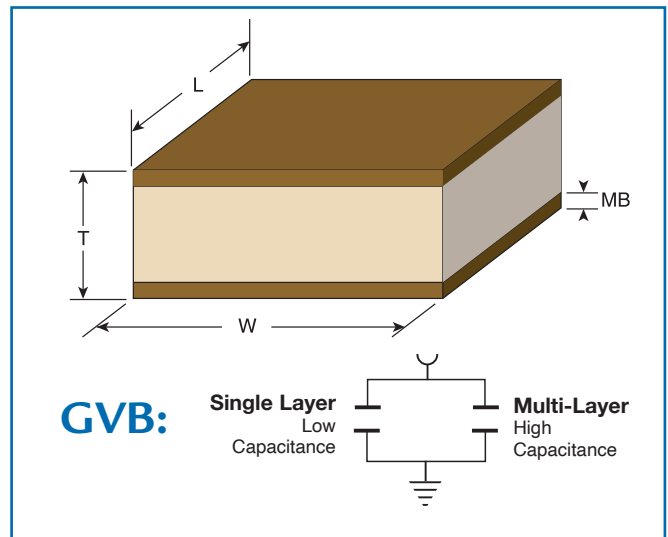
- High Capacitance in Small Sizes
- Compact & Low Profile
- Excellent Frequency Response
- ~16 KHz to Over 50 GHz
- Gold Thickness: 200 μinch Minimum
- Easy to Wirebond
- Epoxy Mounted
- RoHS Compliant

APPLICATIONS:

- RF Broadband Bypassing
- DC Blocking
- Coupling
- Filtering
- Military & Space Screening Available



Note: For different sizes, capacitance values, and voltage ratings please see page 9 or contact the factory.



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WIRE BONDABLE VERTICAL ELECTRODE CAPACITORS

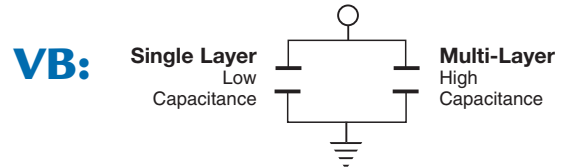
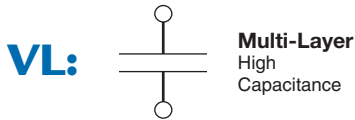
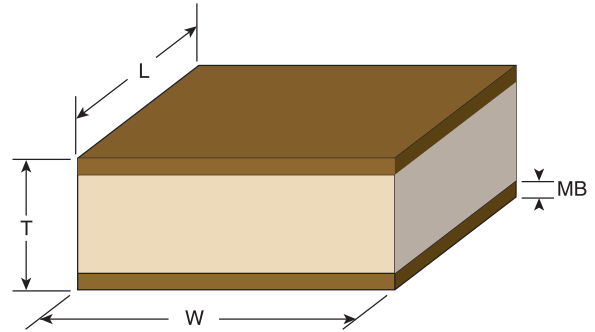
PRESIDIO ADVANTAGE

VL SERIES

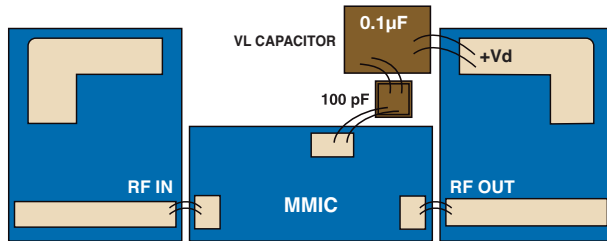
- Wire Bondable Bypass Capacitors for MMIC's

VB SERIES

- Wire Bondable Integrated Broadband Bypass Capacitors for MMIC's up to Millimeter Frequencies
- Low Profile

