

Small Signal Switching Chip Diode

Feature

Silicon Epitaxial Planar Diode.

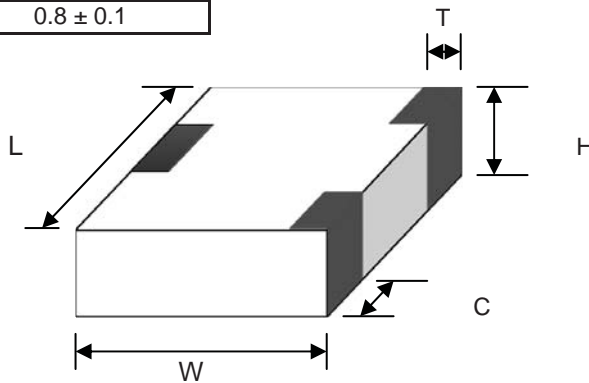
Fast switching dual chip diode with anode to cathode.

This diode is also available in other configurations figuration including single with type designation CDMMBD4148, a dual common anode with type designation CDBAV70, and a dual common cathode with type designation CDBAV99

Lead (Pd) - free component.

DIMENSION:

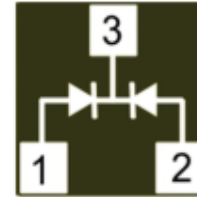
| (mm) | CDBAV70 |
|------|------------|
| L | 3.1 ± 0.2 |
| W | 2.6 ± 0.2 |
| H | 0.95 ± 0.2 |
| T | 0.75 ± 0.2 |
| C | 0.8 ± 0.1 |



Marking: BAV70



Value: CDBAV70



Case: SOT23 Plastic Case
Weight: approx. 21mg

Maximum Ratings & Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise noted



| Parameter | Symbol | Value | Unit |
|--|-----------------|---|--------------------|
| Device marking code | | CDBAV70 | |
| Non repetitive peak reverse voltage | V_{RM} | 100 | V |
| Repetitive pead reverse voltage | $V_R = V_{RRM}$ | 70 | V |
| Forward continuous current | I_F | 200 | mA |
| Non repetitive peak forward current | I_{FSM} | $tp = 1 \text{ us}$ | 2.0 |
| | | $tp = 1 \text{ ms}$ | 1.0 |
| | | $tp = 1 \text{ s}$ | 0.5 |
| Average forward current | I_{FSM} | 150 ¹⁾ | mA |
| Power dissipation | P_{TOT} | 300 ¹⁾ | mW |
| Forward voltage | V_F | $I_F = 1\text{mA}$ | 715 |
| | | $I_F = 10\text{mA}$ | 855 |
| | | $I_F = 50\text{mA}$ | 1000 |
| | | $I_F = 150\text{mA}$ | 1250 |
| Leakage current | I_R | $V_R = 70\text{V}$ | 2.5 |
| | | $V_R = 70\text{V}, T_j = 150^{\circ}\text{C}$ | 50 |
| | | $V_R = 25\text{V}, T_j = 150^{\circ}\text{C}$ | 30 |
| Thermal resistance junction to ambient air | R_{thJA} | 430 ¹⁾ | K/W |
| Junction temperature | T_j | 150 | $^{\circ}\text{C}$ |
| Storage temperature range | T_{stg} | - 55 to + 150 | $^{\circ}\text{C}$ |
| Diode capacitance ($V_F = V_R = 0, f = 1\text{MHz}$) | C_{tot} | 4 | pF |
| Reverse Recovery time ($I_F = 10\text{mA}$ to $I_R = 1\text{mA}, V_R = 6\text{V}, R_L = 100\Omega$) | T_{rr} | 4 | ns |

¹⁾ Valid provided that electrodes are kept at ambient temperature.

