

Description

The AP2122 series are positive voltage regulator ICs fabricated by CMOS process. Each of these ICs consists of a voltage reference, an error amplifier, a resistor network for setting output voltage, a current limit circuit for current protection and a chip enable circuit.

The AP2122 series feature high ripple rejection, low dropout voltage, low noise, high output voltage accuracy, and low current consumption which make them ideal for use in various battery-powered devices.

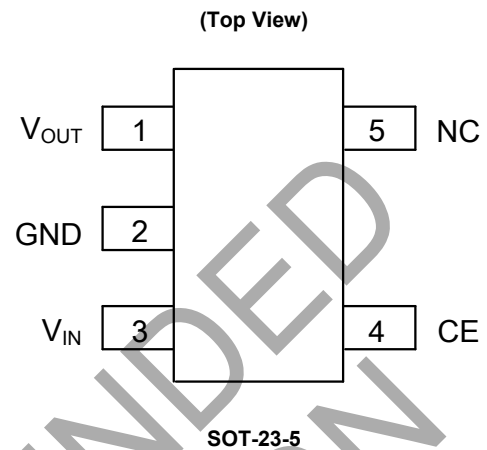
The AP2122 series have 1.5V, 1.8V, 2.5V, 2.8V, 3.0V, 3.2V and 3.3V versions.

The AP2122 are available in standard SOT-23-5 package.

Features

- Low Dropout Voltage at $I_{OUT} = 100mA$: 150mV Typical (Except 1.5V Version)
- Low Standby Current: 0.1 μA Typical
- Low Quiescent Current: 25 μA Typical
- High Ripple Rejection: 70dB Typical ($f = 10kHz$)
- Maximum Output Current: More Than 150mA (300mA Limit)
- Extremely Low Noise: 30 μV_{rms} (10Hz to 100kHz)
- Excellent Line Regulation: 4mV Typical
- Excellent Load Regulation: 12mV Typical
- High Output Voltage Accuracy: $\pm 2\%$
- Excellent Line and Load Transient Response
- Compatible with Low ESR Ceramic Capacitor (as Low as 1 μF)

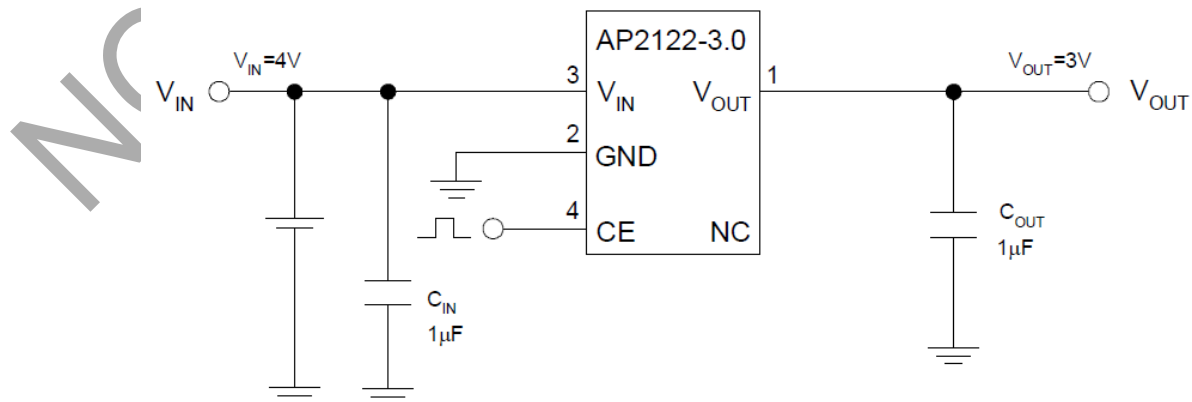
Pin Assignments



Applications

- Mobile Phones, Cordless Phones
- MP3/4
- Portable Electronic Devices
- Cameras, Video Recorders
- Sub-board Power Supplies for Telecom Equipment
- Battery Powered Equipment

Typical Applications Circuit (Note 1)

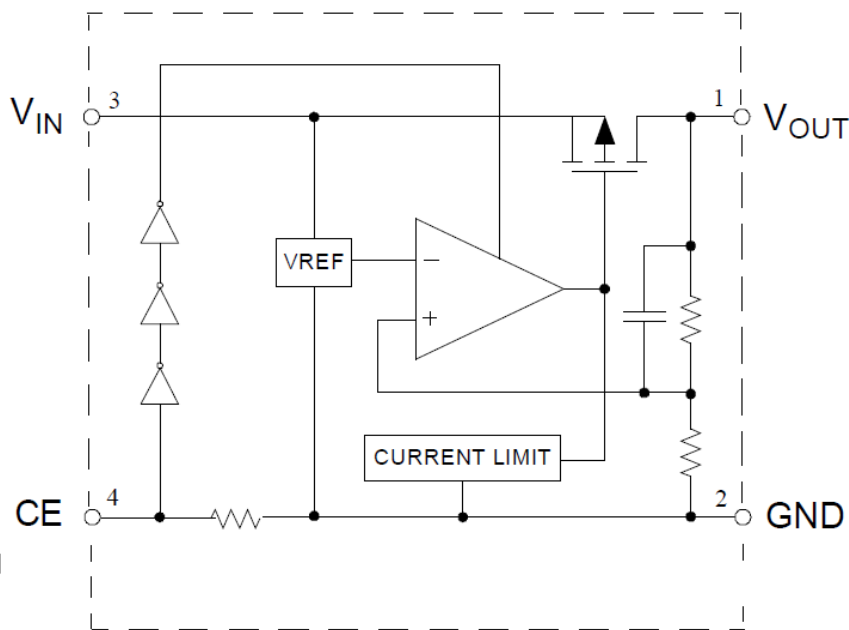


Note 1: Filter capacitors are required at the AP2122's input and output. 1 μF capacitor is required at the input. The minimum output capacitance required for stability should be more than 1 μF with ESR from 0.01 Ω to 100 Ω . Ceramic capacitors are recommended.

