

SMD Transient Voltage Suppressor



ATV30C5V0-HF Thru. ATV30C441-HF

Working Peak Reverse Voltage: 5.0 to 440 Volts

Power Dissipation: 3000 Watts

RoHS Device

Halogen Free



Features

- Glass passivated chip.
- 3000W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Comply with AEC-Q101
- Very fast response time.
- UL recognized file # E349157  Range: ATV30C5V0J(B) thru. ATV30C171J(B)

Mechanical Data

- Case: DO-214AB/SMC molded plastic.
- Epoxy: UL 94V-0 rate flame retardant
- Terminals: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denoted cathode end except bipolar.
- Weight: 0.230 gram (approx.)



Circuit Diagram



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| Characteristics | Symbol | Value | Units |
|--|-----------------------------------|----------------|-------|
| Peak power dissipation with a 10/1000 μ s waveform (Note 1) | P _{PP} | 3000 | W |
| Peak pulse current with a 10/1000 μ s waveform (Note 1) | I _{PP} | See Next Table | A |
| Power dissipation on infinite heatsink at T _L =75°C | P _D | 6.0 | W |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 2) | I _{FSM} | 300 | A |
| Maximum instantaneous forward voltage at 100A for unidirectional only (Note 3) | V _F | 3.5/5.0 | V |
| Operation junction and storage temperature range | T _J , T _{STG} | -55 to +150 | °C |

- Notes: 1. Non-repetitive current pulse, per Fig.5 and derated above T_A=25°C, per Fig.1
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
3. V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

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RATING AND CHARACTERISTIC CURVES (ATV30C5V0-HF Thru. ATV30C441-HF)

Fig.1 - Pulse Derating Curve



Fig.2 - Max. Non-Repetitive Surge Current



Fig.3 - Steady State Power Derating Curve



Fig.4 - Peak Pulse Power Rating Curve



Fig.5 - Pulse Waveform



Fig.6 - Typical Junction Capacitance



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Electrical Characteristics (ATV30C5V0-HF Thru. ATV30C441-HF)

