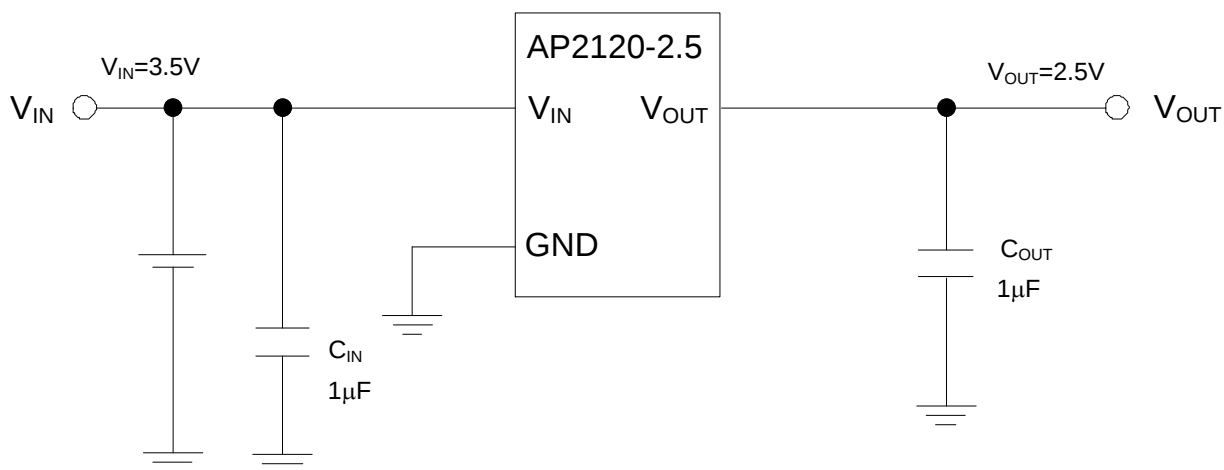


Typical Applications Circuit

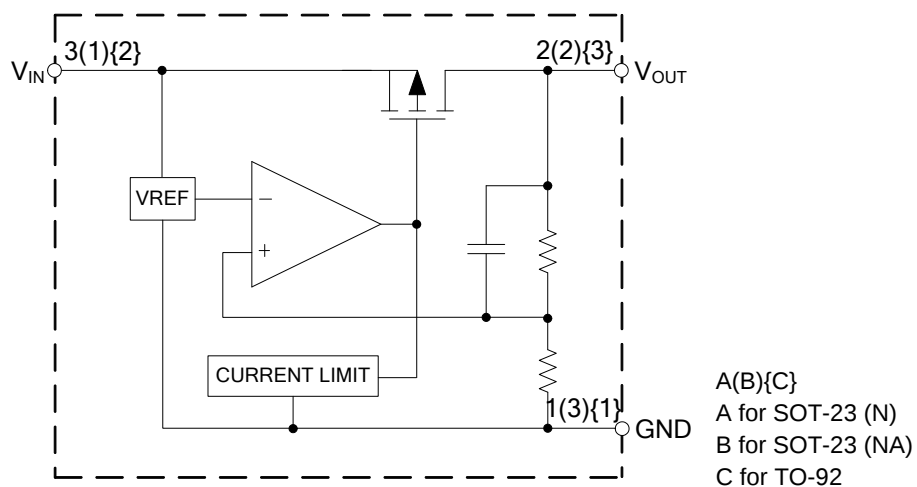


Note: Filter capacitors are required at the AP2120's input and output. 1μF capacitor is required at the input. The minimum output capacitance required for stability should be more than 1μF with ESR from 0.01Ω to 100Ω. Ceramic capacitors are recommended.

Pin Descriptions

Pin Number			Pin Name	Function
SOT-23 (N)	SOT-23 (NA)	TO-92		
1	3	1	GND	Ground
2	2	3	V _{OUT}	Regulated Output Voltage
3	1	2	V _{IN}	Input Voltage

Functional Block Diagram



Absolute Maximum Ratings (Note 4)

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, 10s)	+260		°C
θ_{JA}	Thermal Resistance (Junction to Ambient) (Note 5)	SOT-23	250	°C/W
		TO-92	180	
ESD	ESD (Human Body Model)	2000		V
ESD	ESD (Machine Model)	200		V

- Notes:
- Stresses greater than those listed under "Absolute Maximum Ratings" can 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 can affect device reliability.
 - Absolute maximum ratings indicate limits beyond which damage to the component can 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