Pin Descriptions

| Pin Number | Pin Name | Function |
|------------|------------------|---------------------------------------------------------------------|
| 1 | V _{OUT} | Regulated output voltage |
| 2 | GND | Ground |
| 3 | V _{IN} | Input voltage |
| 4 | CE | Active high enable input pin. Logic high=enable, logic low=shutdown |
| 5 | NC | No connection |

Functional Block Diagram



Absolute Maximum Ratings (Note 2)

| Symbol | Parameter | Rating | Unit |
|---------------|-------------------------------------|------------------------|------|
| V_{IN} | Input Voltage | 6.5 | V |
| V_{CE} | Enable Input Voltage | -0.3 to $V_{IN} + 0.3$ | V |
| I_{OUT} | Output Current | 300 | mA |
| T_J | Junction Temperature | +150 | °C |
| T_{STG} | Storage Temperature Range | -65 to +150 | °C |
| T_{LEAD} | Lead Temperature (Soldering, 10sec) | +260 | °C |
| θ_{JA} | Thermal Resistance (Note 3) | 250 | °C/W |
| ESD | ESD (Human Body Model) | 2000 | V |
| ESD | ESD (Machine Model) | 200 | V |

Notes: 2. Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

3. Absolute maximum ratings indicate limits beyond which damage to the component may occur. Electrical specifications do not apply when operating the device outside of its operating ratings. The maximum allowable power dissipation is a function of the maximum junction temperature, $T_{J(max)}$, the junction-to-ambient thermal resistance, θ_{JA} , and the ambient temperature, T_A . The maximum allowable power dissipation at any ambient temperature is calculated using: $P_{D(max)} = (T_{J(max)} - T_A) / \theta_{JA}$. Exceeding the maximum allowable power dissipation will result in excessive die temperature.

Recommended Operating Conditions

| Symbol | Parameter | Min | Max | Unit |
|----------|--------------------------------------|-----|-----|------|
| V_{IN} | Input Voltage | 2 | 6 | V |
| T_J | Operating Junction Temperature Range | -40 | +85 | °C |

Electrical Characteristics

AP2122-1.5 Electrical Characteristics (@ $V_{IN} = 2.5V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq +85^\circ C$, unless otherwise specified.)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------------------------------|-------------------------------------------|--------------------------------------------------|------|-----------------------------|------|------------------|
| V_{OUT} | Output Voltage | $V_{IN} = 2.5V$ $1mA \leq I_{OUT} \leq 30mA$ | 1.47 | 1.5 | 1.53 | V |
| V_{IN} | Input Voltage | — | — | — | 6 | V |
| I_{OUT} | Output Current | $V_{IN} - V_{OUT} = 1V$ | 150 | — | — | mA |
| V_{RLOAD} | Load Regulation | $V_{IN} = 2.5V$ $1mA \leq I_{OUT} \leq 80mA$ | — | 12 | 40 | mV |
| V_{RLINE} | Line Regulation | $2.3V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$ | — | 4 | 16 | mV |
| V_{DROP} | Dropout Voltage | $I_{OUT} = 10mA$ | — | 400 | 600 | mV |
| | | $I_{OUT} = 100mA$ | — | 400 | 600 | |
| | | $I_{OUT} = 150mA$ | — | 400 | 600 | |
| I_Q | Quiescent Current | $V_{IN} = 2.5V$, $I_{OUT} = 0mA$ | — | 25 | 50 | μA |
| I_{STD} | Standby Current | $V_{IN} = 2.5V$ V_{CE} in OFF Mode | — | 0.1 | 1 | μA |
| PSRR | Power Supply Rejection Ratio | Ripple 0.5Vp-p, $f = 10kHz$ $V_{IN} = 2.5V$ | — | 70 | — | dB |
| $\Delta V_{OUT}/\Delta T$ | Output Voltage Temperature Coefficient | $I_{OUT} = 30mA$ | — | ± 150 | — | $\mu V/^\circ C$ |
| $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | — | ± 100 | — | ppm/ $^\circ C$ |
| I_{LIMIT} | Short Current Limit | $V_{OUT} = 0V$ | — | 50 | — | mA |
| V_{NOISE} | RMS Output Noise | $T_A = +25^\circ C$ $10Hz \leq f \leq 100kHz$ | — | 30 | — | μV_{rms} |
| — | CE "High" Voltage | CE Input Voltage "High" | 1.5 | — | — | V |
| — | CE "Low" Voltage | CE Input Voltage "Low" | — | — | 0.25 | V |
| R_{PD} | CE Pull-down Internal Resistance | — | 2.5 | 5 | 10 | $M\Omega$ |
| θ_{JC} | Thermal Resistance (Junction to Case) | SOT-23-5 | — | 73.9 | — | $^\circ C/W$ |

Electrical Characteristics (Cont.)

AP2122-1.8 Electrical Characteristics (@ $V_{IN} = 2.8V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq +85^\circ C$, unless otherwise specified.)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------------------------------|----------------------------------------|--------------------------------------------------|-------|-----------------------------|-------|------------------|
| V_{OUT} | Output Voltage | $V_{IN} = 2.8V$ $1mA \leq I_{OUT} \leq 30mA$ | 1.764 | 1.8 | 1.836 | V |
| V_{IN} | Input Voltage | — | — | — | 6 | V |
| I_{OUT} | Output Current | $V_{IN} - V_{OUT} = 1V$ | 150 | — | — | mA |
| V_{RLOAD} | Load Regulation | $V_{IN} = 2.8V$ $1mA \leq I_{OUT} \leq 80mA$ | — | 12 | 40 | mV |
| V_{RLINE} | Line Regulation | $2.3V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$ | — | 4 | 16 | mV |
| V_{DROP} | Dropout Voltage | $I_{OUT} = 10mA$ | — | 20 | 40 | mV |
| | | $I_{OUT} = 100mA$ | — | 150 | 300 | |
| | | $I_{OUT} = 150mA$ | — | 200 | 400 | |
| I_Q | Quiescent Current | $V_{IN} = 2.8V$, $I_{OUT} = 0mA$ | — | 25 | 50 | μA |
| I_{STD} | Standby Current | $V_{IN} = 2.8V$ V_{CE} in OFF Mode | — | 0.1 | 1 | μA |
| PSRR | Power Supply Rejection Ratio | Ripple 0.5Vp-p, $f = 10kHz$ $V_{IN} = 2.8V$ | — | 70 | — | dB |
| $\Delta V_{OUT}/\Delta T$ | Output Voltage Temperature Coefficient | $I_{OUT} = 30mA$ | — | ± 180 | — | $\mu V/^\circ C$ |
| $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | — | ± 100 | — | ppm/ $^\circ C$ |
| I_{LIMIT} | Short Current Limit | $V_{OUT} = 0V$ | — | 50 | — | mA |
| V_{NOISE} | RMS Output Noise | $T_A = +25^\circ C$ $10Hz \leq f \leq 100kHz$ | — | 30 | — | μV_{rms} |
| — | CE "High" Voltage | CE Input Voltage "High" | 1.5 | — | — | V |
| — | CE "Low" Voltage | CE Input Voltage "Low" | — | — | 0.25 | V |
| R_{PD} | CE Pull-down Internal Resistance | — | 2.5 | 5 | 10 | $M\Omega$ |
| θ_{JC} | Thermal Resistance (Junction to Case) | SOT-23-5 | — | 73.9 | — | $^\circ C/W$ |

Electrical Characteristics (Cont.)

