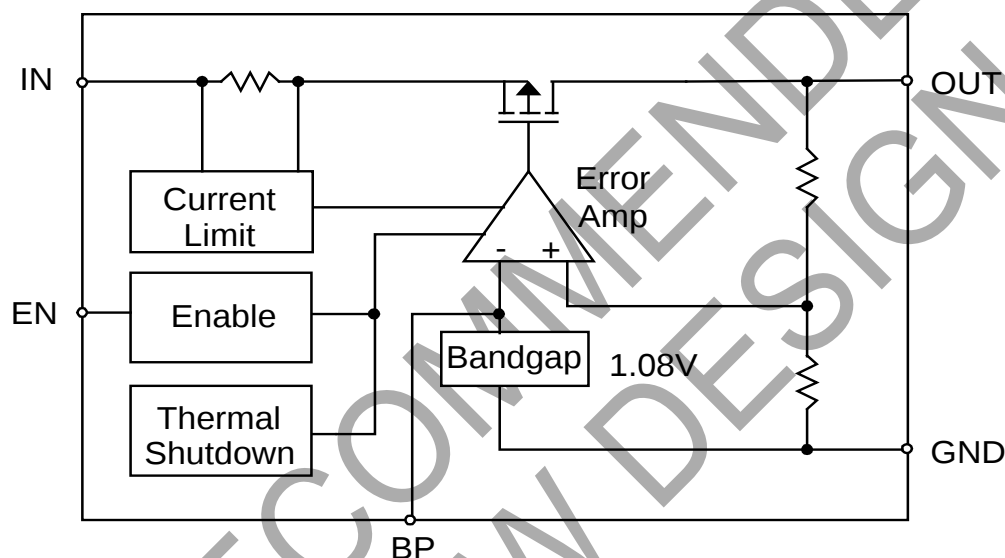


## Pin Descriptions

| Pin Name | Description    |
|----------|----------------|
| IN       | Input Voltage  |
| GND      | Ground         |
| EN       | Enable Pin     |
| BP       | Band-Gap       |
| OUT      | Output Voltage |

## Functional Block Diagram



## Absolute Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol          | Parameter                                                 | Rating      | Unit |
|-----------------|-----------------------------------------------------------|-------------|------|
| V <sub>CC</sub> | Input Voltage                                             | +6          | V    |
| T <sub>OP</sub> | Operating Junction Temperature Range                      | -40 to +125 | °C   |
| T <sub>ST</sub> | Storage Temperature Range                                 | -65 to +150 | °C   |
| P <sub>D</sub>  | Power Dissipation, P <sub>D</sub> @ T <sub>A</sub> = 25°C | 250         | mW   |

## Recommended Operating Conditions (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol           | Parameter                     | Min | Max | Unit |
|------------------|-------------------------------|-----|-----|------|
| V <sub>IN</sub>  | Input Voltage                 | 2.7 | 5.5 | V    |
| I <sub>OUT</sub> | Output Current                | 0   | 300 | mA   |
| T <sub>A</sub>   | Operating Ambient Temperature | -40 | 85  | °C   |