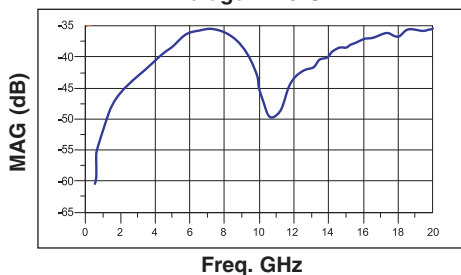


VL SERIES

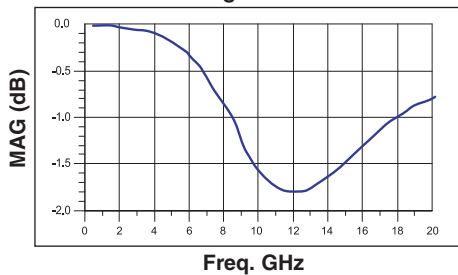


MVL4080X104MGH5C-_* (Bond Wires Included)

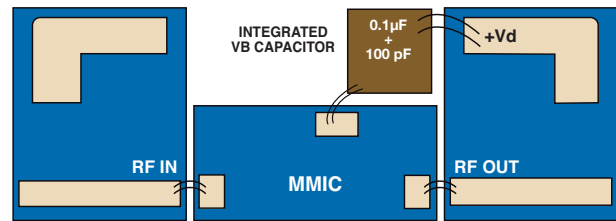
Data in Shunt
Average MAG S21



Average MAG S11

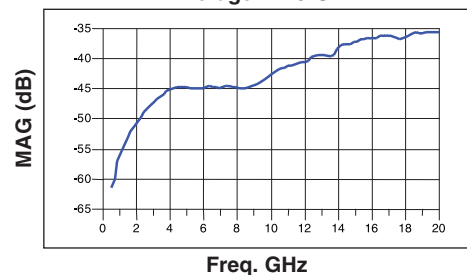


VB SERIES

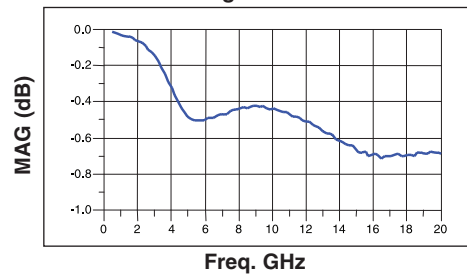


MVB4080X104ZGH5C3_* (Bond Wires Included)

Data in Shunt
Average MAG S21



Average MAG S11



GLOBAL PART NUMBER EXAMPLE (How to Order)

| | | | | | | | | | | | |
|-----------|--|--------------|------------|-------------|-----------------------|----------|-------------|-----------|----------------|---|------------------------------|
| M | VB | 3030 | X | 103 | M | G | H | 5 | C | 1 | * |
| Test Code | VB = Vertical Broadband VL = Vertical Layer | Size (Pg. 9) | Dielectric | Capacitance | Capacitance Tolerance | Voltage | Termination | Packaging | RoHS Compliant | VB – Special Code VL – Hyphen Required | Design-In Code (See Page 14) |