AP2122-2.5 Electrical Characteristics (@ $V_{IN} = 3.5V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq +85^\circ C$, unless otherwise specified.)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------------------------------|-------------------------------------------|--------------------------------------------------|------|-----------------------------|------|------------------|
| V_{OUT} | Output Voltage | $V_{IN} = 3.5V$ $1mA \leq I_{OUT} \leq 30mA$ | 2.45 | 2.5 | 2.55 | V |
| V_{IN} | Input Voltage | — | — | — | 6 | V |
| I_{OUT} | Output Current | $V_{IN} - V_{OUT} = 1V$ | 150 | — | — | mA |
| V_{RLOAD} | Load Regulation | $V_{IN} = 3.5V$ $1mA \leq I_{OUT} \leq 80mA$ | — | 12 | 40 | mV |
| V_{RLINE} | Line Regulation | $3V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$ | — | 4 | 16 | mV |
| V_{DROP} | Dropout Voltage | $I_{OUT} = 10mA$ | — | 20 | 40 | mV |
| | | $I_{OUT} = 100mA$ | — | 150 | 300 | |
| | | $I_{OUT} = 150mA$ | — | 200 | 400 | |
| I_Q | Quiescent Current | $V_{IN} = 3.5V$, $I_{OUT} = 0mA$ | — | 25 | 50 | μA |
| I_{STD} | Standby Current | $V_{IN} = 3.5V$ V_{CE} in OFF Mode | — | 0.1 | 1 | μA |
| PSRR | Power Supply Rejection Ratio | Ripple 0.5Vp-p, $f = 10kHz$ $V_{IN} = 3.5V$ | — | 70 | — | dB |
| $\Delta V_{OUT}/\Delta T$ | Output Voltage Temperature Coefficient | $I_{OUT} = 30mA$ | — | ± 250 | — | $\mu V/^\circ C$ |
| $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | — | ± 100 | — | ppm/ $^\circ C$ |
| I_{LIMIT} | Short Current Limit | $V_{OUT} = 0V$ | — | 50 | — | mA |
| V_{NOISE} | RMS Output Noise | $T_A = +25^\circ C$ $10Hz \leq f \leq 100kHz$ | — | 30 | — | μV_{rms} |
| — | CE "High" Voltage | CE Input Voltage "High" | 1.5 | — | — | V |
| — | CE "Low" Voltage | CE Input Voltage "Low" | — | — | 0.25 | V |
| R_{PD} | CE Pull-down Internal Resistance | — | 2.5 | 5 | 10 | $M\Omega$ |
| θ_{JC} | Thermal Resistance (Junction to Case) | SOT-23-5 | — | 73.9 | — | $^\circ C/W$ |

Electrical Characteristics (Cont.)

AP2122-2.8 Electrical Characteristics (@ $V_{IN} = 3.8V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq +85^\circ C$, unless otherwise specified.)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------------------------------|----------------------------------------|--------------------------------------------------|-------|-----------------------------|-------|------------------|
| V_{OUT} | Output Voltage | $V_{IN} = 3.8V$ $1mA \leq I_{OUT} \leq 30mA$ | 2.744 | 2.8 | 2.856 | V |
| V_{IN} | Input Voltage | — | — | — | 6 | V |
| I_{OUT} | Output Current | $V_{IN} - V_{OUT} = 1V$ | 150 | — | — | mA |
| V_{RLOAD} | Load Regulation | $V_{IN} = 3.8V$ $1mA \leq I_{OUT} \leq 80mA$ | — | 12 | 40 | mV |
| V_{RLINE} | Line Regulation | $3.3V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$ | — | 4 | 16 | mV |
| V_{DROP} | Dropout Voltage | $I_{OUT} = 10mA$ | — | 20 | 40 | mV |
| | | $I_{OUT} = 100mA$ | — | 150 | 300 | |
| | | $I_{OUT} = 150mA$ | — | 200 | 400 | |
| I_Q | Quiescent Current | $V_{IN} = 3.8V$, $I_{OUT} = 0mA$ | — | 25 | 50 | μA |
| I_{STD} | Standby Current | $V_{IN} = 3.8V$ V_{CE} in OFF Mode | — | 0.1 | 1 | μA |
| PSRR | Power Supply Rejection Ratio | Ripple 0.5Vp-p, $f = 10kHz$ $V_{IN} = 3.8V$ | — | 70 | — | dB |
| $\Delta V_{OUT}/\Delta T$ | Output Voltage Temperature Coefficient | $I_{OUT} = 30mA$ | — | ± 280 | — | $\mu V/^\circ C$ |
| $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | — | ± 100 | — | ppm/ $^\circ C$ |
| I_{LIMIT} | Short Current Limit | $V_{OUT} = 0V$ | — | 50 | — | mA |
| V_{NOISE} | RMS Output Noise | $T_A = +25^\circ C$ $10Hz \leq f \leq 100kHz$ | — | 30 | — | μV_{rms} |
| — | CE "High" Voltage | CE Input Voltage "High" | 1.5 | — | — | V |
| — | CE "Low" Voltage | CE Input Voltage "Low" | — | — | 0.25 | V |
| R_{PD} | CE Pull-down Internal Resistance | — | 2.5 | 5 | 10 | $M\Omega$ |
| θ_{JC} | Thermal Resistance (Junction to Case) | SOT-23-5 | — | 73.9 | — | $^\circ C/W$ |

Electrical Characteristics (Cont.)