| Part No. | Breakdown voltage V _{BR} @ I _T | | | Maximum Reverse Leakage @V _{RWM} I _R (uA) | Working Peak Reverse Voltage V _{RWM} (V) | Maximum Reverse Surge Current I _{PP} (A) | Maximum Clamping Voltage @I _{PP} V _C (V) | Device Marking Code | |
|------------------|---|-------------|------------------------|---|---|---|--|---------------------------|-----|
| | Min. (V) | Max. (V) | I _T (mA) | | | | | UNI | BI |
| ATV30C5V0J(B)-HF | 6.40 | 7.00 | 50 | 800 | 5.0 | 326.09 | 9.2 | RDE | DDE |
| ATV30C6V0J(B)-HF | 6.67 | 7.37 | 50 | 800 | 6.0 | 291.26 | 10.3 | RDG | DDG |
| ATV30C6V5J(B)-HF | 7.22 | 7.98 | 50 | 500 | 6.5 | 267.86 | 11.2 | RDK | DDK |
| ATV30C7V0J(B)-HF | 7.78 | 8.60 | 50 | 200 | 7.0 | 250.00 | 12.0 | PDM | DDM |
| ATV30C7V5J(B)-HF | 8.33 | 9.21 | 5 | 100 | 7.5 | 232.56 | 12.9 | PDP | DDP |
| ATV30C8V0J(B)-HF | 8.89 | 9.83 | 5 | 50 | 8.0 | 220.59 | 13.6 | PDR | DDR |
| ATV30C8V5J(B)-HF | 9.44 | 10.40 | 5 | 20 | 8.5 | 208.33 | 14.4 | PDT | DDT |
| ATV30C9V0J(B)-HF | 10.00 | 11.10 | 5 | 10 | 9.0 | 194.81 | 15.4 | PDV | DDV |
| ATV30C100J(B)-HF | 11.10 | 12.30 | 5 | 5 | 10.0 | 176.47 | 17.0 | PDX | DDX |
| ATV30C110J(B)-HF | 12.20 | 13.50 | 5 | 2 | 11.0 | 164.84 | 18.2 | PDZ | DDZ |
| ATV30C120J(B)-HF | 13.30 | 14.70 | 5 | 2 | 12.0 | 150.75 | 19.9 | PEE | DEE |
| ATV30C130J(B)-HF | 14.40 | 15.90 | 5 | 2 | 13.0 | 139.53 | 21.5 | PEG | DEG |
| ATV30C140J(B)-HF | 15.60 | 17.20 | 5 | 2 | 14.0 | 129.31 | 23.2 | PEK | DEK |
| ATV30C150J(B)-HF | 16.70 | 18.50 | 5 | 2 | 15.0 | 122.95 | 24.4 | PEM | DEM |
| ATV30C160J(B)-HF | 17.80 | 19.70 | 5 | 2 | 16.0 | 115.38 | 26.0 | PEP | DEP |
| ATV30C170J(B)-HF | 18.90 | 20.90 | 5 | 2 | 17.0 | 108.70 | 27.6 | PER | DER |
| ATV30C180J(B)-HF | 20.00 | 22.10 | 5 | 2 | 18.0 | 102.74 | 29.2 | PET | DET |
| ATV30C190J(B)-HF | 21.10 | 23.30 | 5 | 2 | 19.0 | 97.47 | 30.8 | PEB | DEB |
| ATV30C200J(B)-HF | 22.20 | 24.50 | 5 | 2 | 20.0 | 92.59 | 32.4 | PEV | DEV |
| ATV30C220J(B)-HF | 24.40 | 26.90 | 5 | 2 | 22.0 | 84.51 | 35.5 | PEX | DEX |
| ATV30C240J(B)-HF | 26.70 | 29.50 | 5 | 2 | 24.0 | 77.12 | 38.9 | PEZ | DEZ |
| ATV30C260J(B)-HF | 28.90 | 31.90 | 5 | 2 | 26.0 | 71.26 | 42.1 | PFE | DFE |
| ATV30C280J(B)-HF | 31.10 | 34.40 | 5 | 2 | 28.0 | 66.08 | 45.4 | PFG | DFG |
| ATV30C300J(B)-HF | 33.30 | 36.80 | 5 | 2 | 30.0 | 61.98 | 48.4 | PFK | DFK |
| ATV30C330J(B)-HF | 36.70 | 40.60 | 5 | 2 | 33.0 | 56.29 | 53.3 | PFM | DFM |
| ATV30C360J(B)-HF | 40.00 | 44.20 | 5 | 2 | 36.0 | 51.64 | 58.1 | PFP | DFP |
| ATV30C400J(B)-HF | 44.40 | 49.10 | 5 | 2 | 40.0 | 46.51 | 64.5 | PFR | DFR |
| ATV30C430J(B)-HF | 47.80 | 52.80 | 5 | 2 | 43.0 | 43.23 | 69.4 | PFT | DFT |
| ATV30C450J(B)-HF | 50.00 | 55.30 | 5 | 2 | 45.0 | 41.27 | 72.7 | PFV | DFV |
| ATV30C480J(B)-HF | 53.30 | 58.90 | 5 | 2 | 48.0 | 38.76 | 77.4 | PFX | DFX |
| ATV30C510J(B)-HF | 56.70 | 62.70 | 5 | 2 | 51.0 | 36.41 | 82.4 | PFZ | DFZ |
| ATV30C540J(B)-HF | 60.00 | 66.30 | 5 | 2 | 54.0 | 34.44 | 87.1 | RGE | DGE |
| ATV30C580J(B)-HF | 64.40 | 71.20 | 5 | 2 | 58.0 | 32.05 | 93.6 | PGG | DGG |
| ATV30C600J(B)-HF | 66.70 | 73.70 | 5 | 2 | 60.0 | 30.99 | 96.8 | PGK | DGK |
| ATV30C640J(B)-HF | 71.10 | 78.60 | 5 | 2 | 64.0 | 29.13 | 103.0 | PGM | DGM |
| ATV30C700J(B)-HF | 77.80 | 86.00 | 5 | 2 | 70.0 | 26.55 | 113.0 | PGP | DGP |
| ATV30C750J(B)-HF | 83.30 | 92.10 | 5 | 2 | 75.0 | 24.79 | 121.0 | PGR | DGR |
| ATV30C780J(B)-HF | 86.70 | 95.80 | 5 | 2 | 78.0 | 23.81 | 126.0 | PGT | DGT |
| ATV30C800J(B)-HF | 88.80 | 97.60 | 5 | 2 | 80.0 | 23.15 | 129.6 | PGB | DGB |
| ATV30C850J(B)-HF | 94.40 | 104.00 | 5 | 2 | 85.0 | 21.90 | 137.0 | PGV | DGV |
| ATV30C900J(B)-HF | 100.00 | 111.00 | 5 | 2 | 90.0 | 20.55 | 146.0 | PGX | DGX |
| ATV30C101J(B)-HF | 111.00 | 123.00 | 5 | 2 | 100.0 | 18.52 | 162.0 | PGZ | DGZ |
| ATV30C111J(B)-HF | 122.00 | 135.00 | 5 | 2 | 110.0 | 16.95 | 177.0 | PHE | DHE |
| ATV30C121J(B)-HF | 133.00 | 147.00 | 5 | 2 | 120.0 | 15.54 | 193.0 | PHG | DHG |

