

600mA CMOS LDO REGULATOR WITH ENABLE

AP2112

General Description

The AP2112 is CMOS process low dropout linear regulator with enable function, the regulator delivers a guaranteed 600mA (min.) continuous load current.

The AP2112 provides 1.2V, 1.8V, 2.5V, 2.6V, 2.8V and 3.3V regulated output, and provides excellent output accuracy $\pm 1.5\%$, also provides an excellent load regulation, line regulation and excellent load transient performance due to very fast loop response. The AP2112 has built-in auto discharge function.

The regulator features low power consumption, and provides SOT-23-5, SOT-89-5, and SOIC-8 packages.

Features

- Output Voltage Accuracy: $\pm 1.5\%$
- Output Current: 600mA (Min.)
- Foldback Short Current Protection: 50mA
- Enable Function to Turn ON/OFF V_{OUT}
- Low Dropout Voltage (3.3V): 250mV (Typ.) @ $I_{OUT}=600mA$
- Excellent Load Regulation: 0.2%/A (Typ.)
- Excellent Line Regulation: 0.02%/V (Typ.)
- Low Quiescent Current: 55 μA (Typ.)
- Low Standby Current: 0.01 μA (Typ.)
- Low Output Noise: 50 μV_{RMS}
- PSRR: 100Hz -65dB, 1kHz -65dB
- OTSD Protection
- Stable with 1.0 μF Flexible Cap: Ceramic, Tantalum and Aluminum Electrolytic
- Operation Temperature Range: -40°C to 85°C
- ESD: MM 400V, HBM 4000V