AP2122-3.0 Electrical Characteristics (@ $V_{IN} = 4V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq +85^\circ C$, unless otherwise specified.)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------------------------------|-------------------------------------------|--------------------------------------------------|------|-----------------------------|------|------------------|
| V_{OUT} | Output Voltage | $V_{IN} = 4V$ $1mA \leq I_{OUT} \leq 30mA$ | 2.94 | 3.0 | 3.06 | V |
| V_{IN} | Input Voltage | — | — | — | 6 | V |
| I_{OUT} | Output Current | $V_{IN} - V_{OUT} = 1V$ | 150 | — | — | mA |
| V_{RLOAD} | Load Regulation | $V_{IN} = 4V$ $1mA \leq I_{OUT} \leq 80mA$ | — | 12 | 40 | mV |
| V_{RLINE} | Line Regulation | $3.5V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$ | — | 4 | 16 | mV |
| V_{DROP} | Dropout Voltage | $I_{OUT} = 10mA$ | — | 20 | 40 | mV |
| | | $I_{OUT} = 100mA$ | — | 150 | 300 | |
| | | $I_{OUT} = 150mA$ | — | 200 | 400 | |
| I_Q | Quiescent Current | $V_{IN} = 4V$, $I_{OUT} = 0mA$ | — | 25 | 50 | μA |
| I_{STD} | Standby Current | $V_{IN} = 4V$ V_{CE} in OFF Mode | — | 0.1 | 1 | μA |
| PSRR | Power Supply Rejection Ratio | Ripple 0.5Vp-p, $f = 10kHz$ $V_{IN} = 4V$ | — | 70 | — | dB |
| $\Delta V_{OUT}/\Delta T$ | Output Voltage Temperature Coefficient | $I_{OUT} = 30mA$ | — | ± 300 | — | $\mu V/^\circ C$ |
| $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | — | ± 100 | — | ppm/ $^\circ C$ |
| I_{LIMIT} | Short Current Limit | $V_{OUT} = 0V$ | — | 50 | — | mA |
| V_{NOISE} | RMS Output Noise | $T_A = +25^\circ C$ $10Hz \leq f \leq 100kHz$ | — | 30 | — | μV_{rms} |
| — | CE "High" Voltage | CE Input Voltage "High" | 1.5 | — | — | V |
| — | CE "Low" Voltage | CE Input Voltage "Low" | — | — | 0.25 | V |
| R_{PD} | CE Pull-down Internal Resistance | — | 2.5 | 5 | 10 | $M\Omega$ |
| θ_{JC} | Thermal Resistance (Junction to Case) | SOT-23-5 | — | 73.9 | — | $^\circ C/W$ |

Electrical Characteristics (Cont.)

AP2122-3.2 Electrical Characteristics (@ $V_{IN} = 4.2V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq +85^\circ C$, unless otherwise specified.)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------------------------------|----------------------------------------|--------------------------------------------------|-------|-----------------------------|-------|------------------|
| V_{OUT} | Output Voltage | $V_{IN} = 4.2V$ $1mA \leq I_{OUT} \leq 30mA$ | 3.136 | 3.2 | 3.264 | V |
| V_{IN} | Input Voltage | — | — | — | 6 | V |
| I_{OUT} | Output Current | $V_{IN} - V_{OUT} = 1V$ | 150 | — | — | mA |
| V_{RLOAD} | Load Regulation | $V_{IN} = 4.2V$ $1mA \leq I_{OUT} \leq 80mA$ | — | 12 | 40 | mV |
| V_{RLINE} | Line Regulation | $3.7V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$ | — | 4 | 16 | mV |
| V_{DROP} | Dropout Voltage | $I_{OUT} = 10mA$ | — | 20 | 40 | mV |
| | | $I_{OUT} = 100mA$ | — | 150 | 300 | |
| | | $I_{OUT} = 150mA$ | — | 200 | 400 | |
| I_Q | Quiescent Current | $V_{IN} = 4.2V$, $I_{OUT} = 0mA$ | — | 25 | 50 | μA |
| I_{STD} | Standby Current | $V_{IN} = 4.2V$ V_{CE} in OFF Mode | — | 0.1 | 1 | μA |
| PSRR | Power Supply Rejection Ratio | Ripple 0.5Vp-p, $f = 10kHz$ $V_{IN} = 4.2V$ | — | 70 | — | dB |
| $\Delta V_{OUT}/\Delta T$ | Output Voltage Temperature Coefficient | $I_{OUT} = 30mA$ | — | ± 320 | — | $\mu V/^\circ C$ |
| $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | — | ± 100 | — | ppm/ $^\circ C$ |
| I_{LIMIT} | Short Current Limit | $V_{OUT} = 0V$ | — | 50 | — | mA |
| V_{NOISE} | RMS Output Noise | $T_A = +25^\circ C$ $10Hz \leq f \leq 100kHz$ | — | 30 | — | μV_{rms} |
| — | CE "High" Voltage | CE Input Voltage "High" | 1.5 | — | — | V |
| — | CE "Low" Voltage | CE Input Voltage "Low" | — | — | 0.25 | V |
| R_{PD} | CE Pull-down Internal Resistance | — | 2.5 | 5 | 10 | $M\Omega$ |
| θ_{JC} | Thermal Resistance (Junction to Case) | SOT-23-5 | — | 73.9 | — | $^\circ C/W$ |

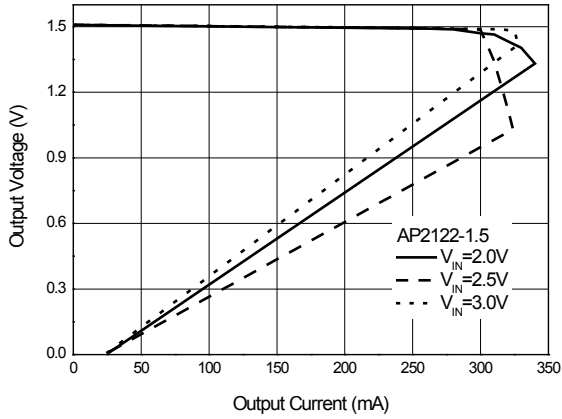
Electrical Characteristics (Cont.)

AP2122-3.3 Electrical Characteristics (@ $V_{IN} = 4.3V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq +85^\circ C$, unless otherwise specified.)

