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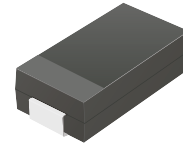
ATV50C110-HF Thru. ATV50C441-HF

Working Voltage: 11 to 440 Volts

Peak Pulse Power: 5000 Watts

RoHS Device

Halogen Free

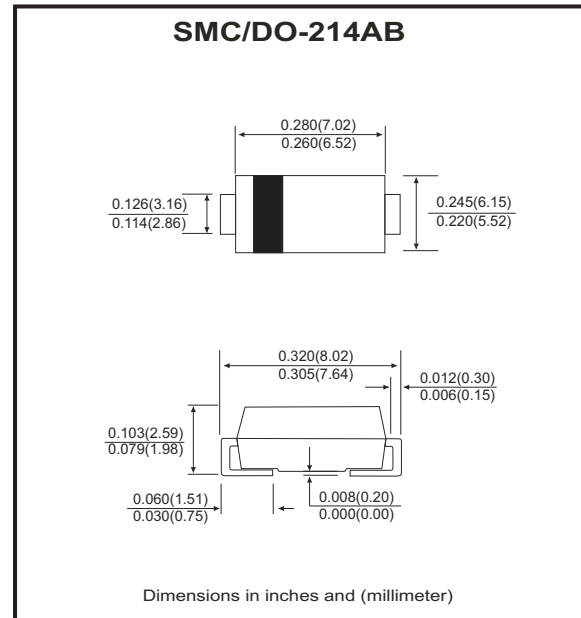


Features

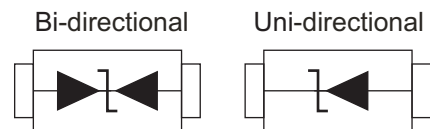
- Glass passivated chip.
- 5000W peak pulse power capability with a 10/1000µs waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Comply with AEC-Q101
- Very fast response time.
- UL recognized file # E349157

Mechanical Data

- Case: DO-214AB/SMC molded plastic.
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denoted cathode end except bipolar.
- Mounting position: Any
- 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%.

| Parameter | Symbol | Value | Units |
|--|-----------------------------------|----------------|-------|
| Peak power dissipation with a 10/1000µs waveform (Note 1) | P _{PP} | 5000 | W |
| Peak pulse current with a 10/1000µs waveform (Note 1) | I _{PP} | See Next Table | A |
| Power dissipation on infinite heatsink at T _L =75°C | P _D | 6.5 | 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

RATING AND CHARACTERISTIC CURVES (ATV50C110-HF thru. ATV50C441-HF)