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Typical Characteristics

(Tamb=25°C, unless otherwise specified)

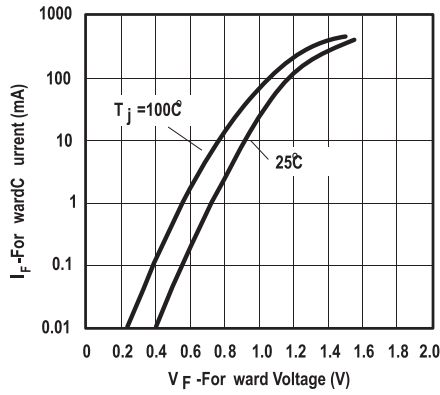


Figure1. Forward Current vs. Forward Voltage

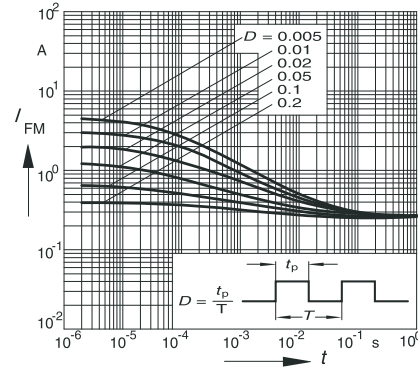


Figure2. Peak forward current $I_{FM} = f(t_p)$

Suggested thermal profiles for soldering processes

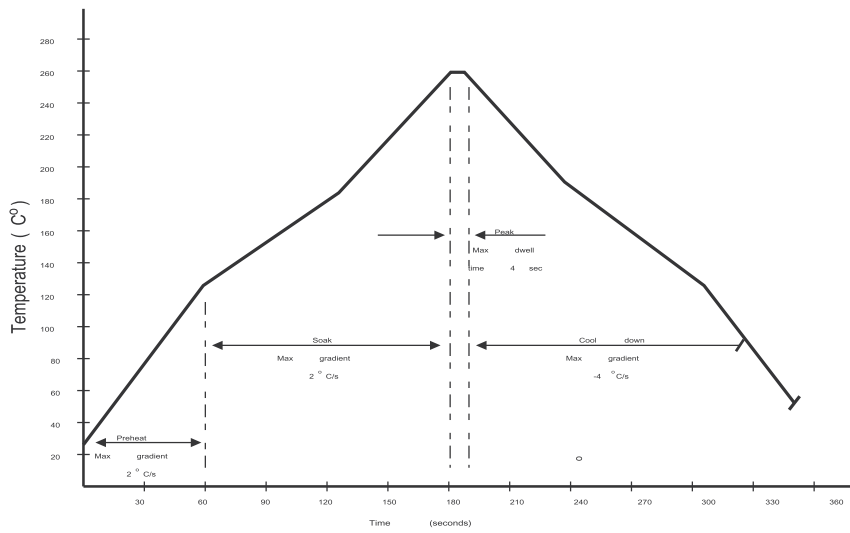


Fig.1 Typical Wave Soldering Thermal Profile

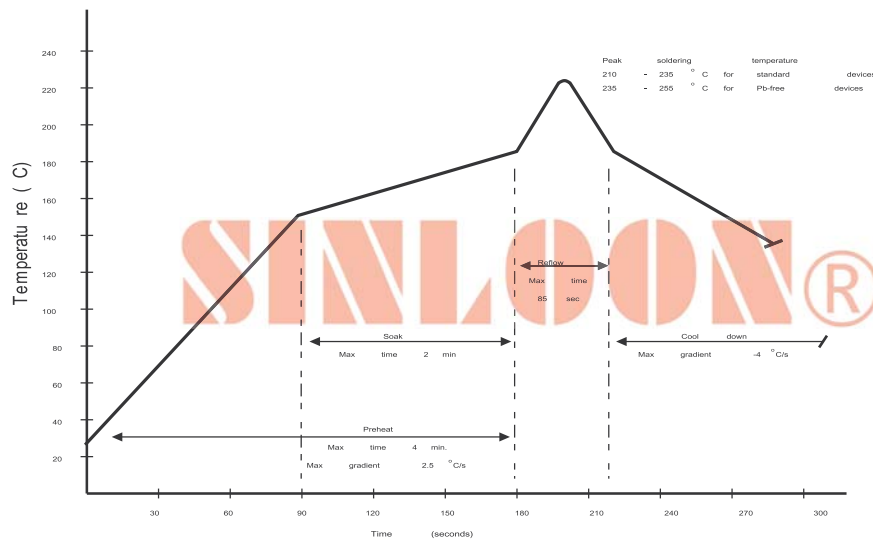


Fig.2 Typical IR Reflow Soldering Thermal Profile



TEST CHARACTERISTICS

| Test Item | Test Condition | Requirement |
|---------------------------------|---|--|
| Solder ability | Sn bath at 245±5 °C for 2±0.5s | >95% area tin covered |
| Resistance to Soldering Heat | Sn bath at 260±5 °C for 10±2s | V _F , V _Z & I _R within spec., no mechanical damage. |
| Humidity Steady State | At 85°C 85% 85RH for 168hrs. | V _F , V _Z & I _R within spec. |
| Continue Forward Operating Life | At 25°C I _F =I _o ±10% for 100hrs. | V _F , V _Z & I _R within spec. |
| Hi-Temperature Reverse Bias | At 150°C V _R =0.8V _R Rated for 1000hrs. | V _F , V _Z & I _R within spec. |
| Thermal Shock | -55±5°C/5min to 150±5°C/min for 10cycles. | V _F , V _Z & I _R within spec. |
| Banding Strength | Bending up to 2mm for 1 cycle. | V _F , V _Z & I _R within spec., no mechanical damage. |

APPLICATIONS

- ◆ Function: Fast Switching
- ◆ Soldering Condition.

| Recommended Profile Condition | Sn-Pb Soldering | Lead-Free Soldering | Wave Soldering |
