

ACTL Series

- Feature: Surface mounting, Reduced height, Wide temperature range
- Suitable for DC-DC converters, voltage regulators and decoupling applications
- Rate voltage: 2-25Vdc.
- Endurance: 1000hrs at 125°C
- RoHS Compliant



| Specifications | | | |
|----------------------------|--|--|---|
| Item | Conditions | Characteristics | |
| Category Temperature Range | | -55 to +125°C | |
| Rated Voltage Range | | 2-25 Vdc | |
| Capacitance Tolerance | at 20°C, 120Hz | ±20 % (M) ; Y : +10 ~ -35% ; K : ±10 % | |
| Leakage Current | at 20°C after 2 minutes | $I \leq 0.1CV$ (2 V.DC to 2.5 V.DC) $I \leq 0.3CV$ (16 V.DC to 25 V.DC) I : Leakage Current(μA), C : Rated Capacitance(μF), V : Rated Voltage(V) | |
| Surge Voltage | 15°C to 35°C | Rated voltage × 1.25 (2 V.DC to 2.5 V.DC) Rated voltage × 1.15 (16 V.DC to 25 V.DC) | |
| Dissipation Factor (tanδ) | at 20°C , 120Hz | ≤ 0.1 | |
| Endurance | 125°C, rated voltage applied, 1000 hrs | Appearance | No significant damage |
| | | Capacitance Change | ±20% of the initial value |
| | | Dissipation Factor | ≤ 200% of the initial specified value |
| | | Leakage Current | within the initial specified value |
| Damp Heat, Steady State | 60°C, 90 to 95%RH, 500 hrs | Appearance | No significant damage |
| | | Capacitance Change | (2 V.DC to 2.5 V.DC) +70%, -20% of the initial value (10 V.DC to 25 V.DC) +60%, -20% of the initial value |
| | | Dissipation Factor | ≤ 200% of the initial specified value |
| | | Leakage Current | 2 V.DC to 2.5 V.DC within the initial specified value 10 V.DC to 25 V.DC ≤ 300% of the initial specified value |
| Surge Voltage | The capacitors shall be subjected to 1000 cycles each consisting of charge with the surge voltages, 125% rated voltage, at 15~35°C for 30 seconds through a protective resistor(R=1KΩ)and discharge for 5min 30 seconds. | Appearance | No significant damage |
| | | Capacitance Change | ±10% of the initial value |
| | | Dissipation Factor | within the initial specified value |
| | | Leakage Current | within the initial specified value |

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Standard Ratings

| WV(VDC) | | Cap(μF)@120Hz | tanδ Max. @120Hz | Leakage Current Max. (μA) | ESR Max. (mΩ) @100kHz | Ripple Current (A r.m.s) @100kHz | Part No. |
|---------|-------|---------------|------------------|---------------------------|-----------------------|----------------------------------|-----------------|
| 105°C | 125°C | | | | | | |
| 2 | 1.6 | 330 | 0.1 | 66 | 6 | 7.5 | ACTL2R0S331E06 |
| | | 330 | 0.1 | 66 | 9 | 6.3 | ACTL2R0S331E09 |
| | | 470 | 0.1 | 94 | 4.5 | 8.5 | ACTL2R0S471E04 |
| | | 470 | 0.1 | 94 | 6 | 7.5 | ACTL2R0S471E06 |
| | | 470 | 0.1 | 94 | 9 | 6.3 | ACTL2R0S471E09 |
| | | 470 | 0.1 | 94 | 9 | 6.3 | ACTL2R0S471E09Y |
| 2.5 | 2 | 330 | 0.1 | 82.5 | 4.5 | 8.5 | ACTL2R5S331E04 |
| | | 330 | 0.1 | 82.5 | 6 | 7.5 | ACTL2R5S331E06 |
| | | 330 | 0.1 | 82.5 | 9 | 6.3 | ACTL2R5S331E09 |
| | | 330 | 0.1 | 82.5 | 9 | 6.3 | ACTL2R5S331E09Y |
| 16 | | 47 | 0.1 | 225.6 | 40 | 3.2 | ACTL160S470E40 |
| | | 56 | 0.1 | 268.8 | 40 | 3.2 | ACTL160S560E40 |
| 25 | | 15 | 0.1 | 112.5 | 40 | 3.2 | ACTL250S150E40 |
| | | 22 | 0.1 | 165 | 40 | 3.2 | ACTL250S220E40 |
| | | 33 | 0.1 | 247.5 | 40 | 3.2 | ACTL250S330E40 |

Temperature Compensation Multipliers for Ripple Current

| Temperature | T ≤ 45°C | 45°C < T ≤ 85°C | 85°C < T ≤ 105°C | 125°C < T |
|--------------------|----------|-----------------|------------------|-----------|
| 2 V.DC to 2.5 V.DC | 1.0 | 0.7 | 0.25 | 0.25 |
| 16 V.DC to 25 V.DC | 1.0 | 0.8 | 0.5 | 0.25 |

PRODUCT IDENTIFICATION

| | | | | |
|-------------|---------------|-------------|-------------|------------|
| <u>ACTL</u> | <u>2R0</u> | <u>S</u> | <u>331</u> | <u>E06</u> |
| Product | Rated Voltage | Case Height | Capacitance | ESR |
| | 2R0: 2.0V | S:1.9mm | 331=330μF | E06: 6mΩ |

DIMENSIONS AND MARKING

| Case size | L | WA | WB | H | P |
|-----------|---------|---------|---------|---------|---------|
| S | 7.3±0.3 | 4.3±0.3 | 2.4±0.2 | 1.9±0.1 | 1.3±0.2 |