Fig.1 - Pulse Derating Curve

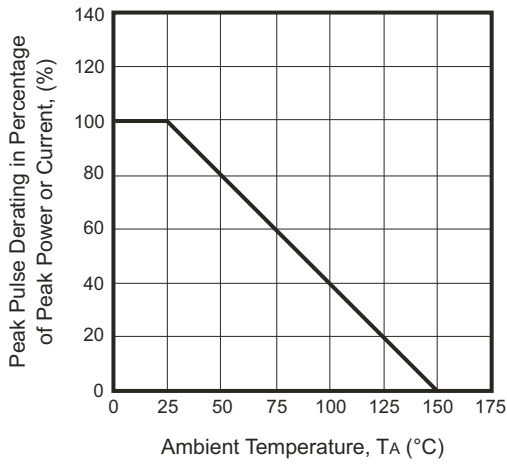


Fig.2 - Maximum Non-Repetitive Surge Current

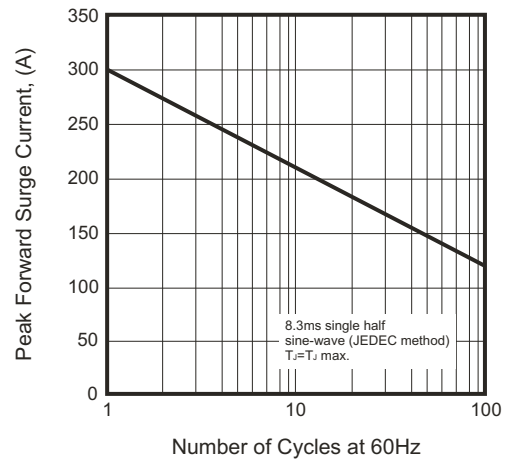


Fig.3 - Steady State Power Derating Curve

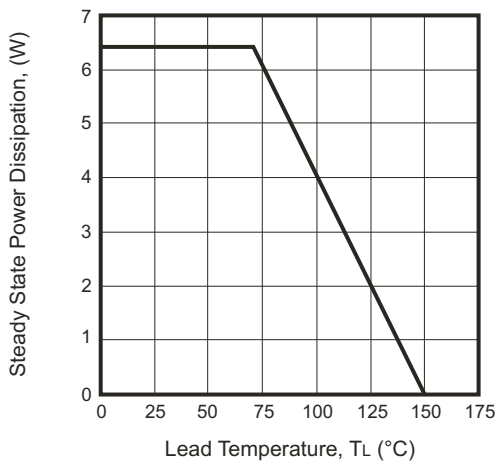


Fig.4 - Peak Pulse Power Rating Curve

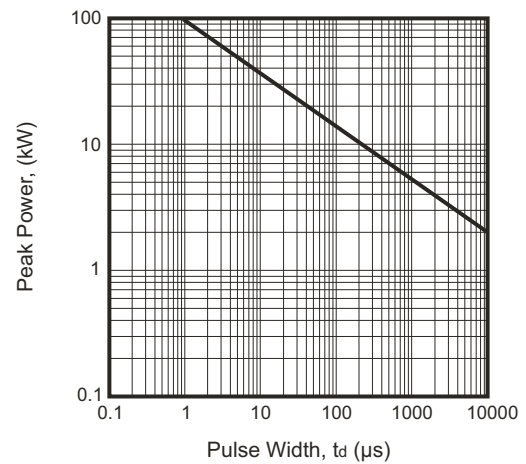


Fig.5 - Pulse Waveform

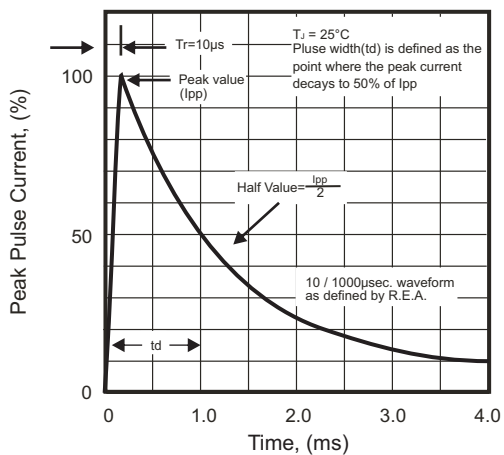
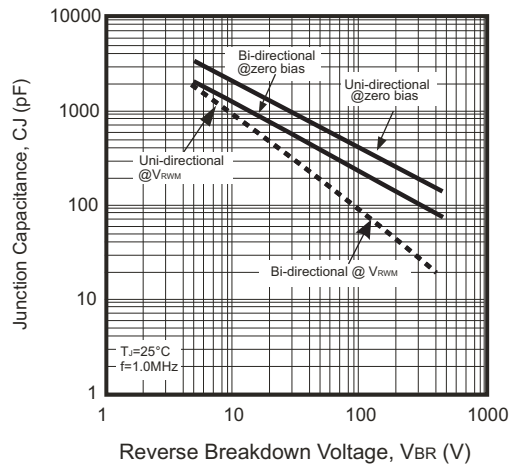


