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Vishay Polytech

COMPLIANT

FREE

GREEN

(5-2008)

AMS Sample Kit vPolyTan™ Polymer Surface Mount Chip Capacitors





LINKS TO ADDITIONAL RESOURCES







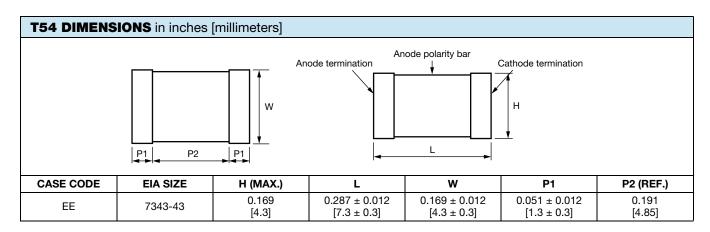
FEATURES

- Ultra low ESR
- · High reliability processing including:
 - 100 % surge current tested
 - Accelerated voltage conditioning
 - Thermal shock
 - Statistical DC leakage screening at elevated temperature and voltage, covered by U.S. patent and worldwide patents pending.
 PATENT(S): www.vishay.com/patents
- High ripple current capability
- Stable capacitance in operating temperature range
- Better capacitance stability vs frequency
- · No wear out effect
- Molded case 7343 EIA size
- Terminations: wraparound (T54), J-leads (T56)
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

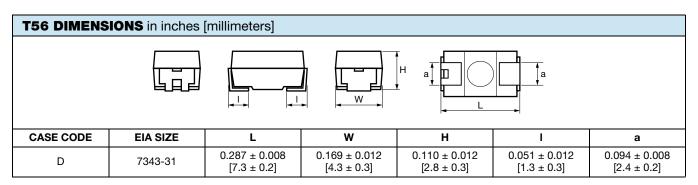
APPLICATIONS

- Decoupling, smoothing, filtering
- Switch mode and point of load power supply
- Infrastructure equipment
- Storage and networking

| SPECIFICATIONS | | | |
|-----------------------------|--|--|--|
| Part number | POLYTAN-KIT-AMS | | |
| Capacitor type | Conductive polymer | | |
| Capacitor tolerance | ± 20 % | | |
| Operating temperature range | -55 °C to +125 °C (T54); -55 °C to +105 °C (T56) | | |
| Termination finish | Sn / Pb (T54), Ni / Pd / Au (T56) | | |
| Moisture sensitivity level | 3 | | |
| Number of capacitors | See Capacitance Value List table | | |



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| CAPACITANCE VALUE LIST | | | | | |
|------------------------|---------------------|----------------|-------------------------------------|---|-------------------------|
| PART NUMBER | CAPACITANCE (µF) | VOLTAGE (V) | CASE CODE (SEE DIMENSIONS TABLE) | MAX. ESR AT +25 °C 1000 kHz (mΩ) | NUMBER OF CAPACITORS |
| T54EE337M016EZB025 | 330 | 16 | EE | 25 | 6 |
| T54EE477M016EZB025 | 470 | 16 | EE | 25 | 6 |
| T54EE157M030EZB075 | 150 | 30 | EE | 75 | 6 |
| T54EE476M035EZB070 | 47 | 35 | EE | 70 | 6 |
| T54EE226M050EZB100 | 22 | 50 | EE | 100 | 6 |
| T54EE226M063EZB100 | 22 | 63 | EE | 100 | 6 |
| T54EE156M075EZB100 | 15 | 75 | EE | 100 | 6 |
| T56D227M010CZB025 | 220 | 10 | D | 25 | 10 |
| T56D337M010CZB025 | 330 | 10 | D | 25 | 10 |
| T56D106M025CZB120 | 10 | 25 | D | 120 | 10 |
| T56D336M025CZB060 | 330 | 25 | D | 60 | 10 |
| T56D107M025CZB060 | 100 | 25 | D | 60 | 10 |

| RECOMMENDED VOLTAGE DERATING GUIDELINES | | | |
|---|-------------------|--|--|
| CAPACITOR VOLTAGE RATING | OPERATING VOLTAGE | | |
| 2.5 | 2.3 | | |
| 4.0 | 3.6 | | |
| 6.3 | 5.7 | | |
| 7.0 | 6.3 | | |
| 10 | 9.0 | | |
| 12.5 | 11.2 | | |
| 16 | 12.8 | | |
| 20 | 16 | | |
| 25 | 20 | | |
| 35 | 28 | | |
| 50 | 40 | | |
| 63 | 50 | | |