Test Codes, Dielectric Codes and Specifications

| | | | | FIT* 85° C | FIT* 100° C | New Space J | Similar -55681 C | Similar -123 S | MIL-PRF-38534 Rev. L Class H | Class K | Cust. Spec. D |
|---|------------------------------|-----------------------|--------------------------|---------------|----------------|----------------|------------------------|----------------------|---------------------------------|------------------|------------------|
| TEST CODES: | | | | M | N | | | | H | K | |
| Upgradable to Codes: | | | | H, C | H, C, S, K | | | | | | |
| ELECTRICAL SPECIFICATIONS | X7R Dielectric Code X | Y5V Dielectric Code Y | Testing Method | Test Samples | | Test Samples | Test Samples | | Test Samples | | |
| Temperature Coefficient Limits | ± 20% | + 22%, -82% | Presidio Specification | | | | | | | | |
| Temperature Coefficient Limit Cycle | -55° to +125° C | -30° to +85° C | Presidio Specification | | | | | | | | |
| Capacitance | 1 kHz, 1.0 V AC RMS | 1 kHz, 1.0 V AC RMS | MIL-STD-202 Meth. 305 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Dissipation Factor, maximum | 7.5% max. | 19% max. | Presidio Specification | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Dielectric Withstanding Voltage (DWV) | 250% of WVDC | 250% of WVDC | MIL-STD-202 Meth. 301 | 1% AQL | 1% AQL | 100% | 100% | 100% | 100% | 100% | |
| Insulation Resistance @ +25° C at WVDC | 1000 MΩ - μF | 50 MΩ - μF | MIL-STD-202 Meth. 302 | 1% AQL | 1% AQL | 100% | 100% | 100% | 100% | 100% | |
| Insulation Resistance @ +125° C at WVDC | 100 MΩ - μF | Not Applicable | MIL-STD-202 Meth. 302 | | | | 1% AQL | 100% | | 100% | |
| Aging Effects | 2.5% typ./decade hr. | 5% typ./decade hr. | Presidio Specification | | | | | | | | |
| VISUAL & MECHANICAL SPECIFICATIONS | | | | | | | | | | | |
| Visual, Workmanship | | | Presidio Specification | 100% | 100% | 100% | 100% | 100% | 22 | 100% | |
| Element Electrical | | | Measure & Record | | | | | | 10 | 25/80/125 | |
| Wire Bond Evaluation | 3 grams, 0.001" dia. Au wire | | STD-883 Method 2011 | | | | | 10 | 10 | 10 | 10 |
| Shear Strength, minimum | Size dependent | Size dependent | STD-883 Method 2019 | | | | | 10 | 10 | 10 | |
| Physical Dimensions | See Page 9 | See Page 9 | Presidio Specification | | | | | 20 | 20 | | |
| Prohibited Material Inspection | | | MIL-STD-1580 | | | | | | | N/A ² | N/A ² |
| Non-Destructive Screening (X-Ray) | | | ECIA EIA-469 | | | | | | Optional ¹ | | 100% |
| ENVIRONMENTAL TESTS, LEVEL I (TEST CODE C) | | | | | | | | | | | |
| Voltage Conditioning | 100 Hours | 100 Hours | MIL-STD-202 Meth. 108, A | | | | | | 100% | N/A | N/A |
| ENVIRONMENTAL TESTS, LEVEL II (TEST CODE S) | | | | | | | | | | | |
| Thermal Shock & Voltage Conditioning | 20 cycles/168 hr. min. | Not Applicable | MIL-STD-202 Meth. 107 | | | | | | 100% | | 100% |
| Destructive Physical Analysis Report | | Not Applicable | EIA 469 Except §6.1.3 | | | | | | Included | | Included |
| Temperature Coeff. of Capacitance, 0 Volt | ± 20% | Not Applicable | Presidio Specification | | | | | | 12 | | |
| Life Test | 1000 Hours Each Lot | Not Applicable | MIL-STD-202 Meth. 108 | | | | | | 25/80/125 | | 25/80/125 |
| Humidity, Steady State, Low Voltage | 240 hours min. | Not Applicable | MIL-STD-202 Meth. 103, A | | | | | | 12 | | 12 |
| 1 RoHS Compliant, Yes or No | Specify | Not Applicable | | | | | | | | | |

*FIT (Failure In Time) per billion hours. Calculations are based on assumed continuous operating temperatures 85° C & 100° C
¹ Needs to be specified on the RFQ & Purchase Order
² These parts do not contain any Sn

| -3dB CUT OFF FREQUENCY | |
|------------------------|------|
| pF | kHz |
| 330,000 | < 10 |
| 180,000 | 10 |
| 100,000 | 16 |
| 68,000 | 25 |
| 47,000 | 35 |
| 43,000 | 40 |
| 30,000 | 55 |
| 22,000 | 75 |
| 20,000 | 80 |
| 15,000 | 105 |
| 10,000 | 160 |
| 8,200 | 195 |
| 4,700 | 340 |