Fig.6 - Typical Junction Capacitance



SMD Transient Voltage Suppressor

Electrical Characteristics (ATV50C110-HF Thru. ATV50C441-HF)

| Part No. | Breakdown voltage VBR @ IT | | | Maximum Reverse Leakage @VRWM IR (uA) | Working Peak Reverse Voltage VRWM (V) | Maximum Reverse Surge Current IPP (A) | Maximum Clamping Voltage @IPP Vc (V) | Device Marking Code | |
|------------------|-------------------------------|----------|---------|---|--|--|--|---------------------|------|
| | Min. (V) | Max. (V) | IT (mA) | | | | | UNI | BI |
| ATV50C110J(B)-HF | 12.20 | 13.50 | 10 | 800 | 11.0 | 274.7 | 18.2 | 5PDX | 5BDX |
| ATV50C120J(B)-HF | 13.30 | 14.70 | 10 | 800 | 12.0 | 251.3 | 19.9 | 5PDZ | 5BDZ |
| ATV50C130J(B)-HF | 14.40 | 15.90 | 10 | 500 | 13.0 | 232.6 | 21.5 | 5PEE | 5BEE |
| ATV50C140J(B)-HF | 15.60 | 17.20 | 10 | 200 | 14.0 | 215.5 | 23.2 | 5PEG | 5BEG |
| ATV50C150J(B)-HF | 16.70 | 18.50 | 1 | 100 | 15.0 | 204.9 | 24.4 | 5PEK | 5BEK |
| ATV50C160J(B)-HF | 17.80 | 19.70 | 1 | 50 | 16.0 | 192.3 | 26.0 | 5PEM | 5BEM |
| ATV50C170J(B)-HF | 18.90 | 20.90 | 1 | 20 | 17.0 | 181.2 | 27.6 | 5PEP | 5BEP |
| ATV50C180J(B)-HF | 20.00 | 22.10 | 1 | 10 | 18.0 | 171.2 | 29.2 | 5PER | 5BER |
| ATV50C190J(B)-HF | 21.10 | 23.30 | 1 | 10 | 19.0 | 162.4 | 30.8 | 5PET | 5BET |
| ATV50C200J(B)-HF | 22.20 | 24.50 | 1 | 5 | 20.0 | 154.3 | 32.4 | 5PEV | 5BEV |
| ATV50C220J(B)-HF | 24.40 | 26.90 | 1 | 5 | 22.0 | 140.8 | 35.5 | 5PEX | 5BEX |
| ATV50C240J(B)-HF | 26.70 | 29.50 | 1 | 5 | 24.0 | 128.5 | 38.9 | 5PEZ | 5BEZ |
| ATV50C260J(B)-HF | 28.90 | 31.90 | 1 | 5 | 26.0 | 118.8 | 42.1 | 5PFE | 5BFE |
| ATV50C280J(B)-HF | 31.10 | 34.40 | 1 | 5 | 28.0 | 110.1 | 45.4 | 5PFG | 5BFG |
| ATV50C300J(B)-HF | 33.30 | 36.80 | 1 | 5 | 30.0 | 103.3 | 48.4 | 5PFK | 5BFK |
| ATV50C330J(B)-HF | 36.70 | 40.60 | 1 | 5 | 33.0 | 93.8 | 53.3 | 5PFM | 5BFM |
| ATV50C360J(B)-HF | 40.00 | 44.20 | 1 | 5 | 36.0 | 86.1 | 58.1 | 5PFP | 5BFP |