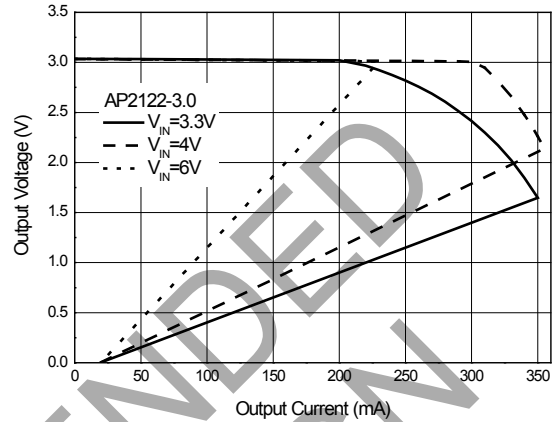
| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-------------------------------------|----------------------------------------|--------------------------------------------------|-------|-----------------------------|-------|------------------|
| V_{OUT} | Output Voltage | $V_{IN} = 4.3V$ $1mA \leq I_{OUT} \leq 30mA$ | 3.234 | 3.3 | 3.366 | V |
| V_{IN} | Input Voltage | — | — | — | 6 | V |
| I_{OUT} | Output Current | $V_{IN} - V_{OUT} = 1V$ | 150 | — | — | mA |
| V_{RLOAD} | Load Regulation | $V_{IN} = 4.3V$ $1mA \leq I_{OUT} \leq 80mA$ | — | 12 | 40 | mV |
| V_{RLINE} | Line Regulation | $3.8V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$ | — | 4 | 16 | mV |
| V_{DROP} | Dropout Voltage | $I_{OUT} = 10mA$ | — | 20 | 40 | mV |
| | | $I_{OUT} = 100mA$ | — | 150 | 300 | |
| | | $I_{OUT} = 150mA$ | — | 200 | 400 | |
| I_Q | Quiescent Current | $V_{IN} = 4.3V$, $I_{OUT} = 0mA$ | — | 25 | 50 | μA |
| I_{STD} | Standby Current | $V_{IN} = 4.3V$ V_{CE} in OFF Mode | — | 0.1 | 1 | μA |
| PSRR | Power Supply Rejection Ratio | Ripple 0.5Vp-p, $f = 10kHz$ $V_{IN} = 4.3V$ | — | 70 | — | dB |
| $\Delta V_{OUT}/\Delta T$ | Output Voltage Temperature Coefficient | $I_{OUT} = 30mA$ | — | ± 330 | — | $\mu V/^\circ C$ |
| $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | — | ± 100 | — | ppm/ $^\circ C$ |
| I_{LIMIT} | Short Current Limit | $V_{OUT} = 0V$ | — | 50 | — | mA |
| V_{NOISE} | RMS Output Noise | $T_A = +25^\circ C$ $10Hz \leq f \leq 100kHz$ | — | 30 | — | μV_{rms} |
| — | CE "High" Voltage | CE Input Voltage "High" | 1.5 | — | — | V |
| — | CE "Low" Voltage | CE Input Voltage "Low" | — | — | 0.25 | V |
| R_{PD} | CE Pull-down Internal Resistance | — | 2.5 | 5 | 10 | $M\Omega$ |
| θ_{JC} | Thermal Resistance (Junction to Case) | SOT-23-5 | — | 73.9 | — | $^\circ C/W$ |

Performance Characteristics

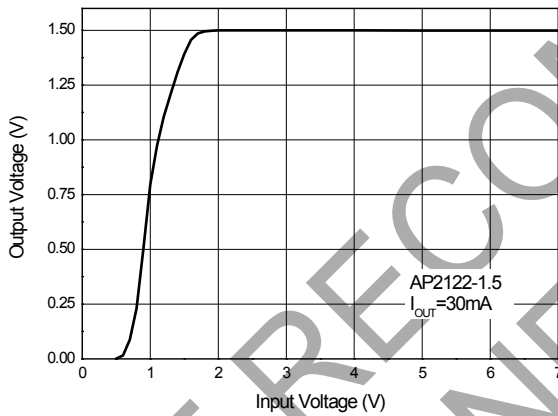
Output Voltage vs. Output Current



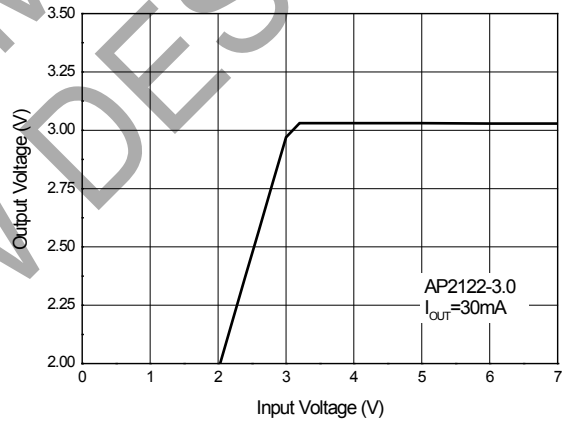
Output Voltage vs. Output Current



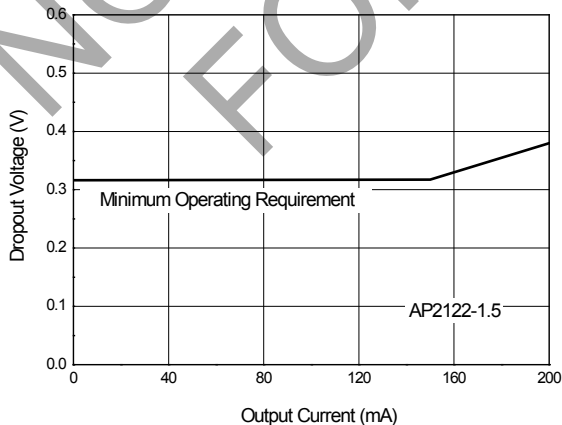
Output Voltage vs. Input Voltage



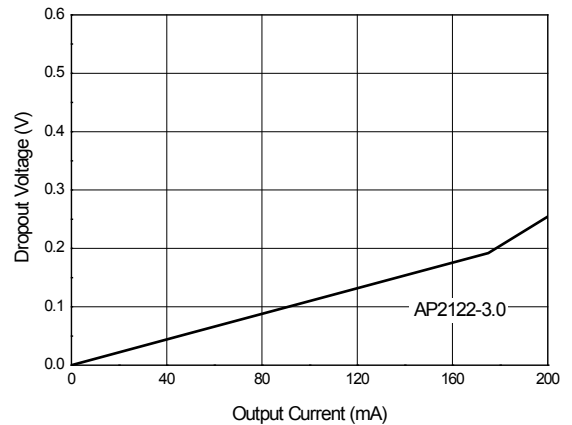
Output Voltage vs. Input Voltage



Dropout Voltage vs. Output Current

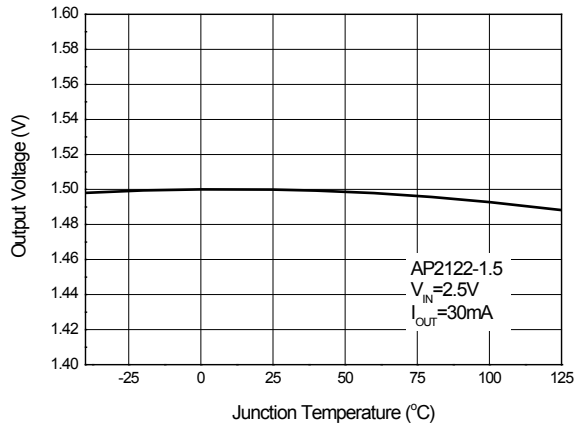


Dropout Voltage vs. Output Current

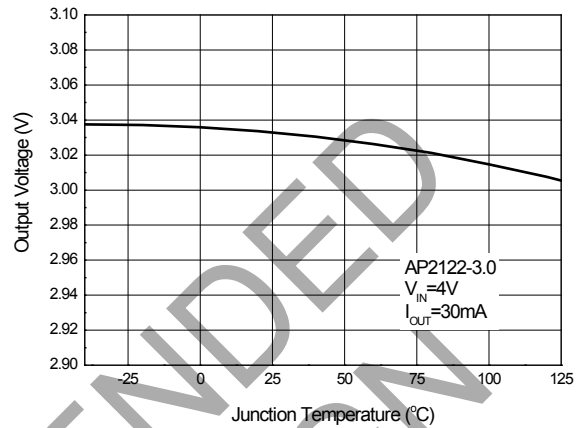


Performance Characteristics (Cont.)