Applications

- Laptop Computer
- Portable DVD
- LCD Monitor

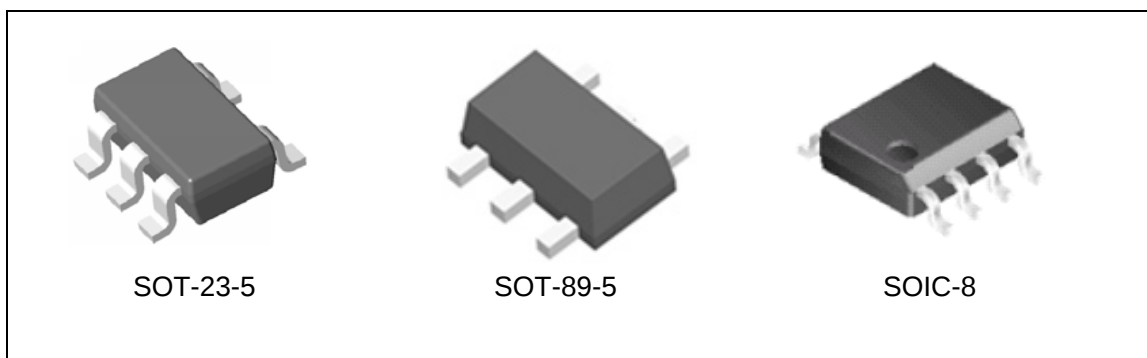


Figure 1. Package Types of AP2112

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Pin Configuration

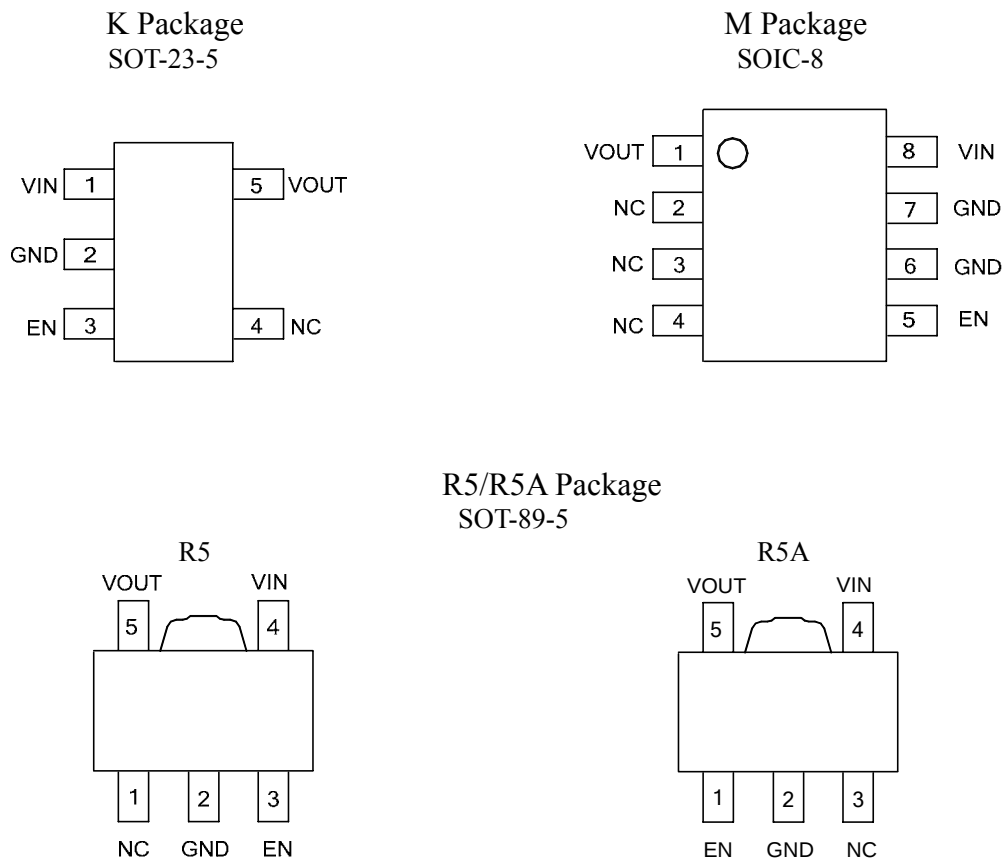


Figure 2. Pin Configuration of AP2112 (Top View)

Pin Descriptions

PIN No.			Name	Descriptions
SOT-23-5	SOT-89-5	SOIC-8		
1	4	8	VIN	Input Voltage
2	2	6, 7	GND	GND
3	3 (R5) 1 (R5A)	5	EN	Chip Enable, H – normal work, L – shutdown output
4	1 (R5) 3 (R5A)	2, 3, 4	NC	No Connection
5	5	1	VOUT	Output Voltage

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Functional Block Diagram

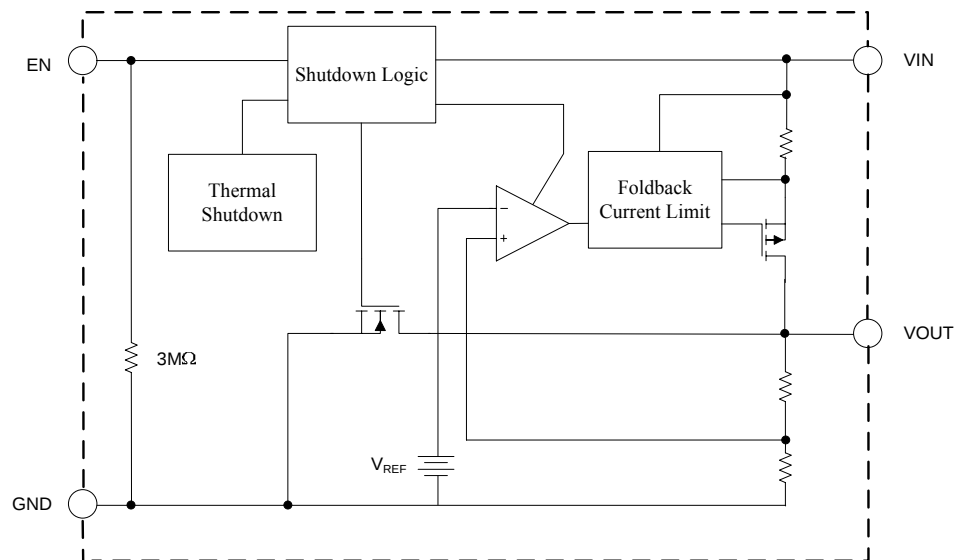
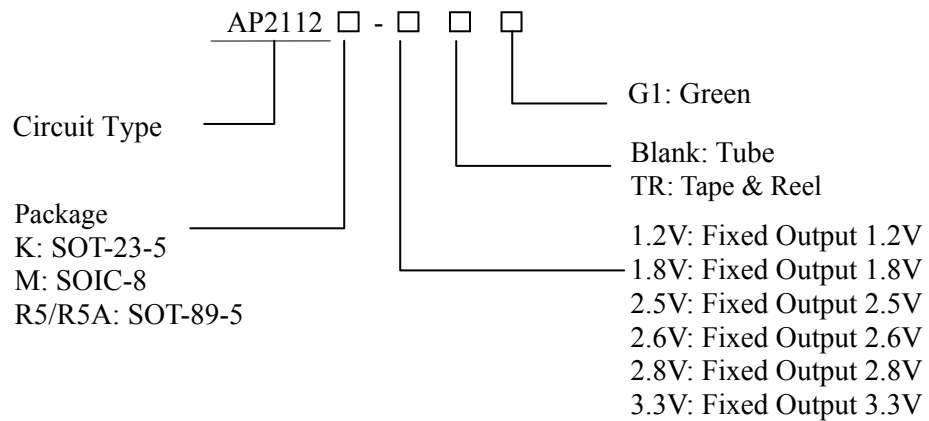