| ATV50C400J(B)-HF | 44.40 | 49.10 | 1 | 5 | 40.0 | 77.5 | 64.5 | 5PFR | 5BFR |
| ATV50C430J(B)-HF | 47.80 | 52.80 | 1 | 5 | 43.0 | 72.0 | 69.4 | 5PFT | 5BFT |
| ATV50C450J(B)-HF | 50.00 | 55.30 | 1 | 5 | 45.0 | 68.8 | 72.7 | 5PFV | 5BFV |
| ATV50C480J(B)-HF | 53.30 | 58.90 | 1 | 5 | 48.0 | 64.6 | 77.4 | 5PFX | 5BFX |
| ATV50C510J(B)-HF | 56.70 | 62.70 | 1 | 5 | 51.0 | 60.7 | 82.4 | 5PFZ | 5BFZ |
| ATV50C540J(B)-HF | 60.00 | 66.30 | 1 | 5 | 54.0 | 57.4 | 87.1 | 5PGE | 5BGE |
| ATV50C580J(B)-HF | 64.40 | 71.20 | 1 | 5 | 58.0 | 53.4 | 93.6 | 5PGG | 5BGG |
| ATV50C600J(B)-HF | 66.70 | 73.70 | 1 | 5 | 60.0 | 51.7 | 96.8 | 5PGK | 5BGK |
| ATV50C640J(B)-HF | 71.10 | 78.60 | 1 | 5 | 64.0 | 48.5 | 103.0 | 5PGM | 5BGM |
| ATV50C700J(B)-HF | 77.80 | 86.00 | 1 | 5 | 70.0 | 44.2 | 113.0 | 5PGP | 5BGP |
| ATV50C750J(B)-HF | 83.30 | 92.10 | 1 | 5 | 75.0 | 41.3 | 121.0 | 5PGR | 5BGR |
| ATV50C780J(B)-HF | 86.70 | 95.80 | 1 | 5 | 78.0 | 39.7 | 126.0 | 5PGT | 5BGT |
| ATV50C800J(B)-HF | 88.80 | 97.60 | 1 | 5 | 80.0 | 38.6 | 129.6 | 5PGB | 5BGB |
| ATV50C850J(B)-HF | 94.40 | 104.0 | 1 | 5 | 85.0 | 36.5 | 137.0 | 5PGV | 5BGV |
| ATV50C900J(B)-HF | 100.0 | 111.0 | 1 | 5 | 90.0 | 34.2 | 146.0 | 5PGX | 5BGX |
| ATV50C101J(B)-HF | 111.0 | 123.0 | 1 | 5 | 100.0 | 30.9 | 162.0 | 5PGZ | 5BGZ |
| ATV50C111J(B)-HF | 122.0 | 135.0 | 1 | 5 | 110.0 | 28.2 | 177.0 | 5PHE | 5BHE |
| ATV50C121J(B)-HF | 133.0 | 147.0 | 1 | 5 | 120.0 | 25.9 | 193.0 | 5PHG | 5BHG |
| ATV50C131J(B)-HF | 144.0 | 159.0 | 1 | 5 | 130.0 | 23.9 | 209.0 | 5PHK | 5BHK |
| ATV50C141J(B)-HF | 155.0 | 171.0 | 1 | 5 | 140.0 | 22.0 | 226.8 | 5PHB | 5BHB |
| ATV50C151J(B)-HF | 167.0 | 185.0 | 1 | 5 | 150.0 | 20.6 | 243.0 | 5PHM | 5BHM |
| ATV50C161J(B)-HF | 178.0 | 197.0 | 1 | 5 | 160.0 | 19.3 | 259.0 | 5PHP | 5BHP |
| ATV50C171J(B)-HF | 189.0 | 209.0 | 1 | 5 | 170.0 | 18.2 | 275.0 | 5PHR | 5BHR |