AP2120-1.2 Electrical Characteristics (@ $V_{IN} = 2.2V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **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	$V_{IN} = 2.2V$ $1mA \leq I_{OUT} \leq 30mA$	1.176	1.2	1.224	V
V_{IN}	Input Voltage	—	—	—	6	V
I_{OUT}	Output Current	$V_{IN} - V_{OUT} = 1V$	150	—	—	mA
V_{RLOAD}	Load Regulation	$V_{IN} = 2.2V$ $1mA \leq I_{OUT} \leq 80mA$	—	12	40	mV
V_{RLINE}	Line Regulation	$2.2V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$	—	4	16	mV
V_{DROP}	Dropout Voltage	$I_{OUT} = 10mA$	—	700	900	mV
		$I_{OUT} = 100mA$	—	700	900	
		$I_{OUT} = 150mA$	—	700	900	
		$I_{OUT} = 200mA$	—	700	900	
I_Q	Quiescent Current	$V_{IN} = 2.2V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 2.2V$	—	65	—	dB
$\Delta V_{OUT}/\Delta T$	Output Voltage	$I_{OUT} = 30mA$	—	± 120	—	$\mu V/^\circ C$
$(\Delta V_{OUT}/V_{OUT})/\Delta T$	Temperature Coefficient		—	± 100	—	ppm/ $^\circ C$
I_{LIMIT}	Short Current Limit	$V_{OUT} = 0V$	—	50	—	mA
V_{NOISE}	RMS Output Noise	$T_A = +25^\circ C$, $I_{OUT} = 0$ $10Hz \leq f \leq 100kHz$	—	15	—	μV_{rms}

Electrical Characteristics (continued)

AP2120-1.3 Electrical Characteristics (@ $V_{IN} = 2.3V$, $T_J = +25^{\circ}C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **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	$V_{IN} = 2.3V$ $1mA \leq I_{OUT} \leq 30mA$	1.274	1.3	1.326	V
V_{IN}	Input Voltage	—	—	—	6	V
I_{OUT}	Output Current	$V_{IN} - V_{OUT} = 1V$	150	—	—	mA
V_{RLOAD}	Load Regulation	$V_{IN} = 2.3V$ $1mA \leq I_{OUT} \leq 80mA$	—	12	40	mV
V_{RLINE}	Line Regulation	$2.3V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$	—	4	16	mV
V_{DROP}	Dropout Voltage	$I_{OUT} = 10mA$	—	600	800	mV
		$I_{OUT} = 100mA$	—	600	800	
		$I_{OUT} = 150mA$	—	600	800	
		$I_{OUT} = 200mA$	—	600	800	
I_Q	Quiescent Current	$V_{IN} = 2.3V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 2.3V$	—	65	—	dB
$\Delta V_{OUT}/\Delta T$	Output Voltage	$I_{OUT} = 30mA$	—	± 130	—	$\mu V/^{\circ}C$
$(\Delta V_{OUT}/V_{OUT})/\Delta T$	Temperature Coefficient		—	± 100	—	ppm/ $^{\circ}C$
I_{LIMIT}	Short Current Limit	$V_{OUT} = 0V$	—	50	—	mA
V_{NOISE}	RMS Output Noise	$T_A = +25^{\circ}C$, $I_{OUT} = 0$ $10Hz \leq f \leq 100kHz$	—	15	—	μV_{rms}

Electrical Characteristics (continued)

AP2120-1.5 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	
		$I_{OUT} = 200mA$	—	400	600	
I_Q	Quiescent Current	$V_{IN} = 2.5V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 2.5V$	—	65	—	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	$T_A = +25^\circ C$, $I_{OUT} = 0$ $10Hz \leq f \leq 100kHz$	—	15	—	μV_{rms}

Electrical Characteristics (continued)

AP2120-1.8 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
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 2.8V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 2.8V$	—	65	—	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}

Electrical Characteristics (continued)

AP2120-2.5 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
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 3.5V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 3.5V$	—	65	—	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}

Electrical Characteristics (continued)

AP2120-2.8 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
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 3.8V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 3.8V$	—	65	—	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}

Electrical Characteristics (continued)

AP2120-3.0 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
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 4V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 4V$	—	65	—	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}

Electrical Characteristics (continued)

AP2120-3.2 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
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 4.2V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 4.2V$	—	65	—	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}

Electrical Characteristics (continued)

AP2120-3.3 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
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 4.3V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 4.3V$	—	65	—	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}

Electrical Characteristics (continued)

AP2120-3.6 Electrical Characteristics (@ $V_{IN} = 4.6V$, $T_J = +25^\circ C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **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	$V_{IN} = 4.6V$ $1mA \leq I_{OUT} \leq 30mA$	3.528	3.6	3.672	V
V_{IN}	Input Voltage	—	—	—	6	V
I_{OUT}	Output Current	$V_{IN} - V_{OUT} = 1V$	150	—	—	mA
V_{RLOAD}	Load Regulation	$V_{IN} = 4.6V$ $1mA \leq I_{OUT} \leq 80mA$	—	12	40	mV
V_{RLINE}	Line Regulation	$4.6V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$	—	4	16	mV
V_{DROP}	Dropout Voltage	$I_{OUT} = 10mA$	—	20	40	mV
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 4.6V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 4.6V$	—	65	—	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}

Electrical Characteristics (continued)