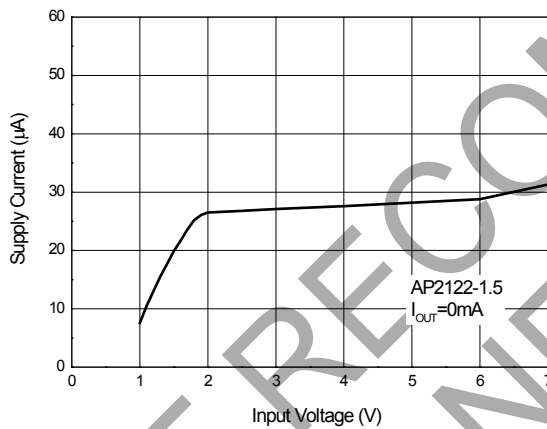
Output Voltage vs. Junction Temperature



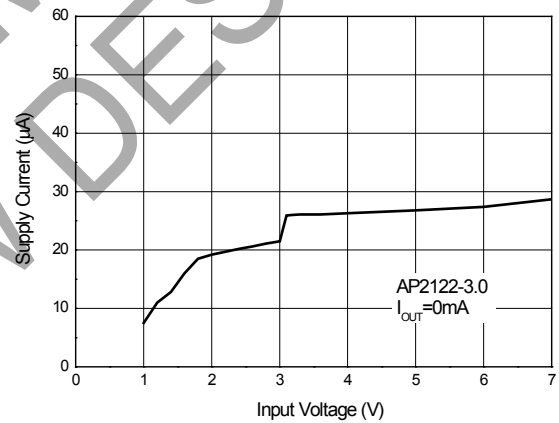
Output Voltage vs. Junction Temperature



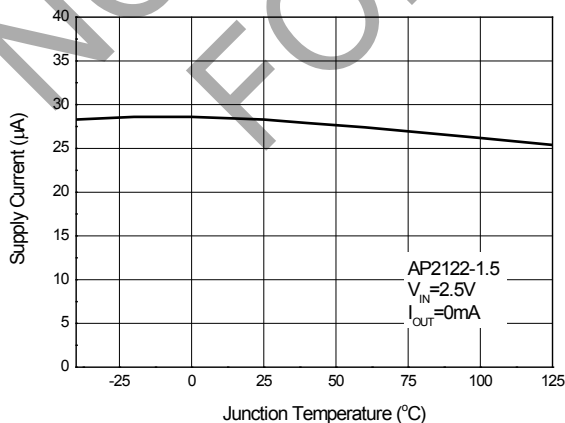
Supply Current vs. Input Voltage



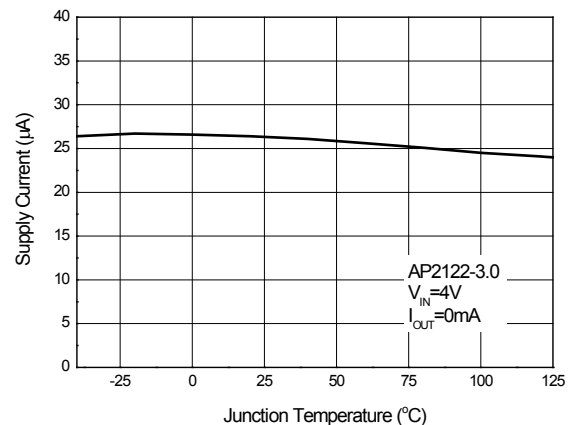
Supply Current vs. Input Voltage



Supply Current vs. Junction Temperature

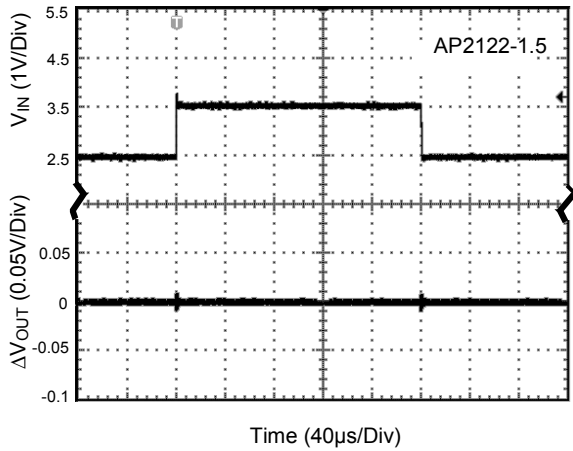


Supply Current vs. Junction Temperature

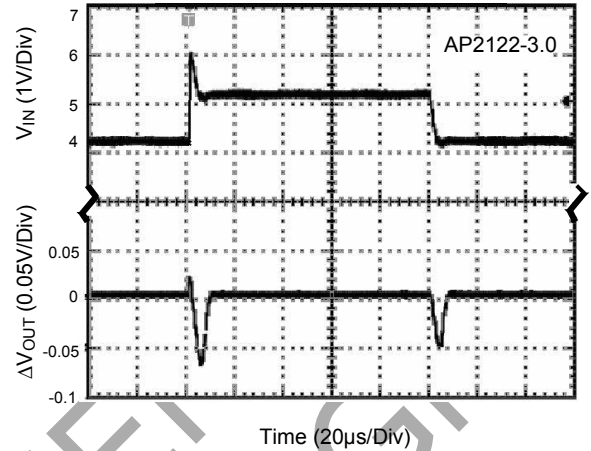


Performance Characteristics (Cont.)