Figure 3. Functional Block Diagram of AP2112

**600mA CMOS LDO REGULATOR WITH ENABLE****AP2112****Ordering Information**

Package	Temperature Range	Condition	Part Number	Marking ID	Packing Type
SOT-23-5	-40 to 85°C	1.2V	AP2112K-1.2TRG1	G3L	Tape & Reel
		1.8V	AP2112K-1.8TRG1	G3M	Tape & Reel
		2.5V	AP2112K-2.5TRG1	G3N	Tape & Reel
		2.6V	AP2112K-2.6TRG1	G5N	Tape & Reel
		2.8V	AP2112K-2.8TRG1	G3Q	Tape & Reel
		3.3V	AP2112K-3.3TRG1	G3P	Tape & Reel
SOIC-8	-40 to 85°C	1.2V	AP2112M-1.2G1	2112M-1.2G1	Tube
			AP2112M-1.2TRG1	2112M-1.2G1	Tape & Reel
		1.8V	AP2112M-1.8G1	2112M-1.8G1	Tube
			AP2112M-1.8TRG1	2112M-1.8G1	Tape & Reel
		2.5V	AP2112M-2.5G1	2112M-2.5G1	Tube
			AP2112M-2.5TRG1	2112M-2.5G1	Tape & Reel
		2.6V	AP2112M-2.6G1	2112M-2.6G1	Tube
			AP2112M-2.6TRG1	2112M-2.6G1	Tape & Reel
SOT-89-5	-40 to 85°C	3.3V	AP2112M-3.3G1	2112M-3.3G1	Tube
			AP2112M-3.3TRG1	2112M-3.3G1	Tape & Reel
		1.2V(R5)	AP2112R5-1.2TRG1	G37D	Tape & Reel
		1.8V(R5)	AP2112R5-1.8TRG1	G37E	Tape & Reel
		2.5V(R5)	AP2112R5-2.5TRG1	G37F	Tape & Reel
SOT-89-5	-40 to 85°C	2.6V(R5)	AP2112R5-2.6TRG1	G13F	Tape & Reel
		3.3V(R5)	AP2112R5-3.3TRG1	G37G	Tape & Reel
		1.2V(R5A)	AP2112R5A-1.2TRG1	G33C	Tape & Reel
		1.8V(R5A)	AP2112R5A-1.8TRG1	G33E	Tape & Reel
		2.5V(R5A)	AP2112R5A-2.5TRG1	G28G	Tape & Reel
SOT-89-5	-40 to 85°C	2.6V(R5A)	AP2112R5A-2.6TRG1	G13E	Tape & Reel
		3.3V(R5A)	AP2112R5A-3.3TRG1	G28H	Tape & Reel

BCD Semiconductor's Pb-free products, as designated with "G1" suffix in the part number, are RoHS compliant and Green.

**600mA CMOS LDO REGULATOR WITH ENABLE****AP2112****Absolute Maximum Ratings (Note 1)**

Parameter	Symbol	Value		Unit
Power Supply Voltage	V_{CC}	6.5		V
Operating Junction Temperature Range	T_J	150		°C
Storage temperature Range	T_{STG}	-65 to 150		°C
Lead Temperature (Soldering, 10 Seconds)	T_{LEAD}	260		°C
Thermal Resistance (Junction to Ambient) (No Heatsink)	θ_{JA}	SOT-23-5	184	°C /W
		SOIC-8	114	
		SOT-89-5	120	
ESD (Machine Model)		400		V
ESD (Human Body Model)		4000		V

Note 1: 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.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_{IN}	2.5	6.0	V
Ambient Operation Temperature Range	T_A	-40	85	°C

**600mA CMOS LDO REGULATOR WITH ENABLE****AP2112****Electrical Characteristics****AP2112-1.2 Electrical Characteristic (Note 2)**

$V_{IN}=2.5V$, $C_{IN}=1.0\mu F$ (Ceramic), $C_{OUT}=1.0\mu F$ (Ceramic), Typical $T_A=25^\circ C$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq 85^\circ C$ ranges, unless otherwise specified (Note 3).

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=2.5V$, $1mA \leq I_{OUT} \leq 30mA$	$V_{OUT}^{*98.5\%}$	1.2	$V_{OUT}^{*101.5\%}$	V
Maximum Output Current	$I_{OUT(MAX)}$	$V_{IN}=2.5V$, $V_{OUT}=1.182V$ to $1.218V$	600			mA
Load Regulation	$(\Delta V_{OUT}/V_{OUT})/\Delta I_{OUT}$	$V_{IN}=2.5V$, $1mA \leq I_{OUT} \leq 600mA$	-1	0.2	1	%/A
Line Regulation	$(\Delta V_{OUT}/V_{OUT})/\Delta V_{IN}$	$2.5V \leq V_{IN} \leq 6V$, $I_{OUT}=30mA$	-0.1	0.02	0.1	%/V
Dropout Voltage	V_{DROP}	$I_{OUT}=10mA$		1000	1300	mV
		$I_{OUT}=300mA$		1000	1300	
		$I_{OUT}=600mA$		1000	1300	
Quiescent Current	I_Q	$V_{IN}=2.5V$, $I_{OUT}=0mA$		55	80	μA
Standby Current	I_{STD}	$V_{IN}=2.5V$, V_{EN} in OFF mode		0.01	1.0	μA
Power Supply Rejection Ratio	PSRR	Ripple 0.5Vp-p $V_{IN}=2.5V$, $I_{OUT}=100mA$	$f=100Hz$	65		dB
			$f=1KHz$	65		
Output Voltage Temperature Coefficient	$(\Delta V_{OUT}/V_{OUT})/\Delta T$	$I_{OUT}=30mA$ $T_A=-40^\circ C$ to $85^\circ C$		± 100		ppm/ $^\circ C$
Short Current Limit	I_{SHORT}	$V_{OUT}=0V$		50		mA
RMS Output Noise	V_{NOISE}	No Load, $10Hz \leq f \leq 100kHz$		50		μV_{RMS}
V_{EN} High Voltage	V_{IH}	Enable logic high, regulator on	1.5		6.0	V
V_{EN} Low Voltage	V_{IL}	Enable logic low, regulator off	0		0.4	
Start-up Time	t_S	No Load		20		μs
EN Pull Down Resistor	R_{PD}			3.0		$M\Omega$
V_{OUT} discharge Resistor	R_{DCHG}	Set EN pin at Low		60		Ω
Thermal Shutdown Temperature	T_{OTSD}			160		$^\circ C$
Thermal Shutdown Hysteresis	T_{HYOTSD}			25		
Thermal Resistance	θ_{JC}	SOT-23-5		96		$^\circ C/W$
		SOIC-8		75		
		SOT-89-5		47		