AP2120-4.0 Electrical Characteristics (@ $V_{IN} = 5.0V$, $T_J = +25^{\circ}C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **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	$V_{IN} = 5.0V$ $1mA \leq I_{OUT} \leq 30mA$	3.92	4.0	4.08	V
V_{IN}	Input Voltage	—	—	—	6	V
I_{OUT}	Output Current	$V_{IN} - V_{OUT} = 1V$	150	—	—	mA
V_{RLOAD}	Load Regulation	$V_{IN} = 5.0V$ $1mA \leq I_{OUT} \leq 80mA$	—	12	40	mV
V_{RLINE}	Line Regulation	$5V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$	—	4	16	mV
V_{DROP}	Dropout Voltage	$I_{OUT} = 10mA$	—	20	40	mV
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 5.0V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 5.0V$	—	65	—	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}

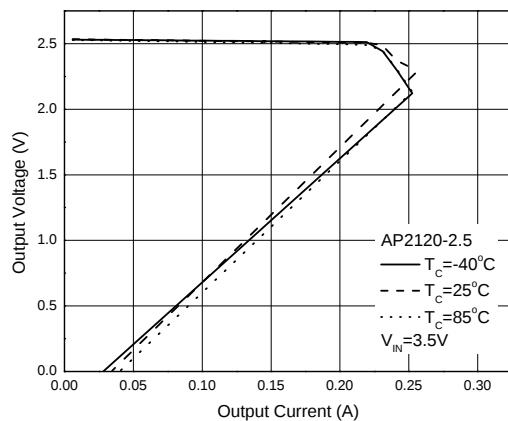
Electrical Characteristics (continued)

AP2120-5.0 Electrical Characteristics (@ $V_{IN} = 6.0V$, $T_J = +25^{\circ}C$, $C_{IN} = 1\mu F$, $C_{OUT} = 1\mu F$, **Bold** typeface applies over $-40^{\circ}C \leq T_J \leq +85^{\circ}C$, unless otherwise specified.)

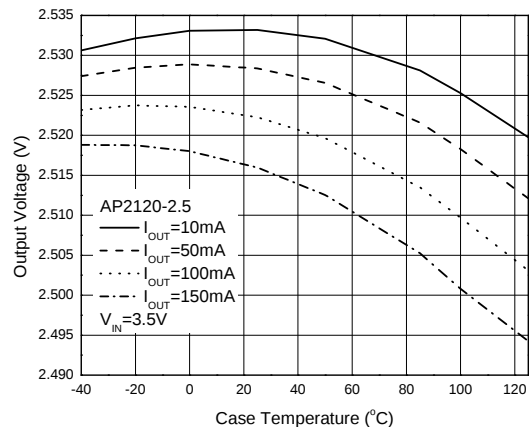
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{OUT}	Output Voltage	$V_{IN} = 6.0V$ $1mA \leq I_{OUT} \leq 30mA$	4.9	5.0	5.1	V
V_{IN}	Input Voltage	—	—	—	6	V
I_{OUT}	Output Current	$V_{IN} - V_{OUT} = 1V$	150	—	—	mA
V_{RLOAD}	Load Regulation	$V_{IN} = 4.3V$ $1mA \leq I_{OUT} \leq 80mA$	—	12	40	mV
V_{RLINE}	Line Regulation	$5.5V \leq V_{IN} \leq 6V$ $I_{OUT} = 30mA$	—	4	16	mV
V_{DROP}	Dropout Voltage	$I_{OUT} = 10mA$	—	20	40	mV
		$I_{OUT} = 100mA$	—	200	300	
		$I_{OUT} = 150mA$	—	300	500	
I_Q	Quiescent Current	$V_{IN} = 6.0V$, $I_{OUT} = 0mA$	—	25	50	μA
PSRR	Power Supply Rejection Ratio	Ripple 0.5Vp-p, $f = 1kHz$ $V_{IN} = 6.0V$	—	65	—	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}