|-------------------------------------|----------------------|----------------------|----------------------|
| Pre-up rate (from pre-heat stage) | <3°C/s. | <3°C/s. | ΔT<150°C |
| Pre-heat temperature & Time | 100-150°C , 60-120s. | 150-200°C , 60-180s. | 100-150°C , 60-120s. |
| Soldering Temperature & Time | 183°C 60-150s. | 217°C 60-150s. | 260±5°C 5±2s |
| Peak Temperature | 230±5°C | 245±5°C | 260±5°C |
| Time within 5°C of peak temperature | 10-30s. | 20-40s. | - |
| Ramp-down rate | <6°C/s. | <6°C/s. | <6°C/s. |
| Time 25°C to peak temperature | <6min | <8min | - |

Manual Soldering: Approx 350°C for 3s, avoid solder iron tip direct the components body.

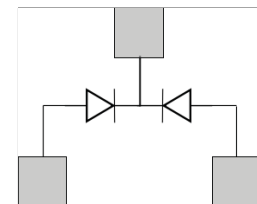
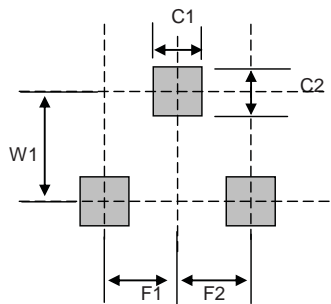
- ◆ Storage Condition: Product termination solder ability can degrade due to temperature and humidity or chemical environment, Storage condition must be an ambient temperature of <40°C and ambient humidity of <80%RH, and free from chemical.

ENVIRONMENTAL CHARACTERISTICS

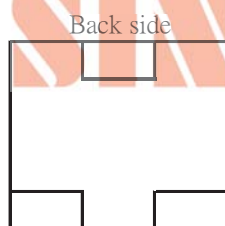
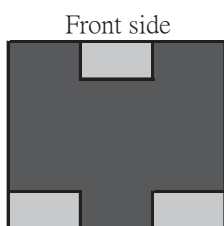
| Product | Hazardous Substance or Element/ppm | | | | | | Packing Quality | Reel Size | Tape |
|---------|------------------------------------|------|-------|------------------|-------|-------|-----------------|-----------|----------|
| | Pb | Cd | Hg | Cr ⁶⁺ | PBB | PBDE | | | |
| CDBAV70 | <1000 | <100 | <1000 | <1000 | <1000 | <1000 | 3K Reel | 7" | Embossed |