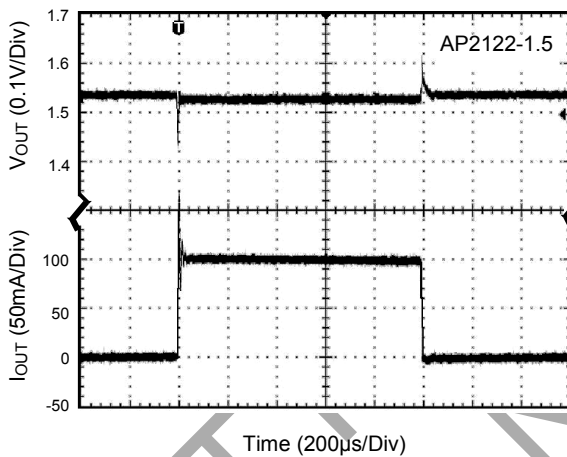
Line Transient
(Conditions: $I_{OUT}=30\text{mA}$, $C_{IN}=1\mu\text{F}$, $C_{OUT}=1\mu\text{F}$)



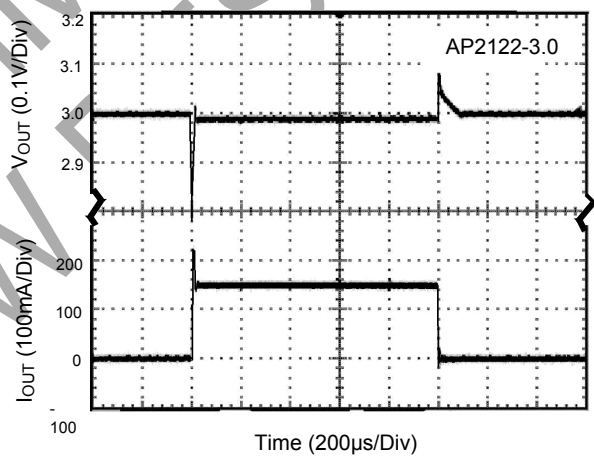
Line Transient
(Conditions: $I_{OUT}=30\text{mA}$, $C_{IN}=1\mu\text{F}$, $C_{OUT}=1\mu\text{F}$)



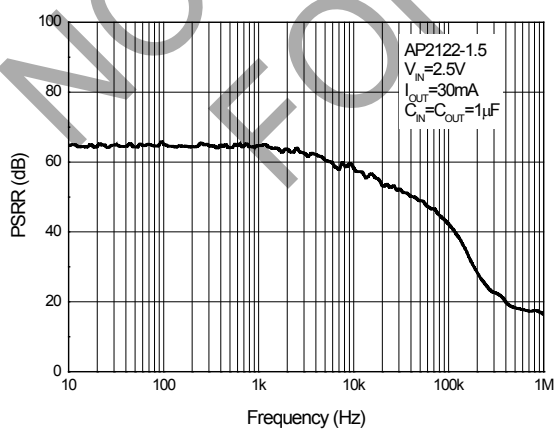
Load Transient
(Conditions: $V_{IN}=2.5\text{V}$, $C_{IN}=1\mu\text{F}$, $C_{OUT}=1\mu\text{F}$)



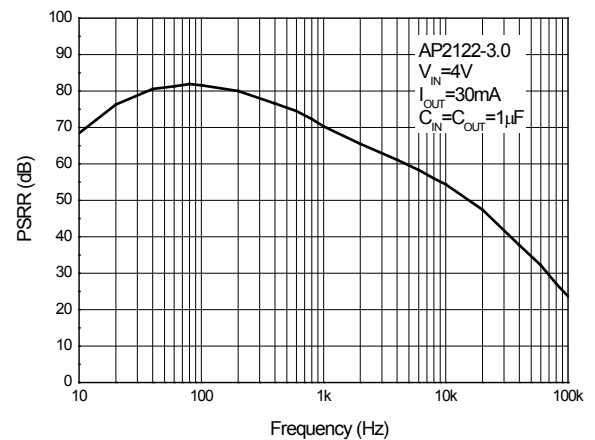
Load Transient
(Conditions: $V_{IN}=4\text{V}$, $C_{IN}=1\mu\text{F}$, $C_{OUT}=1\mu\text{F}$)