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REV: C

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Electrical Characteristics (ATV30C5V0-HF Thru. ATV30C441-HF)

| Part No. | Breakdown voltage V _{BR} @ I _T | | | Maximum Reverse Leakage @V _{RWM} I _R (uA) | Working Peak Reverse Voltage V _{RWM} (V) | Maximum Reverse Surge Current I _{PP} (A) | Maximum Clamping Voltage @I _{PP} V _C (V) | Device Marking Code | |
|------------------|---|-------------|------------------------|---|---|---|--|---------------------------|-----|
| | Min. (V) | Max. (V) | I _T (mA) | | | | | UNI | BI |
| ATV30C131J(B)-HF | 144.0 | 159.0 | 5 | 2 | 130.0 | 14.35 | 209.0 | PHK | DHK |
| ATV30C141J(B)-HF | 155.0 | 171.0 | 5 | 2 | 140.0 | 13.23 | 226.8 | PHB | DHB |
| ATV30C151J(B)-HF | 167.0 | 185.0 | 5 | 2 | 150.0 | 12.35 | 243.0 | PHM | DHM |
| ATV30C161J(B)-HF | 178.0 | 197.0 | 5 | 2 | 160.0 | 11.58 | 259.0 | PHP | DHP |
| ATV30C171J(B)-HF | 189.0 | 209.0 | 5 | 2 | 170.0 | 10.91 | 275.0 | PHR | DHR |
| ATV30C181J(B)-HF | 200.0 | 220.0 | 5 | 2 | 180.0 | 10.29 | 291.6 | PHT | DHT |
| ATV30C191J(B)-HF | 211.0 | 232.0 | 5 | 2 | 190.0 | 9.75 | 307.8 | PHV | DHV |
| ATV30C201J(B)-HF | 224.0 | 247.0 | 5 | 2 | 200.0 | 9.26 | 324.0 | PHW | DHW |
| ATV30C221J(B)-HF | 246.0 | 272.0 | 5 | 2 | 220.0 | 8.43 | 356.0 | PHX | DHX |
| ATV30C251J(B)-HF | 279.0 | 309.0 | 5 | 2 | 250.0 | 7.41 | 405.0 | PHZ | DHZ |
| ATV30C301J(B)-HF | 335.0 | 371.0 | 5 | 2 | 300.0 | 6.17 | 486.0 | PJE | DJE |
| ATV30C351J(B)-HF | 391.0 | 432.0 | 5 | 2 | 350.0 | 5.29 | 567.0 | PJG | DJG |
| ATV30C401J(B)-HF | 447.0 | 494.0 | 5 | 2 | 400.0 | 4.63 | 648.0 | PJK | DJK |
| ATV30C441J(B)-HF | 492.0 | 543.0 | 5 | 2 | 440.0 | 4.21 | 713.0 | PJM | DJM |

Note:

- 1) Suffix J denotes 5% tolerance devices.
- 2) Suffix B after part number to specify Bi-directional devices.
- 3) For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double.

Reel Taping Specification



| DO-214AB (SMC) | SYMBOL | A | B | C | d | T | D | D ₁ | D ₂ |
|-------------------|--------|------------|---|---|---------------|--------------|--------|----------------|---|
| | (mm) | See Note 1 | | | 1.55 ± 0.05 | 0.40 (Max.) | 330.00 | 50.00 (Min.) | 13.00 ^{+0.50} _{-0.20} |
| | (inch) | See Note 1 | | | 0.061 ± 0.002 | 0.016 (Max.) | 13.000 | 1.969 (Min.) | 0.512 ^{+0.020} _{-0.008} |

| DO-214AB (SMC) | SYMBOL | E | F | P | P ₀ | P ₁ | W | W ₁ | W ₂ |
|-------------------|--------|---------------|---------------|---------------|----------------|----------------|---------------|---|----------------|
| | (mm) | 1.75 ± 0.10 | 7.50 ± 0.05 | 8.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.05 | 16.00 ± 0.10 | 16.40 ^{+2.00} _{-0.00} | 22.40 (Max.) |
| | (inch) | 0.069 ± 0.004 | 0.295 ± 0.002 | 0.315 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.630 ± 0.004 | 0.646 ^{+0.079} _{-0.000} | 0.882 (Max.) |

Notes: 1. A, B, and C the clearance between the component and the cavity must be within 0.5 mm max. for 8 mm tape and 12 mm tape, 1.0 mm max. for 16mm tape and 24 mm tape.

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