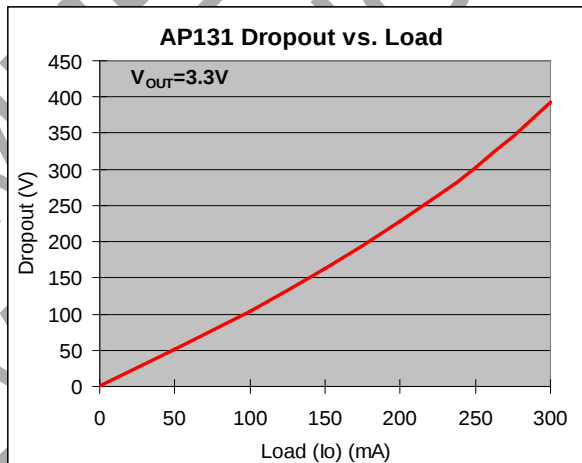
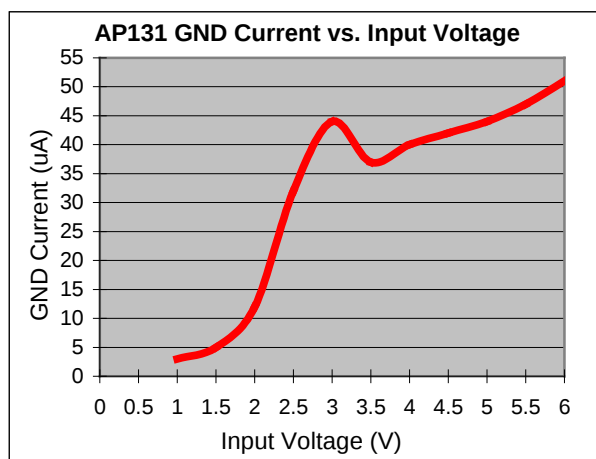
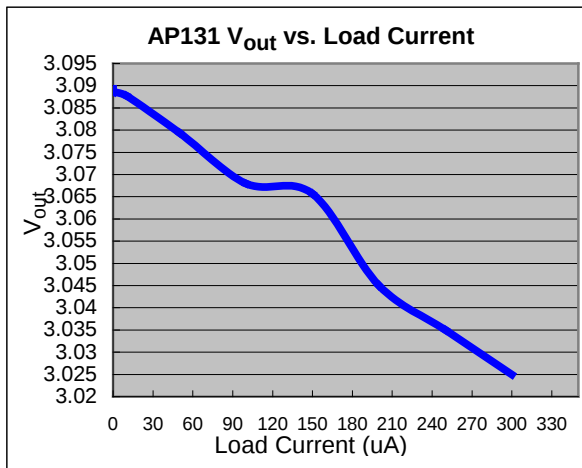
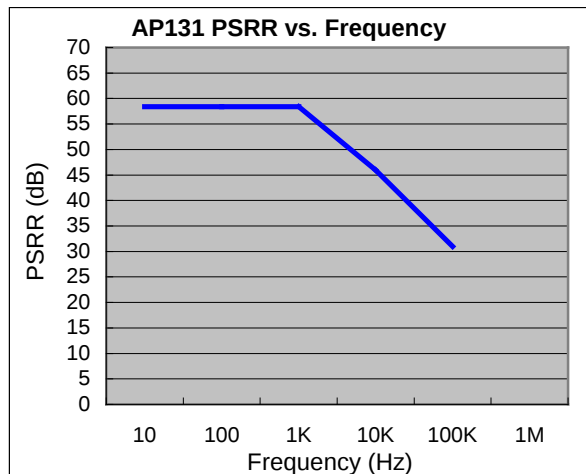
**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

 T<sub>A</sub> = 25°C, C<sub>IN</sub> = 1μF, C<sub>OUT</sub> = 10μF, unless otherwise specified.