Performance Characteristics

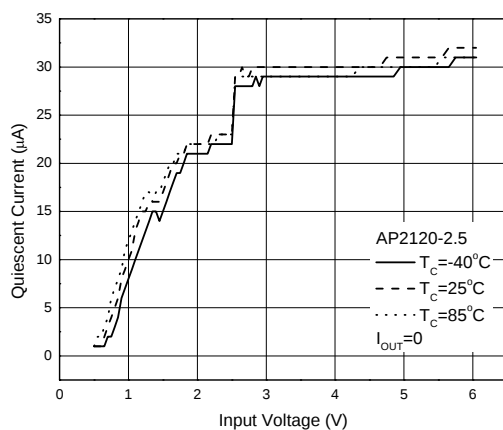
Output Voltage vs. Output Current



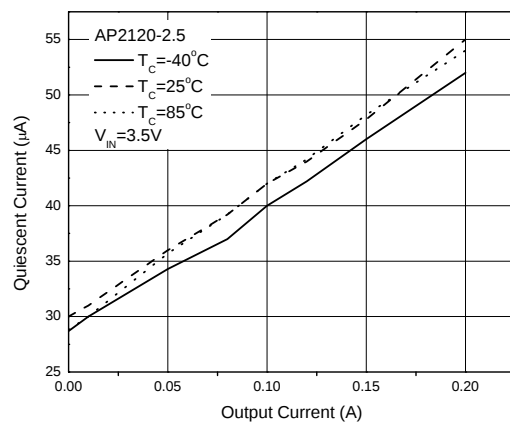
Output Voltage vs. Case Temperature



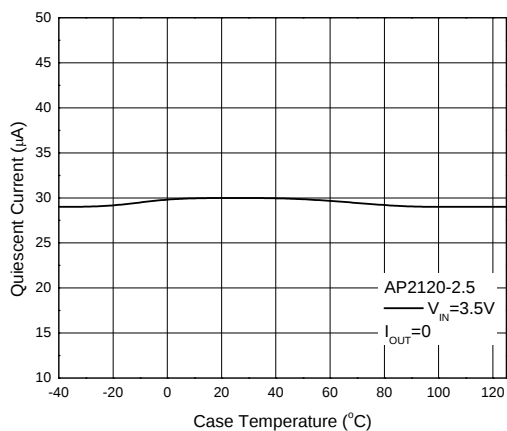
Quiescent Current vs. Input Voltage



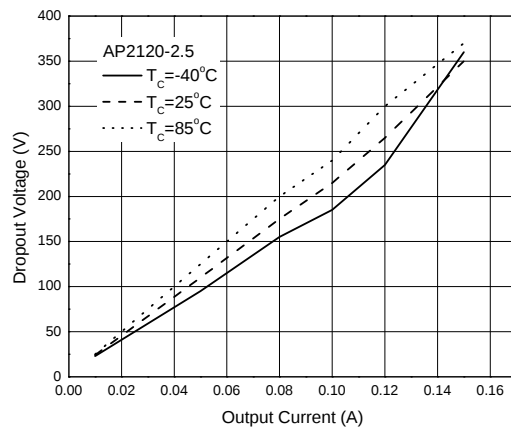
Quiescent Current vs. Output Current



Quiescent Current vs. Case Temperature

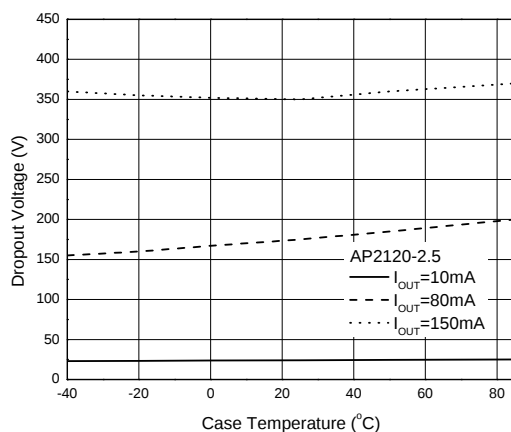


Dropout Voltage vs. Output Current

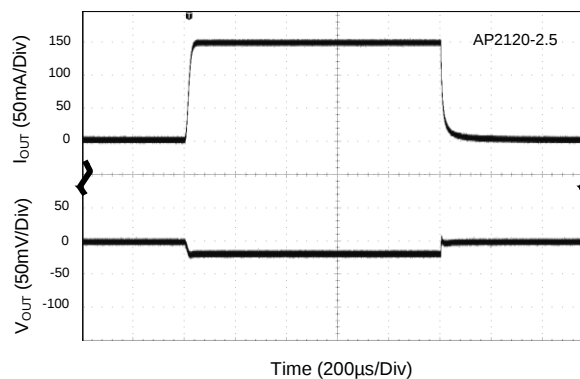


Performance Characteristics (continued)

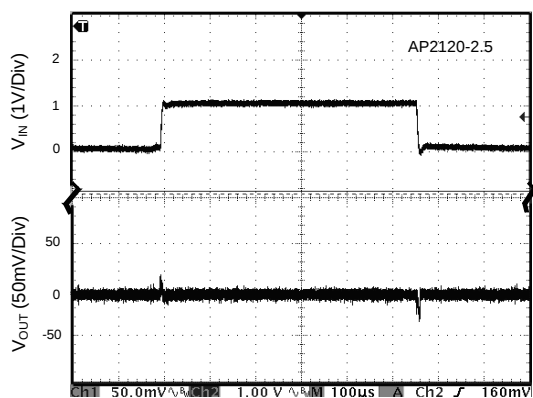
Dropout Voltage vs. Case Temperature



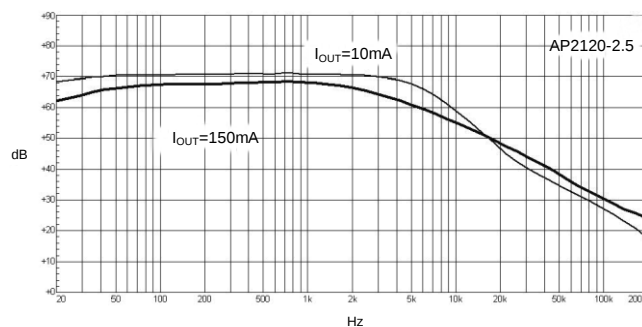
Load Transient ($I_{OUT}=0$ to 150mA)