Note 2: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Note 3: Production testing at $T_A=25^\circ C$. Over temperature specifications guaranteed by design only.

**600mA CMOS LDO REGULATOR WITH ENABLE****AP2112****Electrical Characteristics (Continued)****AP2112-1.8 Electrical Characteristic (Note 2)**

$V_{IN}=2.8V$, $C_{IN}=1\mu F$ (Ceramic), $C_{OUT}=1\mu F$ (Ceramic), Typical $T_A=25^\circ C$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq 85^\circ C$ ranges, unless otherwise specified (Note 3).

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=2.8V$, $1mA \leq I_{OUT} \leq 30mA$	$V_{OUT} * 98.5\%$	1.8	$V_{OUT} * 101.5\%$	V
Maximum Output Current	$I_{OUT(MAX)}$	$V_{IN}=2.8V$, $V_{OUT}=1.773V$ to $1.827V$	600			mA
Load Regulation	$(\Delta V_{OUT}/V_{OUT}) / \Delta I_{OUT}$	$V_{OUT}=1.8V$, $V_{IN}=V_{OUT}+1V$, $1mA \leq I_{OUT} \leq 600mA$	-1	0.2	1	%/A
Line Regulation	$(\Delta V_{OUT}/V_{OUT}) / \Delta V_{IN}$	$2.8V \leq V_{IN} \leq 6V$, $I_{OUT}=30mA$	-0.1	0.02	0.1	%/V
Dropout Voltage	V_{DROP}	$I_{OUT}=10mA$		500	700	mV
		$I_{OUT}=300mA$		500	700	
		$I_{OUT}=600mA$		500	700	
Quiescent Current	I_Q	$V_{IN}=2.8V$, $I_{OUT}=0mA$		55	80	μA
Standby Current	I_{STD}	$V_{IN}=2.8V$, V_{EN} in OFF mode		0.01	1.0	μA
Power Supply Rejection Ratio	PSRR	Ripple 0.5Vp-p $V_{IN}=2.8V$, $I_{OUT}=100mA$	$f=100Hz$	65		dB
			$f=1KHz$	65		
Output Voltage Temperature Coefficient	$(\Delta V_{OUT}/V_{OUT}) / \Delta T$	$I_{OUT}=30mA$ $T_A=-40^\circ C$ to $85^\circ C$		± 100		ppm/ $^\circ C$
Short Current Limit	I_{SHORT}	$V_{OUT}=0V$		50		mA
RMS Output Noise	V_{NOISE}	No Load, $10Hz \leq f \leq 100kHz$		50		μV_{RMS}
V_{EN} High Voltage	V_{IH}	Enable logic high, regulator on	1.5		6.0	V
V_{EN} Low Voltage	V_{IL}	Enable logic low, regulator off	0		0.4	
Start-up Time	t_S	No Load		20		μs
EN Pull Down Resistor	R_{PD}			3.0		$M\Omega$
V_{OUT} Discharge Resistor	R_{DCHG}	Set EN pin at Low		60		Ω
Thermal Shutdown Temperature	T_{OTSD}			160		$^\circ C$
Thermal Shutdown Hysteresis	T_{HYOTSD}			25		
Thermal Resistance	θ_{JC}	SOT-23-5		96		$^\circ C/W$
		SOIC-8		75		
		SOT-89-5		47		

Note 2: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Note 3: Production testing at $T_A=25^\circ C$. Over temperature specifications guaranteed by design only.

**600mA CMOS LDO REGULATOR WITH ENABLE****AP2112****Electrical Characteristics (Continued)****AP2112-2.5 Electrical Characteristic (Note 2)**

$V_{IN}=3.5V$, $C_{IN}=1\mu F$ (Ceramic), $C_{OUT}=1\mu F$ (Ceramic), Typical $T_A=25^\circ C$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq 85^\circ C$ ranges, unless otherwise specified (Note 3).