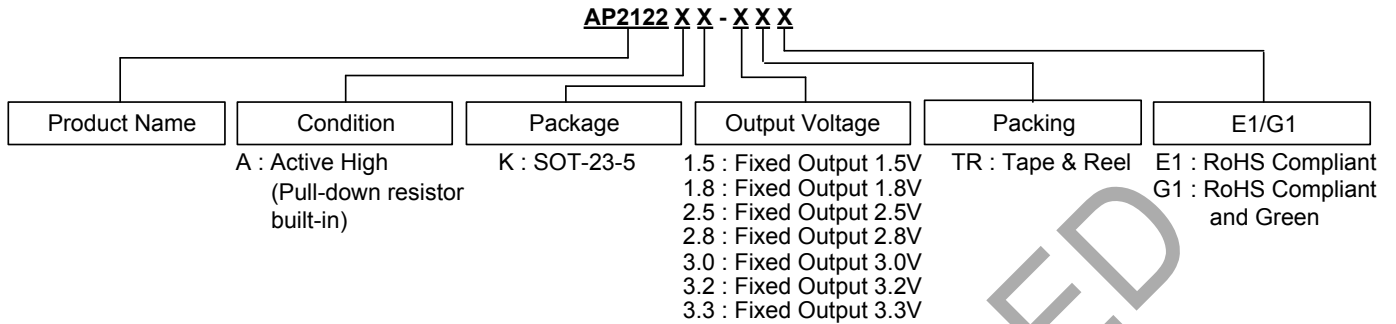
PSRR vs. Frequency



PSRR vs. Frequency



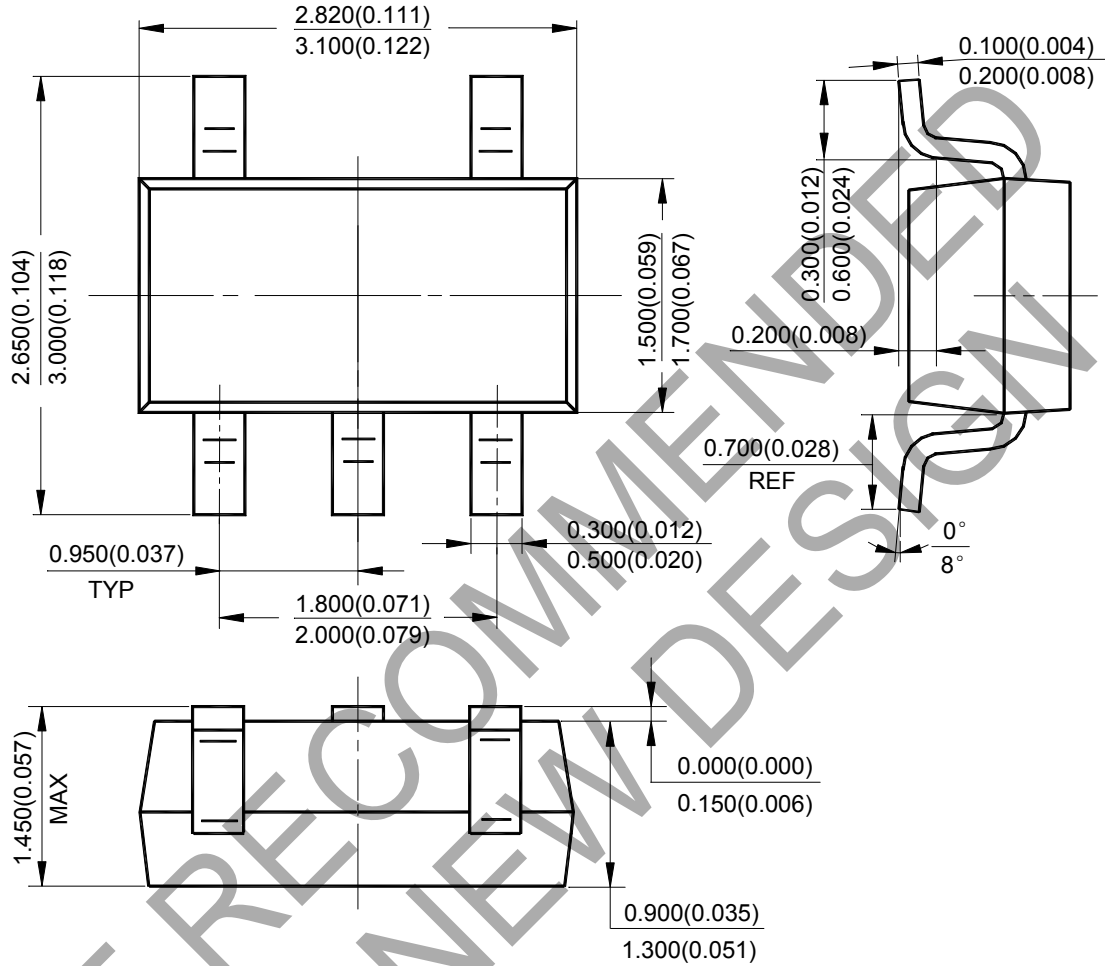
Ordering Information



| Package | Temperature Range | Condition | Part Number | | Marking ID | | Packing |
|----------|-------------------|-------------------------------------------|------------------|--------------------------|----------------|--------------------------|-------------|
| | | | RoHS Compliant | RoHS Compliant and Green | RoHS Compliant | RoHS Compliant and Green | |
| SOT-23-5 | -40 to +85°C | Active High (Pull-down resistor built-in) | AP2122AK-1.5TRE1 | AP2122AK-1.5TRG1 | E2Z | G2Z | Tape & Reel |
| | | Active High (Pull-down resistor built-in) | AP2122AK-1.8TRE1 | AP2122AK-1.8TRG1 | E2U | G2U | Tape & Reel |
| | | Active High (Pull-down resistor built-in) | AP2122AK-2.5TRE1 | AP2122AK-2.5TRG1 | E2V | G2V | Tape & Reel |
| | | Active High (Pull-down resistor built-in) | AP2122AK-2.8TRE1 | AP2122AK-2.8TRG1 | E2W | G2W | Tape & Reel |
| | | Active High (Pull-down resistor built-in) | AP2122AK-3.0TRE1 | AP2122AK-3.0TRG1 | E2X | G2X | Tape & Reel |
| | | Active High (Pull-down resistor built-in) | AP2122AK-3.2TRE1 | AP2122AK-3.2TRG1 | E3Y | G3Y | Tape & Reel |
| | | Active High (Pull-down resistor built-in) | AP2122AK-3.3TRE1 | AP2122AK-3.3TRG1 | E2Y | G2Y | Tape & Reel |

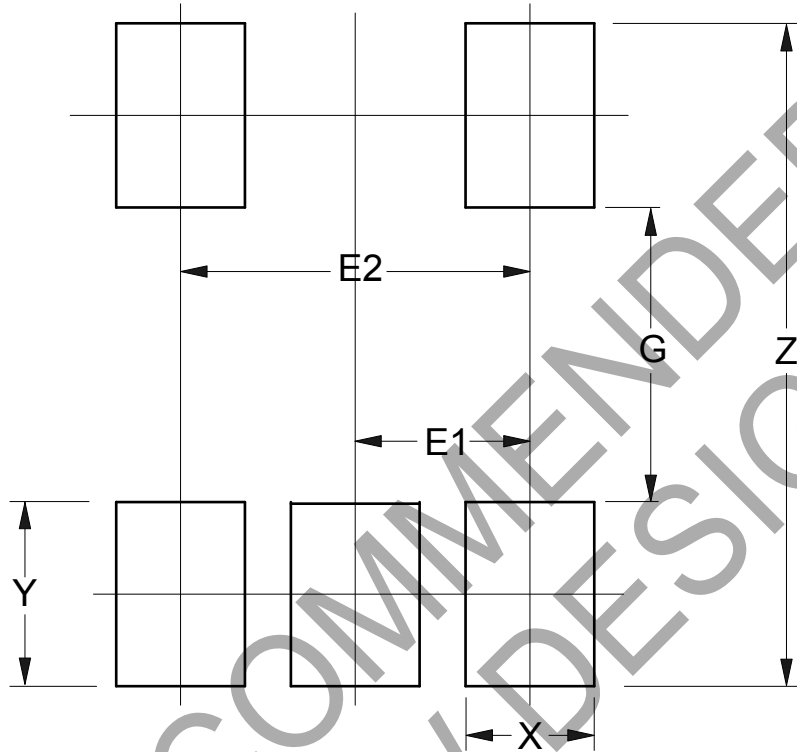
Package Outline Dimensions (All dimensions in mm(inch).)

(1) Package Type: SOT-23-5



Suggested Pad Layout

(1) Package Type: SOT-23-5



| Dimensions | Z (mm)/(inch) | G (mm)/(inch) | X (mm)/(inch) | Y (mm)/(inch) | E1 (mm)/(inch) | E2 (mm)/(inch) |
|------------|------------------|------------------|------------------|------------------|-------------------|-------------------|
| Value | 3.600/0.142 | 1.600/0.063 | 0.700/0.028 | 1.000/0.039 | 0.950/0.037 | 1.900/0.075 |

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