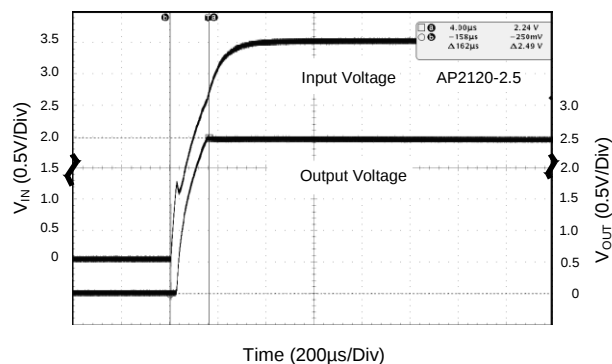
Line Transient (Condition: $V_{IN}=2.5\text{V}$ to 3.5V , $I_{OUT}=10\text{mA}$)



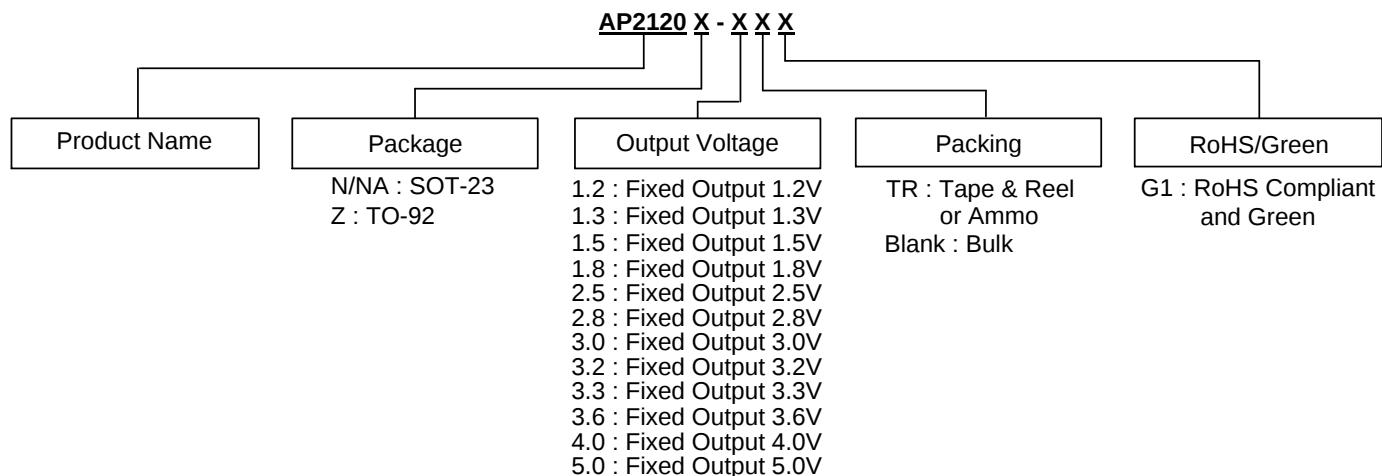
PSRR vs. Frequency



Start-Up



Ordering Information



Package	Temperature Range	Output Voltage	Part Number	Marking ID	Packing
SOT-23	-40 to +85°C	1.2V(N)	AP2120N-1.2TRG1	GR4	3000/Tape & Reel
		1.3V(N) (NRND) (Note 6)	AP2120N-1.3TRG1	GR5	3000/Tape & Reel
		1.5V(N)	AP2120N-1.5TRG1	GR6	3000/Tape & Reel
		1.8V(N)	AP2120N-1.8TRG1	GR7	3000/Tape & Reel
		2.5V(N)	AP2120N-2.5TRG1	GR8	3000/Tape & Reel
		2.8V(N) (NRND) (Note 6)	AP2120N-2.8TRG1	GR9	3000/Tape & Reel
		3.0V(N)	AP2120N-3.0TRG1	GS2	3000/Tape & Reel
		3.2V(N)	AP2120N-3.2TRG1	GS3	3000/Tape & Reel
		3.3V(N)	AP2120N-3.3TRG1	GS4	3000/Tape & Reel
		3.6V(N)	AP2120N-3.6TRG1	GZ8	3000/Tape & Reel
		4.0V(N)	AP2120N-4.0TRG1	GZ9	3000/Tape & Reel
		5.0V(N)	AP2120N-5.0TRG1	GS5	3000/Tape & Reel
SOT-23	-40 to +85°C	3.3V(NA)	AP2120NA-3.3TRG1	GZ1	3000/Tape & Reel
		3.6V(NA)	AP2120NA-3.6TRG1	GAA	3000/Tape & Reel
		4.0V(NA)	AP2120NA-4.0TRG1	GBA	3000/Tape & Reel

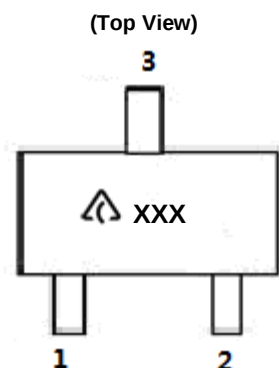
Note: 6. NRND: Not Recommended for New Design.