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=3.5V$, $1mA \leq I_{OUT} \leq 30mA$	$V_{OUT} * 98.5\%$	2.5	$V_{OUT} * 101.5\%$	V
Maximum Output Current	$I_{OUT(MAX)}$	$V_{IN}=3.5V$, $V_{OUT}=2.463V$ to $2.537V$	600			mA
Load Regulation	$(\Delta V_{OUT}/V_{OUT}) / \Delta I_{OUT}$	$V_{OUT}=2.5V$, $V_{IN}=V_{OUT}+1V$, $1mA \leq I_{OUT} \leq 600mA$	-1	0.2	1	%/A
Line Regulation	$(\Delta V_{OUT}/V_{OUT}) / \Delta V_{IN}$	$3.5V \leq V_{IN} \leq 6V$, $I_{OUT}=30mA$	-0.1	0.02	0.1	%/V
Dropout Voltage	V_{DROP}	$I_{OUT}=10mA$		5	8	mV
		$I_{OUT}=300mA$		125	200	
		$I_{OUT}=600mA$		250	400	
Quiescent Current	I_Q	$V_{IN}=3.5V$, $I_{OUT}=0mA$		55	80	μA
Standby Current	I_{STD}	$V_{IN}=3.5V$, V_{EN} in OFF mode		0.01	1.0	μA
Power Supply Rejection Ratio	PSRR	Ripple 0.5Vp-p $V_{IN}=3.5V$, $I_{OUT}=100mA$	$f=100Hz$	65		dB
			$f=1KHz$	65		
Output Voltage Temperature Coefficient	$(\Delta V_{OUT}/V_{OUT}) / \Delta T$	$I_{OUT}=30mA$ $T_A=-40^\circ C$ to $85^\circ C$		± 100		ppm/ $^\circ C$
Short Current Limit	I_{SHORT}	$V_{OUT}=0V$		50		mA
RMS Output Noise	V_{NOISE}	No Load, $10Hz \leq f \leq 100kHz$		50		μV_{RMS}
V_{EN} High Voltage	V_{IH}	Enable logic high, regulator on	1.5		6.0	V
V_{EN} Low Voltage	V_{IL}	Enable logic low, regulator off	0		0.4	
Start-up Time	t_S	No Load		20		μs
EN Pull Down Resistor	R_{PD}			3.0		$M\Omega$
V_{OUT} Discharge Resistor	R_{DCHG}	Set EN pin at Low		60		Ω
Thermal Shutdown Temperature	T_{OTSD}			160		$^\circ C$
Thermal Shutdown Hysteresis	T_{HYOTSD}			25		
Thermal Resistance	θ_{JC}	SOT-23-5		96		$^\circ C/W$
		SOIC-8		75		
		SOT-89-5		47		

Note 2: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Note 3: Production testing at $T_A=25^\circ C$. Over temperature specifications guaranteed by design only.

**600mA CMOS LDO REGULATOR WITH ENABLE****AP2112****Electrical Characteristics (Continued)****AP2112-2.6 Electrical Characteristic (Note 2)**

$V_{IN}=3.6V$, $C_{IN}=1\mu F$ (Ceramic), $C_{OUT}=1\mu F$ (Ceramic), Typical $T_A=25^\circ C$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq 85^\circ C$ ranges, unless otherwise specified (Note 3).

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=3.6V$, $1mA \leq I_{OUT} \leq 30mA$	V_{OUT} *98.5%	2.6	V_{OUT} *101.5%	V
Maximum Output Current	$I_{OUT(MAX)}$	$V_{IN}=3.6V$, $V_{OUT}=2.561V$ to $2.639V$	600			mA
Load Regulation	$\frac{\Delta V_{OUT}/V_{OUT}}{\Delta I_{OUT}}$	$V_{OUT}=2.6V$, $V_{IN}=V_{OUT}+1V$, $1mA \leq I_{OUT} \leq 600mA$	-1	0.2	1	%/A
Line Regulation	$\frac{(\Delta V_{OUT}/V_{OUT})}{\Delta V_{IN}}$	$3.6V \leq V_{IN} \leq 6V$, $I_{OUT}=30mA$	-0.1	0.02	0.1	%/V
Dropout Voltage	V_{DROP}	$I_{OUT}=10mA$		5	8	mV
		$I_{OUT}=300mA$		125	200	
		$I_{OUT}=600mA$		250	400	
Quiescent Current	I_Q	$V_{IN}=3.6V$, $I_{OUT}=0mA$		55	80	μA
Standby Current	I_{STD}	$V_{IN}=3.6V$, V_{EN} in OFF mode		0.01	1.0	μA
Power Supply Rejection Ratio	PSRR	Ripple 0.5Vp-p $V_{IN}=3.6V$, $I_{OUT}=100mA$	$f=100Hz$	65		dB
			$f=1KHz$	65		
Output Voltage Temperature Coefficient	$(\Delta V_{OUT}/V_{OUT})/\Delta T$	$I_{OUT}=30mA$ $T_A=-40^\circ C$ to $85^\circ C$		± 100		ppm/ $^\circ C$
Short Current Limit	I_{SHORT}	$V_{OUT}=0V$		50		mA
RMS Output Noise	V_{NOISE}	No Load, $10Hz \leq f \leq 100kHz$		50		μV_{RMS}
V_{EN} High Voltage	V_{IH}	Enable logic high, regulator on	1.5		6.0	V
V_{EN} Low Voltage	V_{IL}	Enable logic low, regulator off	0		0.4	
Start-up Time	t_s	No Load		20		μs
EN Pull Down Resistor	R_{PD}			3.0		M Ω
V_{OUT} Discharge Resistor	R_{DCHG}	Set EN pin at Low		60		Ω
Thermal Shutdown Temperature	T_{OTSD}			160		$^\circ C$
Thermal Shutdown Hysteresis	T_{HYOTSD}			25		
Thermal Resistance	θ_{JC}	SOT-23-5		96		$^\circ C/W$
		SOIC-8		75		
		SOT-89-5		47		