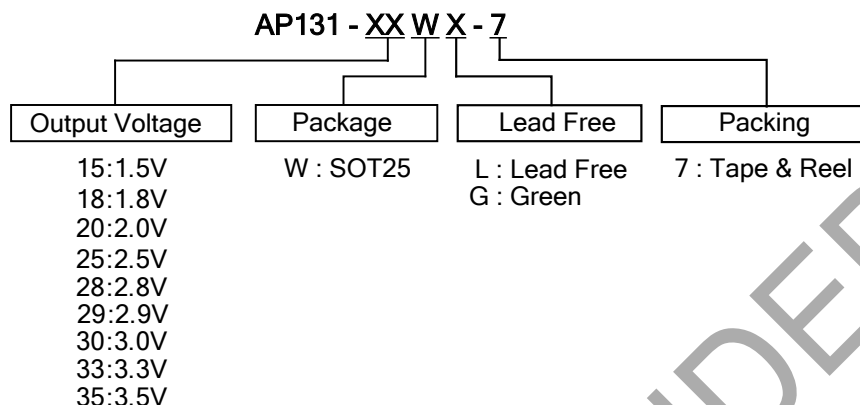
| Symbol             | Parameter                                       | Conditions                                                                            | Min | Typ. | Max             | Unit   |
|--------------------|-------------------------------------------------|---------------------------------------------------------------------------------------|-----|------|-----------------|--------|
| V <sub>DROP</sub>  | Dropout Voltage (Note 4)                        | I <sub>L</sub> = 300mA                                                                | —   | 400  | 500             | mV     |
| I <sub>LIMIT</sub> | Current Limit (Note 5)                          | V <sub>IN</sub> = 5V, V <sub>OUT</sub> = 0V                                           | 350 | 450  | —               | mA     |
| I <sub>short</sub> | Short Circuit Current                           | V <sub>OUT</sub> < 1.05V                                                              | —   | 150  | 300             | mA     |
| ΔV <sub>LINE</sub> | Line Regulation                                 | I <sub>OUT</sub> = 1mA,<br>V <sub>IN</sub> = (V <sub>OUT</sub> + 1V) to 5.5V          | —   | 0.1  | 0.3             | %/V    |
| ΔV <sub>LOAD</sub> | Load Regulation (Note 6)                        | I <sub>L</sub> = 1~300mA, V <sub>IN</sub> = 5V                                        | —   | 30   | 35              | mV     |
| ΔV <sub>OUT</sub>  | Output Voltage Accuracy                         | I <sub>L</sub> = 1mA, V <sub>IN</sub> = 5V                                            | -2  | —    | +2              | %      |
|                    | Output Voltage Temperature Coefficient (Note 7) | —                                                                                     | —   | 50   | 150             | PPM/°C |
| PSRR               | Ripple Rejection                                | F = 100Hz,<br>C <sub>IN</sub> = 1μF, C <sub>O</sub> = 10μF,<br>I <sub>L</sub> = 100mA | —   | 60   | —               | dB     |
| I <sub>SB</sub>    | Standby Current                                 | I <sub>L</sub> = 0mA, V <sub>IN</sub> = 5V, EN = 0V                                   | —   | —    | 5               | μA     |
| I <sub>Q</sub>     | Quiescent Current                               | I <sub>L</sub> = 0mA, V <sub>IN</sub> = 5V, EN = 5V                                   | —   | 50   | 100             | μA     |
| I <sub>EN</sub>    | Enable Pin Current                              | —                                                                                     | —   | —    | < 0.1           | μA     |
| V <sub>ENON</sub>  | Enable Pin Voltage                              | Output ON                                                                             | 1.5 | —    | V <sub>IN</sub> | V      |
| V <sub>ENOFF</sub> |                                                 | Output OFF                                                                            | 0   | —    | 0.8             | V      |
| T <sub>DELAY</sub> | Enable Delay Time                               | C <sub>BP</sub> = 0.1μF, C <sub>OUT</sub> = 1μF,<br>I <sub>OUT</sub> = 30mA           | —   | 8    | —               | μS     |
| θ <sub>JA</sub>    | Thermal Resistance Junction-to-Ambient          | SOT25 (Note 8)                                                                        | —   | 163  | —               | °C/W   |
| θ <sub>JC</sub>    | Thermal Resistance Junction-to-Case             | SOT25 (Note 8)                                                                        | —   | 53   | —               | °C/W   |

- Notes:
- Dropout voltage is defined as the input to output differential voltage. Dropout is measured at constant junction temperature by using pulsed ON time, and the criterion is V<sub>OUT</sub> inside target value ±2%. This test is skipped at the condition of V<sub>IN</sub> < 3V.
  - Current limit is measured at constant junction temperature by using pulsed testing with a low ON time.
  - Regulation is measured at constant junction temperature by using pulsed testing with a low ON time.
  - Guaranteed by design.
  - Test conditions for SOT25: Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