Ordering Information (continued)

Package	Temperature Range	Output Voltage	Part Number	Marking ID	Packing
TO-92	-40 to +85°C	1.2V	AP2120Z-1.2G1	2120Z-1.2G1	1000/Bulk
		1.2V	AP2120Z-1.2TRG1	2120Z-1.2G1	2000/Ammo
		1.3V	AP2120Z-1.3G1	2120Z-1.3G1	1000/Bulk
		1.3V	AP2120Z-1.3TRG1	2120Z-1.3G1	2000/Ammo
		1.5V	AP2120Z-1.5G1	2120Z-1.5G1	1000/Bulk
		1.5V	AP2120Z-1.5TRG1	2120Z-1.5G1	2000/Ammo
		1.8V	AP2120Z-1.8G1	2120Z-1.8G1	1000/Bulk
		1.8V	AP2120Z-1.8TRG1	2120Z-1.8G1	2000/Ammo
		2.5V	AP2120Z-2.5G1	2120Z-2.5G1	1000/Bulk
		2.5V	AP2120Z-2.5TRG1	2120Z-2.5G1	2000/Ammo
		2.8V	AP2120Z-2.8G1	2120Z-2.8G1	1000/Bulk
		2.8V	AP2120Z-2.8TRG1	2120Z-2.8G1	2000/Ammo
		3.0V	AP2120Z-3.0G1	2120Z-3.0G1	1000/Bulk
		3.0V	AP2120Z-3.0TRG1	2120Z-3.0G1	2000/Ammo
		3.2V	AP2120Z-3.2G1	2120Z-3.2G1	1000/Bulk
		3.2V	AP2120Z-3.2TRG1	2120Z-3.2G1	2000/Ammo
		3.3V	AP2120Z-3.3G1	2120Z-3.3G1	1000/Bulk
		3.3V	AP2120Z-3.3TRG1	2120Z-3.3G1	2000/Ammo
		3.6V	AP2120Z-3.6G1	2120Z-3.6G1	1000/Bulk
		3.6V	AP2120Z-3.6TRG1	2120Z-3.6G1	2000/Ammo
		4.0V	AP2120Z-4.0G1	2120Z-4.0G1	1000/Bulk
		4.0V	AP2120Z-4.0TRG1	2120Z-4.0G1	2000/Ammo
		5.0V	AP2120Z-5.0G1	2120Z-5.0G1	1000/Bulk
		5.0V	AP2120Z-5.0TRG1	2120Z-5.0G1	2000/Ammo

Marking Information

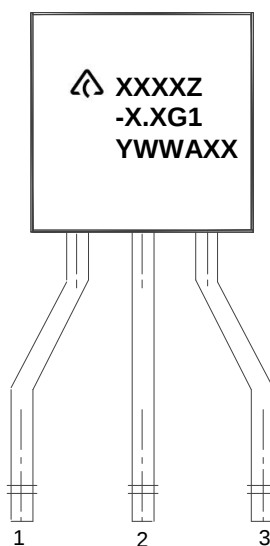
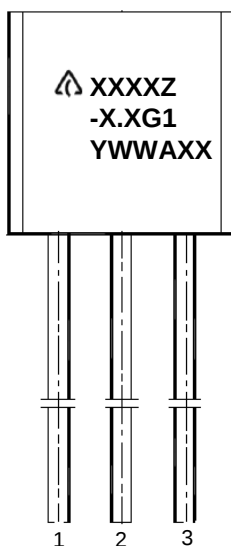
(1) SOT-23



 : Logo
 XXX: Marking ID
 (See Ordering Information)