Capacitance Codes

First Two Digits = Significant figures of capacitance in picofarads

Third Digit = Additional number of zeros

Example: 100 = 10 pF
 102 = 1,000 pF
 104 = 100,000 pF

Working Voltage (See Page 9)

| Code | WVDC | Code | WVDC |
|------|------|------|------|
| 3 | 100 | G | 16 |
| 2 | 50 | F | 12 |
| 1 | 25 | E | 10 |
| | | C | 6.3 |

Termination

| VL/VB | Description |
|-------|---|
| H | 99.8% Au Top and Bottom Suitable for Conductive Epoxy |
| U | 100% Au Top and Bottom Oxide Free Surface Suitable for Conductive Epoxy |
| K | 99.8% Au Top, PdAg Bottom Conductive Epoxy or Solder |

100 Microinches minimum thickness on both sides

Capacitance Tolerance

| Code | Tol. |
|------|-----------------------------------|
| M | ± 20% |
| Z | -20%, +80% for all Y5V dielectric |

Packaging

5 = Waffle Pack (standard)
 F = Grip Ring, 6.0" diameter standard

RoHS

| Code | Compliant |
|------|---------------------------|
| N | No |
| R | Legacy, ended 2012 |
| C | Yes, started January 2013 |

Special Code

VB Series: Single Layer Capacitance Value:
 1 = 100 pF
 3 = 1800 pF

VL Series: Hyphen Required



SELECTION TABLE: VERTICAL ELECTRODE CAPACITORS – WIRE BONDABLE

Feel free to contact factory to discuss your screening requirements.