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| ITEM | CONDITION | POST TEST PERFOR | RMANCE |
|--|--|--|--|
| Life test at +105 °C | 2000 h application of rated voltage at 105 °C, | Capacitance change | Within ± 20 % of initial value |
| Life test at +105 °C | MIL-STD-202 method 108 | Dissipation factor | Within initial limits |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Life test at +125 °C | 2000 h application of 2/3 rated voltage at 125 °C, | Capacitance change | Within ± 20 % of initial value |
| Life test at +125 °C | MIL-STD-202 method 108 | Dissipation factor | Within initial limits |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Shelf life test | 2000 h no voltage applied at 105 °C, MIL-STD-202 method 108 | Capacitance change | Within ± 20 % of initial value |
| at +105 °C | | Dissipation factor | Within initial limits |
| | | • | |
| 11 | AL 00 00 / 00 0/ BH 500 have allowed a live | Leakage current | Shall not exceed 300 % of initial limit |
| Humidity tests | At 60 °C / 90 % RH 500 h, no voltage applied | Capacitance change | -20 % to +40 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Stability at low and high temperatures | -55 °C | Capacitance change | Within -20 % to 0 % of initial value |
| mgn temperatures | | Dissipation factor | Shall not exceed 150 % of initial limit |
| | | Leakage current | n/a |
| | 25 °C | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Within initial limit |
| | 85 °C | Capacitance change | Within -0 % to +50 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 1000 % of initial value |
| | 105 °C | Capacitance change | Within -0 % to +50 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 1000 % of initial lim |
| Surge voltage | 105 °C, 1000 successive test cycles at 1.3 of rated voltage in series with a 33 Ω resistor at the rate of 30 s ON, 30 s OFF | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Shock | MIL-STD-202, method 213, condition E, 1000 g peak | Capacitance change | Within ± 20 % of initial value |
| (specified pulse) | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Vibration | MIL-STD-202, method 204, condition D, 10 Hz to 2000 Hz 20 g peak | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| | | There shall be no mechanical or visual damage to capacitors post-conditioning. | |
| Shear test | Apply a pressure load of 17.7 N for 10 s ± 1 s horizontally to the center of capacitor side body | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |

Polymer AMS Sample Kit

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| 100 FEITI OITIN | ANCE CHARACTERISTICS | | |
|----------------------|--|--|--|
| ITEM | CONDITION | POST TEST PERFORMANCE | |
| Life test | 2000 h application of rated voltage at 105 °C, 2000 h application of 2/3 rated voltage at 125 °C. | Capacitance change | Within ± 20 % of initial value |
| | MIL-STD-202 method 108 | Dissipation factor | Within initial limits |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Shelf life test | 2000 h no voltage applied at 105 °C, 2000 h no voltage applied at 125 °C, MIL-STD-202 method 108 | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limits |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Humidity tests | At 60 °C / 90 % RH 500 h, no voltage applied At 85 °C / 85 % RH 500 h, rated voltage applied | Capacitance change | -5 % to +50 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Resistance | MIL-STD-202, method 210, condition J (SnPb capacitors) and K (Pb-free capacitors) | Capacitance change | Within ± 20 % of initial value |
| to solder heat | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Stability at low and | -55 °C | Capacitance change | Within -30 % to 0 % of initial value |
| high temperatures | | Dissipation factor | Shall not exceed 150 % of initial limit |
| | | Leakage current | n/a |
| | 25 °C | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Within initial limit |
| | 85 °C | Capacitance change | Within -50 % to +30 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 1000 % of initial value |
| | 105 °C | Capacitance change | Within 0 % to +50 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 1000 % of initial limit |
| Surge voltage | 105 °C, 1000 successive test cycles at 1.3 of rated voltage in series with a 33 Ω resistor at the rate of 30 s ON, 30 s OFF | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| Shock | MIL-STD-202, method 213, condition I, 100 g peak | Capacitance change | Within ± 20 % of initial value |
| (specified pulse) | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| | | There shall be no mechanical or visual damage to capacitors post-conditioning. | |
| Vibration | MIL-STD-202, method 204, condition D, 10 Hz to 2000 Hz 20 g peak | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |
| | | There shall be no mechanical or visual damage to capacitors post-conditioning. | |
| Shear test | Apply a pressure load of 5 N for 10 s ± 1 s horizontally to the center of capacitor side body | Capacitance change | Within ± 20 % of initial value |
| | | Dissipation factor | Within initial limit |
| | | Leakage current | Shall not exceed 300 % of initial limit |