(2) TO-92

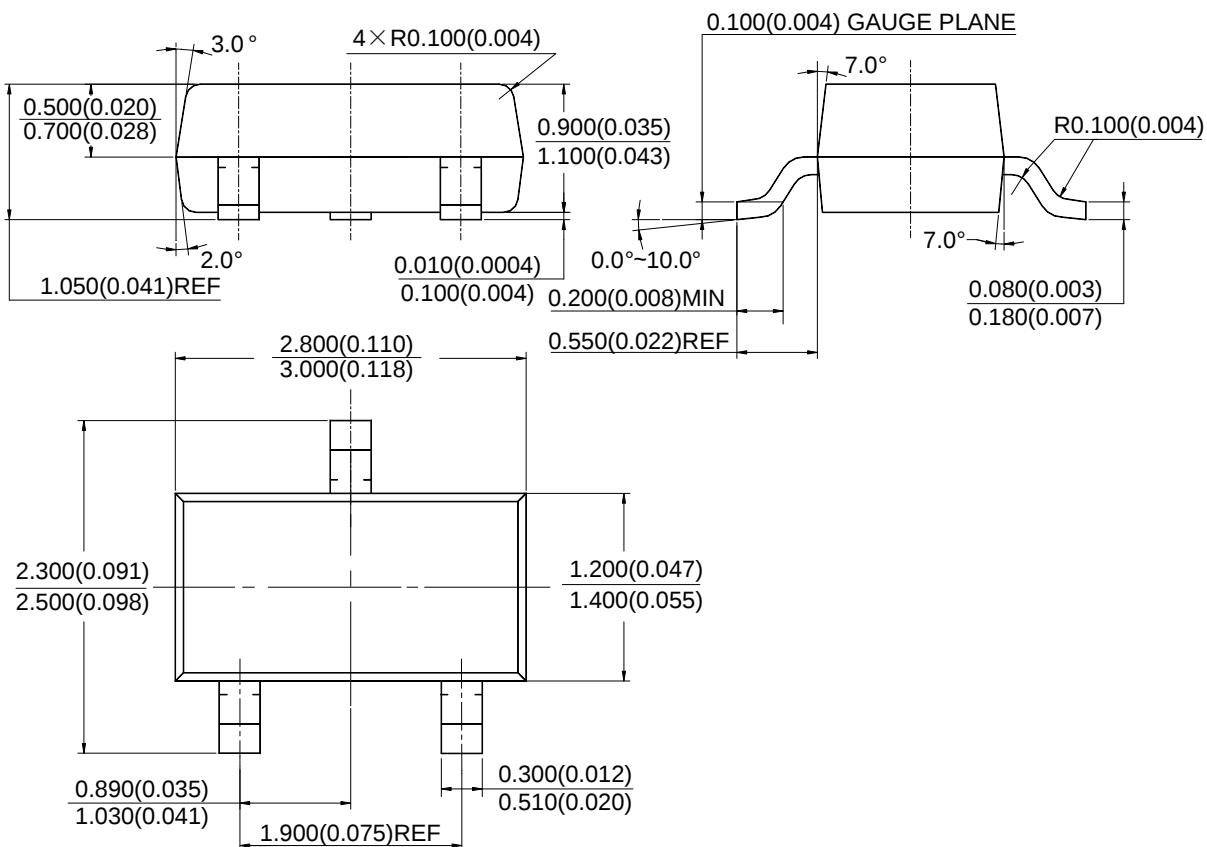
(Front View)



First and Second Lines: Logo and Marking ID
 (See Ordering Information)
 Third Line: Date Code
 Y: Year
 WW: Work Week of Molding
 A: Assembly House Code
 XX: 7th and 8th Digits of Batch Number

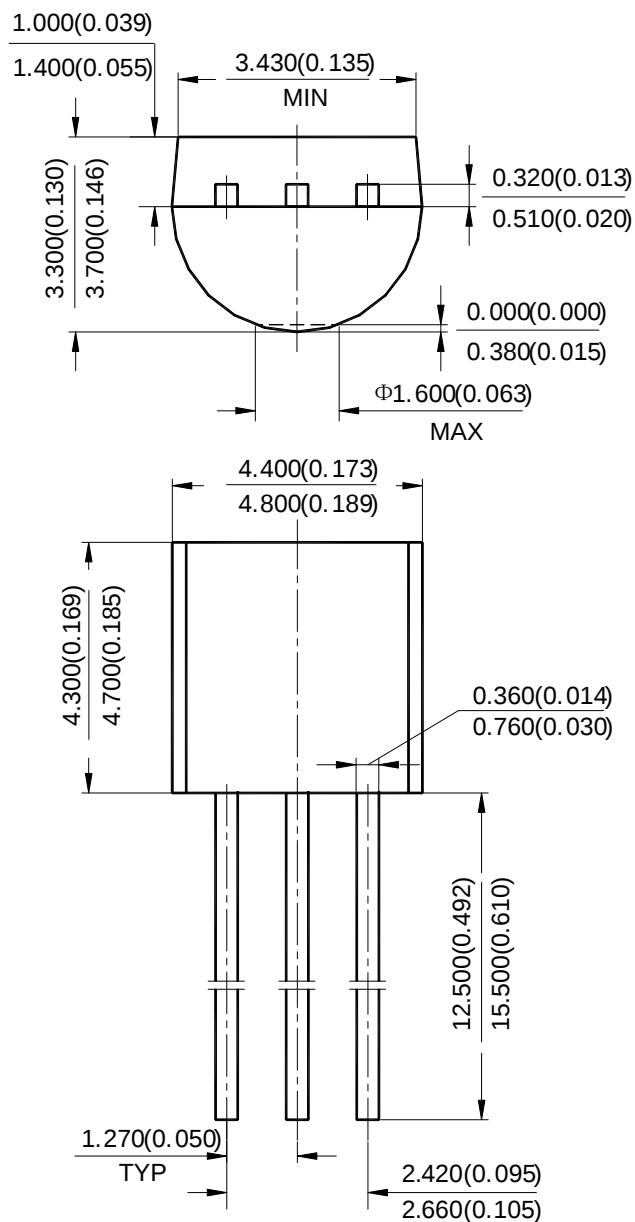
Package Outline Dimensions (All dimensions in mm(inch).)