Mounting Pad Layout

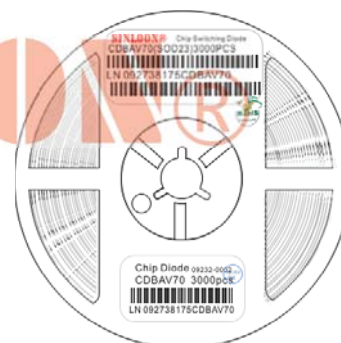
| Typ.(mm) | CDBAV70 |
|----------|---------|
| W1 | 2.0 |
| C1 | 0.9 |
| C2 | 0.9 |
| F1 | 1.14 |
| F2 | 1.14 |



Device Outlook

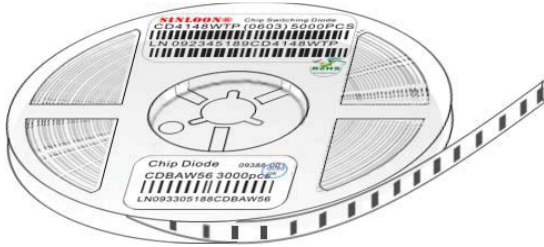


Packing Reel Type

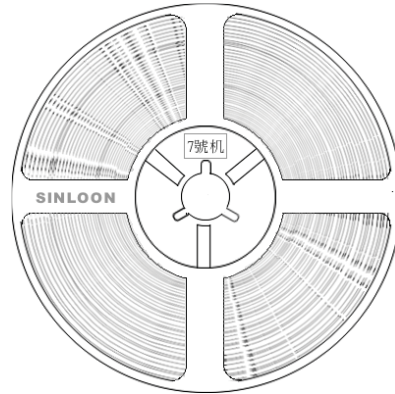


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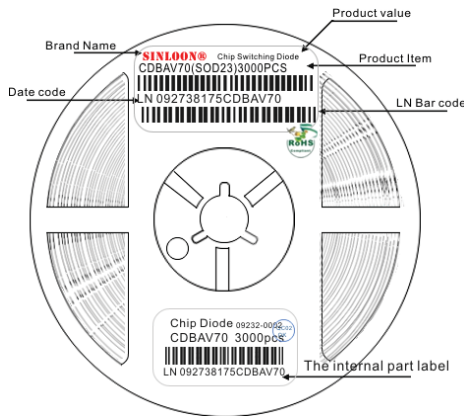
PACKAGING (Figure)



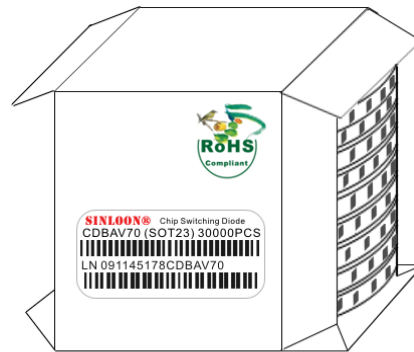
Plastic reel front side



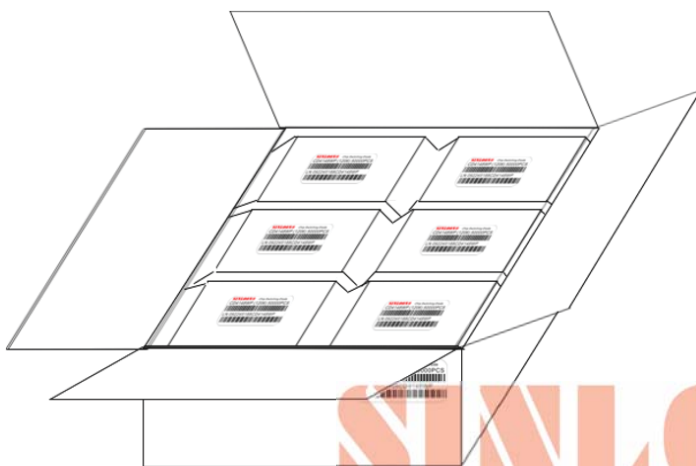
Plastic reel back side



Reel label / 3K pcs



In box package / 30K pcs



Carton package / 180K pcs