| Size Code | L inch (mm) | W inch (mm) | T Max. inch (mm) | MB Max. inch (mm) | Working Voltage (WVDC) Max. | Capacitance (pF) | INDUSTRIAL & MILITARY Test Code M | | | | SPACE TEST CODES EM: Code N FM: Code J, S or K | Performance Curves | SZP Files "VB" |
|------------|---|---|---|----------------------------|--------------------------------|---------------------|--------------------------------------|---------------------|--------------------------|--------------------------|--|-----------------------|---------------------|
| | | | | | | | X7R (pF) | Y5V (pF) | VB SERIES PART NUMBER | VL SERIES PART NUMBER | | | |
| 2020 | 0.020 (0.508) ± 0.003 (0.076) | 0.020 (0.508) ± 0.003 (0.076) | 0.015 (0.381) | 0.003 (0.076) | 100 | Max: | 390 | | | MVL2020X391M3 *5C- | 390 | | |
| | | | | | 50 | Max: | 1,000 | | | MVL2020X102M2 *5C- | 1,000 | | |
| | | | | | 25 | Max: | 2,700 | | | MVL2020X272M1 *5C- | | | |
| | | | | | 16 | Max: | 5,100 | | | MVL2020X512MG *5C- | | | |
| | | | | | 10 | Max: | 10,000 | | | MVL2020X103ME *5C- | 5,100 | | |
| | | | | | 6.3 | Max: | | LVB2020X103MC *5C1* | | | | | |
| 2040 | 0.020 (0.508) ± 0.003 (0.076) | 0.040 (1.016) ± 0.004 (0.102) | 0.017 (0.432) | 0.005 (0.127) | 100 | Max: | 1,000 | | MVB2040X102M3 *5C1* | MVL2040X102M3 *5C- | 1,000 | | |
| | | | | | 50 | Max: | 2,200 | | MVB2040X222M2 *5C1* | MVL2040X222M2 *5C- | 2,200 | | |
| | | | | | 25 | Max: | 5,100 | | MVB2040X512M1 *5C1* | MVL2040X512M1 *5C- | | | |
| | | | | | 16 | Max: | 10,000 | | MVB2040X103MG *5C1* | MVL2040X103MG *5C- | 5,100 | | |
| | | | | | 10 | Max: | 22,000 | | MVB2040X223ME *5C1* | MVL2040X223ME *5C- | 10,000 | | |
| 2741 | 0.027 (0.686) ± 0.004 (0.102) | 0.041 (1.041) ± 0.004 (0.102) | 0.033 (0.838) | 0.005 (0.127) | 16 | Max: | 100,000 | | MVB2741X104MG *5C1* | MVL2741X104MG *5C- | | | |
| 3030 | 0.030 (0.762) ± 0.003 (0.076) | 0.030 (0.762) ± 0.003 (0.076) | 0.022 (0.559) | 0.005 (0.127) | 100 | Max: | 4,700 | | MVB3030X472M3 *5C1* | MVL3030X472M3 *5C- | 4,700 | | |
| | | | | | 50 | Max: | 10,000 | | MVB3030X103M2 *5C1* | MVL3030X103M2 *5C- | 10,000 | | |
| | | | | | 25 | Max: | 15,000 | | MVB3030X153M1 *5C1* | MVL3030X153M1 *5C- | | | |
| | | | | | 16 | Max: | 22,000 | | MVB3030X223MG *5C1* | MVL3030X223MG *5C- | 15,000 | PDE | WEB |
| | | | | | 16 | Max: | | 100,000 | | MVL3030X104ZG *5C- | | | |
| | | | | | 10 | Max: | 43,000 | | MVB3030X433ME *5C1* | MVL3030X433ME *5C- | 20,000 | | |
| 3060 | 0.030 (0.762) ± 0.003 (0.076) | 0.060 (1.524) ± 0.004 (0.102) | 0.017 (0.432) | 0.005 (0.127) | 100 | Max: | 8,200 | | MVB3060X822M3 *5C1* | MVL3060X822M3 *5C- | 8,200 | | |
| | | | | | 50 | Max: | 20,000 | | MVB3060X203M2 *5C1* | MVL3060X203M2 *5C- | 10,000 | | |
| | | | | | 25 | Max: | 30,000 | | MVB3060X303M1 *5C1* | MVL3060X303M1 *5C- | 15,000 | | |
| | | | | | 16 | Max: | 47,000 | | MVB3060X473MG *5C1* | MVL3060X473MG *5C- | 22,000 | | |
| | | | | | 10 | Max: | 100,000 | | MVB3060X104ME *5C1* | MVL3060X104ME *5C- | 47,000 | | |
| 4040 | 0.040 (1.016) ± 0.004 (0.102) | 0.040 (1.016) ± 0.004 (0.102) | 0.025 (0.635) | 0.005 (0.127) | 100 | Max: | 8,200 | | MVB4040X822M3 *5C1* | MVL4040X822M3 *5C- | | | |
| | | | | | 50 | Max: | 20,000 | | MVB4040X203M2 *5C1* | MVL4040X203M2 *5C- | 10,000 | | |
| | | | | | 25 | Max: | 30,000 | | MVB4040X303M1 *5C1* | MVL4040X303M1 *5C- | 20,000 | | |
| | | | | | 16 | Max: | 47,000 | | MVB4040X473MG *5C1* | MVL4040X473MG *5C- | 30,000 | | |
| | | | | | 10 | Max: | 100,000 | | MVB4040X104ME *5C1* | MVL4040X104ME *5C- | 47,000 | | |
| 3080 | 0.030 (0.762) ± 0.003 (0.076) | 0.080 (2.032) ± 0.004 (0.102) | 0.025 (0.635) | 0.005 (0.127) | 50 | Max: | 15,000 | | | MVL3080X153M2 *5C- | | | |
| | | | | | 16 | Max: | 100,000 | | | MVL3080X104MG *5C- | | | |
| 4080 VB | 0.042 (1.067) ± 0.004 (0.102) | 0.083 (2.108) ± 0.004 (0.102) | 0.017 (0.432) ± 0.025 (0.635) | 0.005 (0.127) | 100 | Max: | 15,000 | | MVB4080X153M3 *5C1* | MVL4080X153M3 *5C- | 10,000 | | |
| 50 | | | | | Max: | 30,000 | | MVB4080X303M2 *5C1* | MVL4080X303M2 *5C- | 20,000 | | | |
| 25 | | | | | Max: | 68,000 | | MVB4080X683M1 *5C1* | MVL4080X683M1 *5C- | 30,000 | | | |
| 16 | | | | | Max: | 100,000 | | MVB4080X104MG *5C3* | MVL4080X104MG *5C- | 47,000 | | | |
| 5080 | 0.050 (1.270) ± 0.004 (0.102) | 0.083 (2.108) ± 0.004 (0.102) | 0.025 (0.635) | 0.005 (0.127) | 100 | Max: | 30,000 | | MVB5080X303M3 *5C1* | MVL5080X303M3 *5C- | 30,000 | | |
| | | | | | 50 | Max: | 100,000 | | MVB5080X104M2 *5C1* | MVL5080X104M2 *5C- | 68,000 (VL) 47,000 (VB) | | |
| | | | | | 25 | Max: | 100,000 | | MVB5080X104M1 *5C1* | MVL5080X104M1 *5C- | 100,000 (VL) | | |
| | | | | | 16 | Max: | 180,000 | | MVB5080X184MG *5C1* | MVL5080X184MG *5C- | 100,000 | | |
| | | | | | 10 | Max: | 220,000 | | MVB5080X224ME *5C1* | MVL5080X224ME *5C- | | | |