(1) Package Type: SOT-23



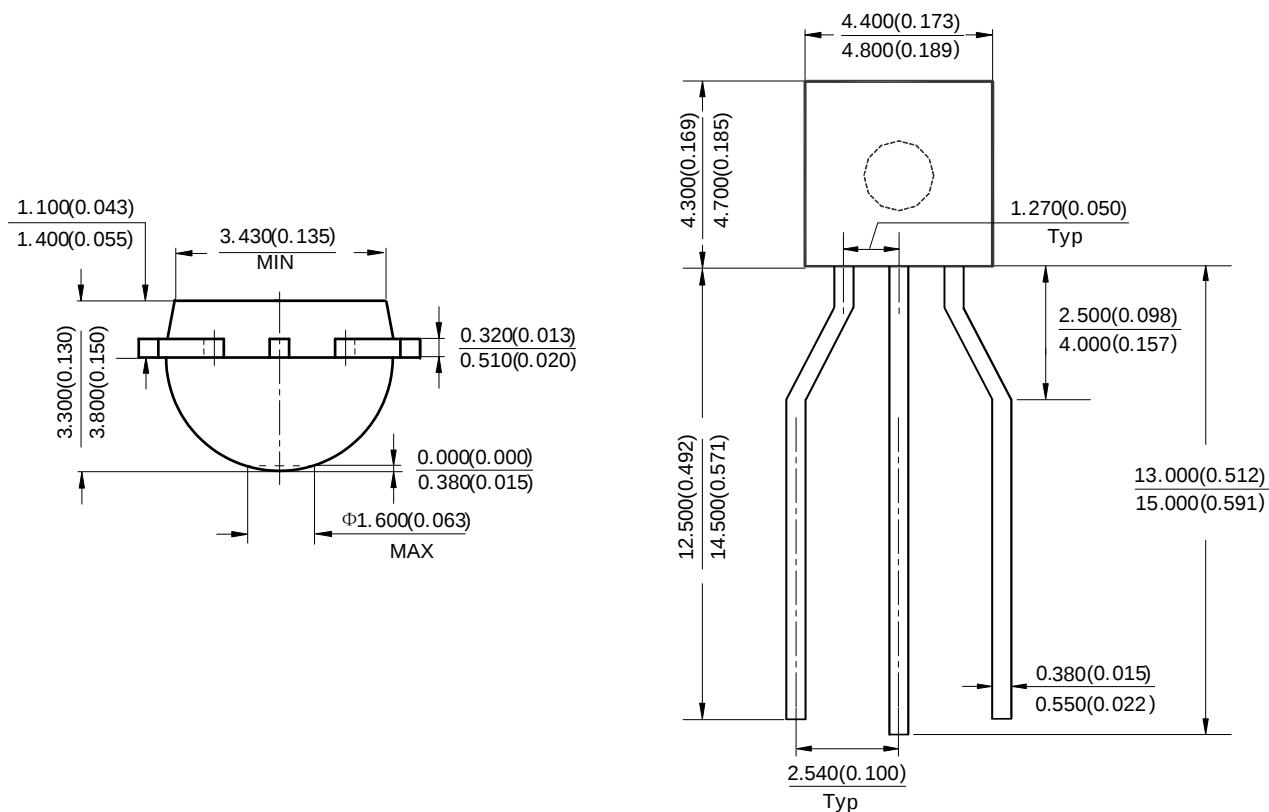
Package Outline Dimensions (continued) (All dimensions in mm(inch).)

(2) Package Type: TO-92 (Bulk Packing)



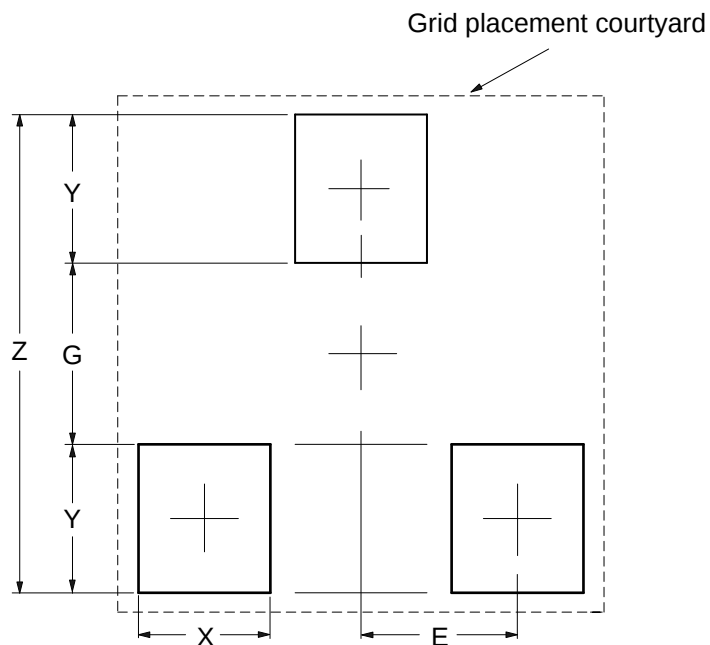
Package Outline Dimensions (continued) (All dimensions in mm(inch).)

(3) Package Type: TO-92 (Ammo Packing)



Suggested Pad Layout

(1) SOT-23



Dimensions	Z (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)	Y (mm)/(inch)	E (mm)/(inch)
Value	2.900/0.114	1.100/0.043	0.800/0.031	0.900/0.035	0.950/0.037

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