SMD Transient Voltage Suppressor

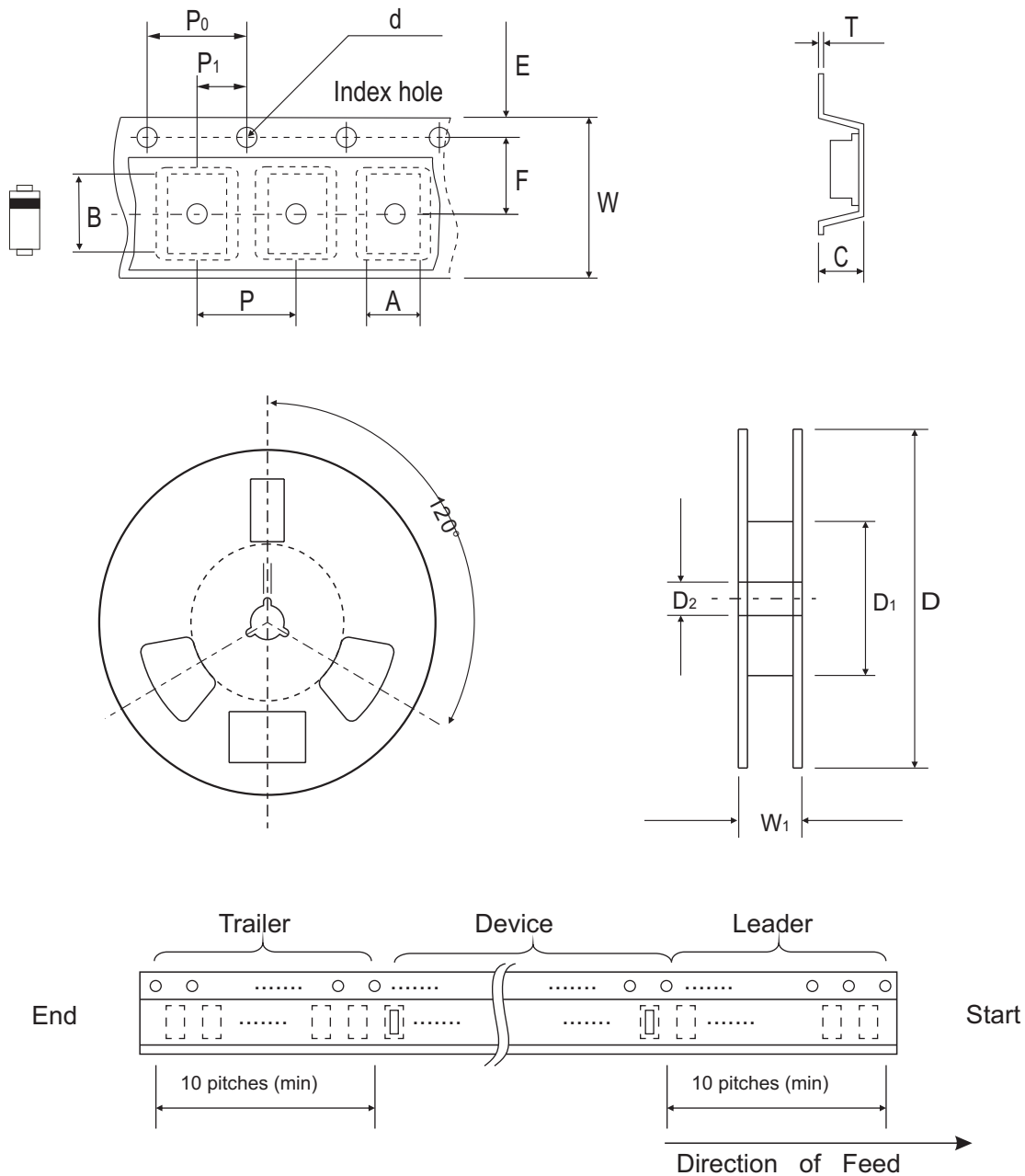
Electrical Characteristics (ATV50C110-HF Thru. ATV50C441-HF)

| 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 |
| ATV50C181J(B)-HF | 200.0 | 220.0 | 1 | 5 | 180.0 | 17.1 | 291.6 | 5PHT | 5BHT |
| ATV50C191J(B)-HF | 211.0 | 232.0 | 1 | 5 | 190.0 | 16.2 | 307.8 | 5PHV | 5BHV |
| ATV50C201J(B)-HF | 224.0 | 247.0 | 1 | 5 | 200.0 | 15.4 | 324.0 | 5PHW | 5BHW |
| ATV50C221J(B)-HF | 246.0 | 272.0 | 1 | 5 | 220.0 | 14.0 | 356.0 | 5PHX | 5BHX |
| ATV50C251J(B)-HF | 279.0 | 309.0 | 1 | 5 | 250.0 | 12.3 | 405.0 | 5PHZ | 5BHZ |
| ATV50C301J(B)-HF | 335.0 | 371.0 | 1 | 5 | 300.0 | 10.3 | 486.0 | 5PJE | 5BJE |
| ATV50C351J(B)-HF | 391.0 | 432.0 | 1 | 5 | 350.0 | 8.8 | 567.0 | 5PJG | 5BJG |
| ATV50C401J(B)-HF | 447.0 | 494.0 | 1 | 5 | 400.0 | 7.7 | 648.0 | 5PJK | 5BJK |
| ATV50C441J(B)-HF | 492.0 | 543.0 | 1 | 5 | 440.0 | 7.0 | 713.0 | 5PJM | 5BJM |

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 20 volts and under, the I_R limit is double.