## Typical Characteristics



## Ordering Information

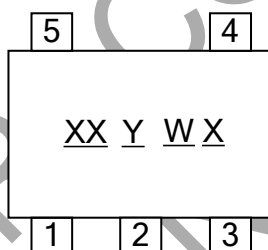


| Device       | Package Code | Packaging<br>(Note 2) | 7" Tape and Reel |                    |
|--------------|--------------|-----------------------|------------------|--------------------|
|              |              |                       | Quantity         | Part Number Suffix |
| AP131-XXWL-7 | W            | SOT25                 | 3000/Tape & Reel | -7                 |
| AP131-XXWG-7 | W            | SOT25                 | 3000/Tape & Reel | -7                 |

## Marking Information

(1) SOT25

( Top View )



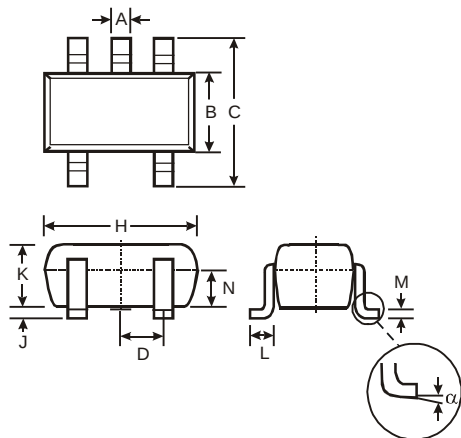
XX : Identification code  
 Y : Year 0~9  
 W : Week : A~Z : 1~26 week;  
       a~z : 27~52 week; z represents  
       52 and 53 week  
 X : a~z : Lead Free  
      A~Z : Green

| Part Number | Package | Identification Code |
|-------------|---------|---------------------|
| AP131-15W   | SOT25   | DA                  |
| AP131-18W   | SOT25   | DD                  |
| AP131-20W   | SOT25   | DF                  |
| AP131-25W   | SOT25   | DK                  |
| AP131-28W   | SOT25   | DN                  |
| AP131-29W   | SOT25   | DO                  |
| AP131-30W   | SOT25   | DP                  |
| AP131-33W   | SOT25   | DS                  |
| AP131-35W   | SOT25   | DU                  |

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOT25

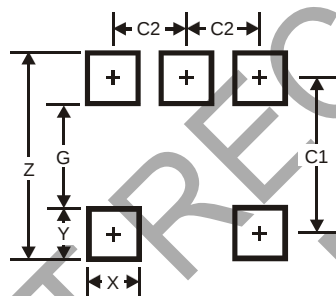


| SOT25                |       |      |      |
|----------------------|-------|------|------|
| Dim                  | Min   | Max  | Typ  |
| A                    | 0.35  | 0.50 | 0.38 |
| B                    | 1.50  | 1.70 | 1.60 |
| C                    | 2.70  | 3.00 | 2.80 |
| D                    | -     | -    | 0.95 |
| H                    | 2.90  | 3.10 | 3.00 |
| J                    | 0.013 | 0.10 | 0.05 |
| K                    | 1.00  | 1.30 | 1.10 |
| L                    | 0.35  | 0.55 | 0.40 |
| M                    | 0.10  | 0.20 | 0.15 |
| N                    | 0.70  | 0.80 | 0.75 |
| $\alpha$             | 0°    | 8°   | -    |
| All Dimensions in mm |       |      |      |

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOT25



| Dimensions | Value |
|------------|-------|
| Z          | 3.20  |
| G          | 1.60  |
| X          | 0.55  |
| Y          | 0.80  |
| C1         | 2.40  |
| C2         | 0.95  |

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