Note: For higher voltage ratings or higher capacitance values, please contact factory.

* Insert codes for termination (Page 8) and design-in location (Page 14)



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A WORD TO DESIGN ENGINEERS

After the design work is done, outsourcing manufacturing on a global basis is a management option. At Presidio Components, we are striving for complete customer satisfaction which includes “after” service for all of our products.

We added a “Design In” locator code for quick traceability, if needed. Please select your location from the list below and add the appropriate code at the end of the part number.

If you need assistance give us a call at **+1-858-578-9390** or email us at **info@presidiocomponents.com**.

UNITED STATES

OUTSIDE THE UNITED STATES

| USA | Code | USA | Code | Americas | Code | Europe | Code |
|----------------------|------|-------------------|------|-----------------------------|------|--------------------------|------|
| Alabama | G | Nebraska | P | Canada | R | Austria | 3 |
| Alaska | P | Nevada, North | B | Mexico | R | Belgium | 1 |
| Arizona | D | Nevada, South | C | Caribbean | R | Denmark | 5 |
| Arkansas | P | New Hampshire | L | Central America | R | Finland | 5 |
| California, North | B | New Jersey | J | South America | R | France | 2 |
| California, South | C | New Mexico | D | | | Germany | 3 |
| Colorado | E | New York, Metro | J | Pacific Rim | | Ireland | 6 |
| Connecticut | L | New York, Upstate | K | Australia | S | Italy | 4 |
| Delaware | I | North Carolina | G | China | T | Luxembourg | 1 |
| District of Columbia | H | North Dakota | O | Japan | U | Netherlands | 1 |
| Florida | G | Ohio | M | Korea, South | V | Norway | 5 |
| Georgia | G | Oklahoma | P | Malaysia | W | Sweden | 5 |
| Hawaii | P | Oregon | A | Singapore | X | Switzerland | 3 |
| Idaho | A | Pennsylvania | I | Other Pacific Rim Countries | Y | United Kingdom | 6 |
| Illinois | N | Rhode Island | L | | | Other European Countries | 7 |
| Indiana | M | South Carolina | G | | | Other | |
| Iowa | O | South Dakota | O | | | India | Z |
| Kansas | P | Tennessee | G | | | Israel | 8 |
| Kentucky | M | Texas | F | | | Rest of World | 9 |
| Louisiana | P | Utah | E | | | | |
| Maine | L | Vermont | L | | | | |
| Maryland | H | Virginia | H | | | | |
| Massachusetts | L | Washington | A | | | | |
| Michigan | N | West Virginia | P | | | | |
| Minnesota | O | Wisconsin, East | N | | | | |
| Mississippi | G | Wisconsin, West | O | | | | |
| Missouri | N | Wyoming | E | | | | |
| Montana | A | | | | | | |