Reel Taping Specification



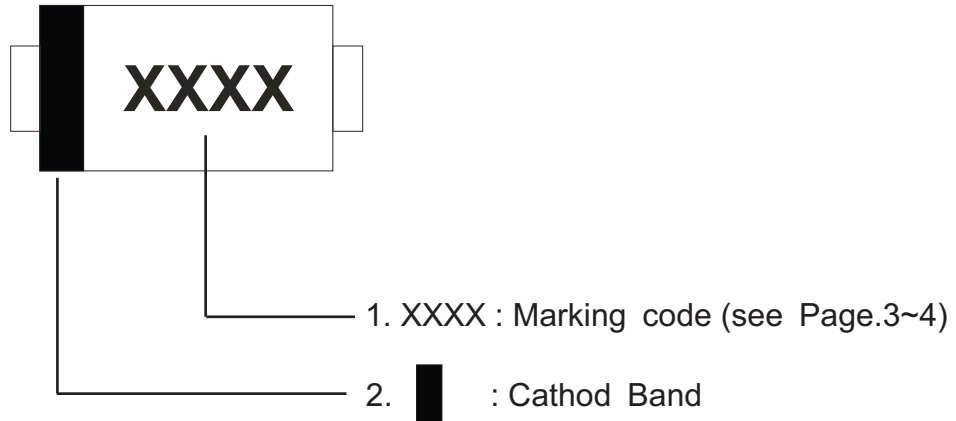
| DO-214AB (SMC) | SYMBOL | A | B | C | d | D | D1 | D2 |
|-------------------|--------|---------------|---------------|-------------|---------------|--------|-------------|---------------|
| | (mm) | 6.05 ± 0.10 | 8.31 ± 0.10 | 3.29 (max) | 1.55 ± 0.10 | 330.00 | 50.00 (min) | 13.00 ± 0.20 |
| | (inch) | 0.238 ± 0.004 | 0.327 ± 0.004 | 0.130 (max) | 0.061 ± 0.004 | 13.000 | 1.969 (min) | 0.512 ± 0.008 |

| DO-214AB (SMC) | SYMBOL | E | F | P | P0 | P1 | W | W1 |
|-------------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|-------------|
| | (mm) | 1.75 ± 0.10 | 7.50 ± 0.10 | 8.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.10 | 16.00 ± 0.30 | 22.40 (max) |
| | (inch) | 0.069 ± 0.004 | 0.295 ± 0.004 | 0.315 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.004 | 0.630 ± 0.012 | 0.882 (max) |

Company reserves the right to improve product design , functions and reliability without notice.

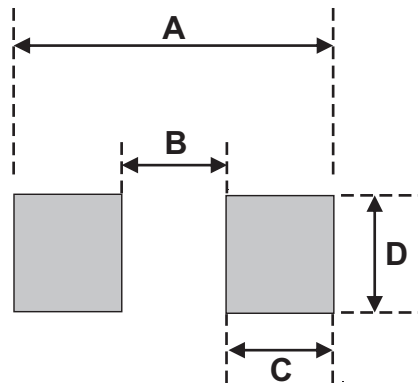
REV:B

Marking Code



Suggested PAD Layout

| SIZE | DO-214AB(SMC) | |
|------|---------------|-----------|
| | (mm) | (inch) |
| A | 8.13 | 0.320 |
| B | 4.69 MAX | 0.185 MAX |
| C | 1.52 MIN | 0.06 MIN |
| D | 3.20 MIN | 0.126 MIN |



Standard Packaging

| Case Type | REEL PACK | |
|----------------|--------------|------------------|
| | REEL (pcs) | Reel Size (inch) |
| DO-214AB (SMC) | 3,000 | 13 |