Note 2: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Note 3: Production testing at $T_A=25^\circ C$. Over temperature specifications guaranteed by design only.

**600mA CMOS LDO REGULATOR WITH ENABLE****AP2112****Electrical Characteristics (Continued)****AP2112-2.8 Electrical Characteristic (Note 2)**

$V_{IN}=3.8V$, $C_{IN}=1\mu F$ (Ceramic), $C_{OUT}=1\mu F$ (Ceramic), Typical $T_A = 25^\circ C$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq 85^\circ C$ ranges, unless otherwise specified (Note 3).

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=3.8V$, $1mA \leq I_{OUT} \leq 30mA$	V_{OUT} *98.5%	2.8	V_{OUT} *101.5%	V
Maximum Output Current	$I_{OUT(MAX)}$	$V_{IN}=3.8V$, $V_{OUT}=2.758V$ to $2.842V$	600			mA
Load Regulation	$(\Delta V_{OUT}/V_{OUT})/\Delta I_{OUT}$	$V_{OUT}=2.8V$, $V_{IN}=V_{OUT}+1V$, $1mA \leq I_{OUT} \leq 600mA$	-1	0.2	1	%/A
Line Regulation	$(\Delta V_{OUT}/V_{OUT})/\Delta V_{IN}$	$3.8V \leq V_{IN} \leq 6V$, $I_{OUT}=30mA$	-0.1	0.02	0.1	%/V
Dropout Voltage	V_{DROP}	$I_{OUT}=10mA$		5	8	mV
		$I_{OUT}=300mA$		125	200	
		$I_{OUT}=600mA$		250	400	
Quiescent Current	I_Q	$V_{IN}=3.8V$, $I_{OUT}=0mA$		55	80	μA
Standby Current	I_{STD}	$V_{IN}=3.8V$, V_{EN} in OFF mode		0.01	1.0	μA
Power Supply Rejection Ratio	PSRR	Ripple 0.5Vp-p $V_{IN}=3.8V$, $I_{OUT}=100mA$	$f=100Hz$	65		dB
			$f=1KHz$	65		
Output Voltage Temperature Coefficient	$(\Delta V_{OUT}/V_{OUT})/\Delta T$	$I_{OUT}=30mA$ $T_A = -40^\circ C$ to $85^\circ C$		± 100		ppm/ $^\circ C$
Short Current Limit	I_{SHORT}	$V_{OUT}=0V$		50		mA
RMS Output Noise	V_{NOISE}	No Load, $10Hz \leq f \leq 100kHz$		50		μV_{RMS}
V_{EN} High Voltage	V_{IH}	Enable logic high, regulator on	1.5		6.0	V
V_{EN} Low Voltage	V_{IL}	Enable logic low, regulator off	0		0.4	
Start-up Time	t_S	No Load		20		μs
EN Pull Down Resistor	R_{PD}			3.0		M Ω
V_{OUT} Discharge Resistor	R_{DCHG}	Set EN pin at Low		60		Ω
Thermal Shutdown Temperature	T_{OTSD}			160		$^\circ C$
Thermal Shutdown Hysteresis	T_{HYOTSD}			25		
Thermal Resistance	θ_{JC}	SOT-23-5		96		$^\circ C/W$
		SOIC-8		75		
		SOT-89-5		47		

Note 2: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Note 3: Production testing at $T_A=25^\circ C$. Over temperature specifications guaranteed by design only.

**600mA CMOS LDO REGULATOR WITH ENABLE****AP2112****Electrical Characteristics (Continued)****AP2112-3.3 Electrical Characteristic (Note 2)**

$V_{IN}=4.3V$, $C_{IN}=1\mu F$ (Ceramic), $C_{OUT}=1\mu F$ (Ceramic), Typical $T_A = 25^\circ C$, **Bold** typeface applies over $-40^\circ C \leq T_J \leq 85^\circ C$ ranges, unless otherwise specified (Note 3).

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=4.3V$, $1mA \leq I_{OUT} \leq 30mA$	$V_{OUT} * 98.5\%$	3.3	$V_{OUT} * 101.5\%$	V
Maximum Output Current	$I_{OUT(MAX)}$	$V_{IN}=4.3V$, $V_{OUT}=3.251V$ to $3.350V$	600			mA
Load Regulation	$(\Delta V_{OUT}/V_{OUT})/\Delta I_{OUT}$	$V_{IN}=4.3V$, $1mA \leq I_{OUT} \leq 600mA$	-1	0.2	1	%/A
Line Regulation	$(\Delta V_{OUT}/V_{OUT})/\Delta V_{IN}$	$4.3V \leq V_{IN} \leq 6V$, $I_{OUT}=30mA$	-0.1	0.02	0.1	%/V
Dropout Voltage	V_{DROP}	$I_{OUT}=10mA$		5	8	mV
		$I_{OUT}=300mA$		125	200	
		$I_{OUT}=600mA$		250	400	
Quiescent Current	I_Q	$V_{IN}=4.3V$, $I_{OUT}=0mA$		55	80	μA
Standby Current	I_{STD}	$V_{IN}=4.3V$, V_{EN} in OFF mode		0.01	1.0	μA
Power Supply Rejection Ratio	PSRR	Ripple 0.5Vp-p $V_{IN}=4.3V$, $I_{OUT}=100mA$	$f=100Hz$	65		dB
			$f=1KHz$	65		
Output Voltage Temperature Coefficient	$(\Delta V_{OUT}/V_{OUT})/\Delta T$	$I_{OUT}=30mA$ $T_A = -40^\circ C$ to $85^\circ C$		± 100		ppm/ $^\circ C$
Short Current Limit	I_{SHORT}	$V_{OUT}=0V$		50		mA
RMS Output Noise	V_{NOISE}	No Load, $10Hz \leq f \leq 100kHz$		50		μV_{RMS}
V_{EN} High Voltage	V_{IH}	Enable logic high, regulator on	1.5		6.0	V
V_{EN} Low Voltage	V_{IL}	Enable logic low, regulator off	0		0.4	
Start-up Time	t_S	No Load		20		μs
EN Pull Down Resistor	R_{PD}			3.0		$M\Omega$
V_{OUT} Discharge Resistor	R_{DCHG}	Set EN pin at Low		60		Ω
Thermal Shutdown Temperature	T_{OTSD}			160		$^\circ C$
Thermal Shutdown Hysteresis	T_{HYOTSD}			25		
Thermal Resistance	θ_{JC}	SOT-23-5		96		$^\circ C/W$
		SOIC-8		75		
		SOT-89-5		47		

Note 2: To prevent the Short Circuit Current protection feature from being prematurely activated, the input voltage must be applied before a current source load is applied.

Note 3: Production testing at $T_A = 25^\circ C$. Over temperature specifications guaranteed by design only.

600mA CMOS LDO REGULATOR WITH ENABLE

AP2112

Typical Performance Characteristics

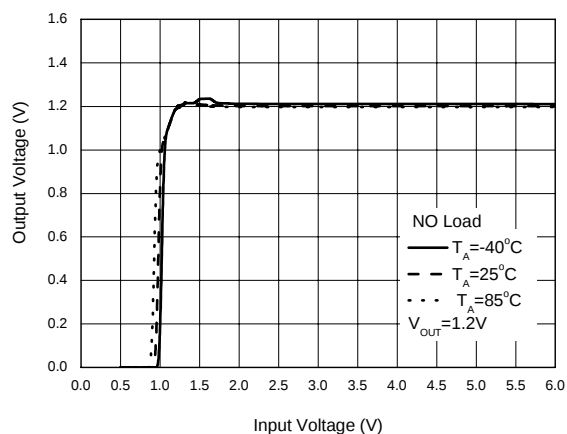


Figure 4. Output Voltage vs. Input Voltage

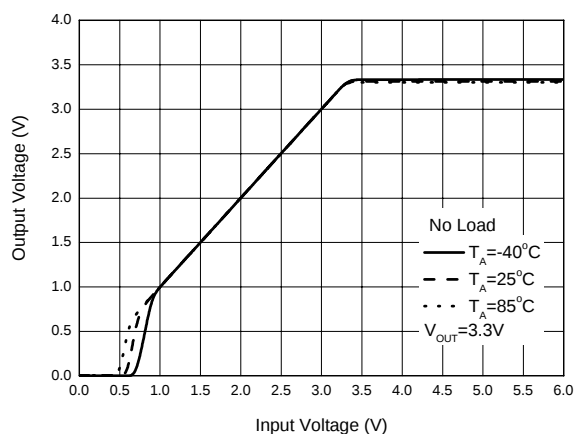


Figure 5. Output Voltage vs. Input Voltage

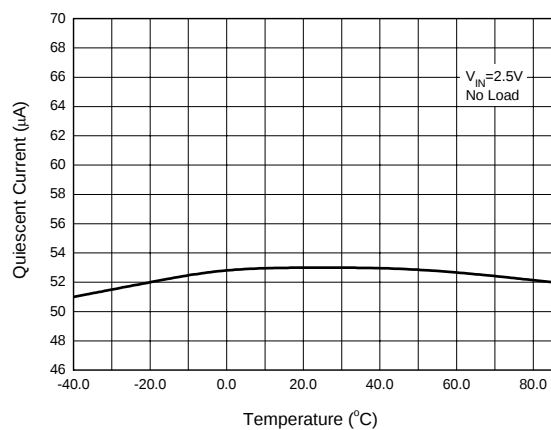


Figure 6. Quiescent Current vs. Temperature

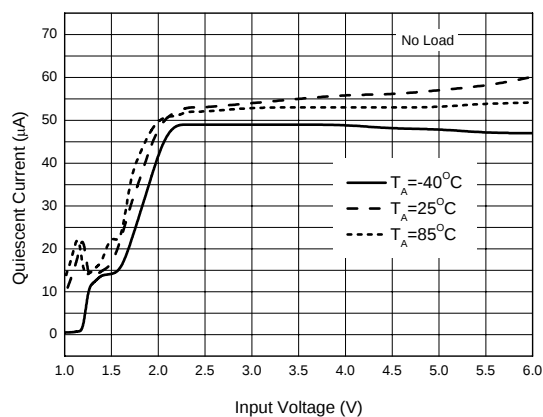


Figure 7. Quiescent Current vs. Input Voltage

600mA CMOS LDO REGULATOR WITH ENABLE

AP2112

Typical Performance Characteristics (Continued)

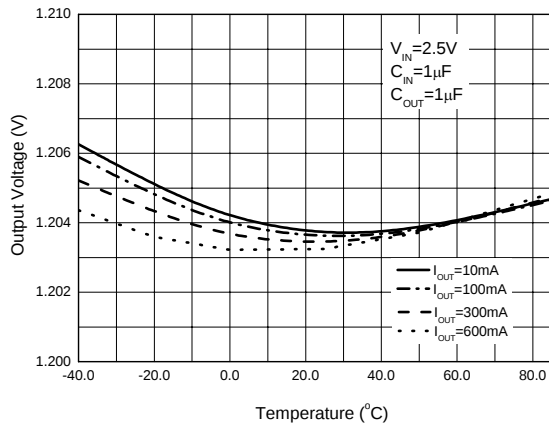


Figure 8. Output Voltage vs. Temperature

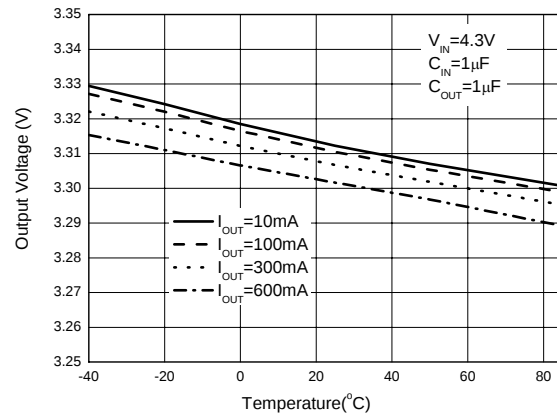


Figure 9. Output Voltage vs. Temperature

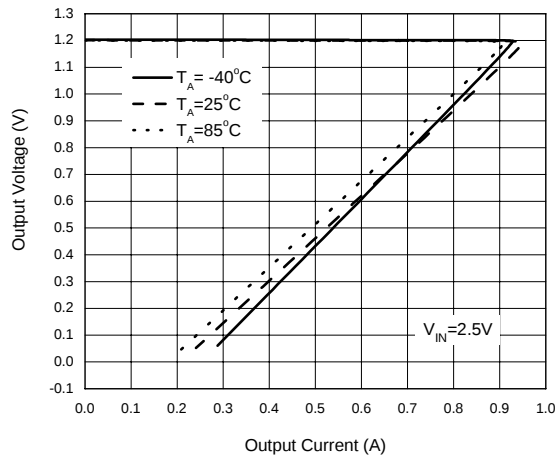


Figure 10. Output Voltage vs. Output Current

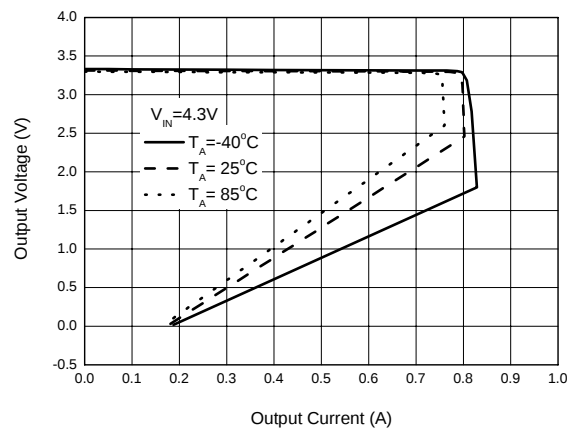


Figure 11. Output Voltage vs. Output Current

600mA CMOS LDO REGULATOR WITH ENABLE

AP2112

Typical Performance Characteristics (Continued)

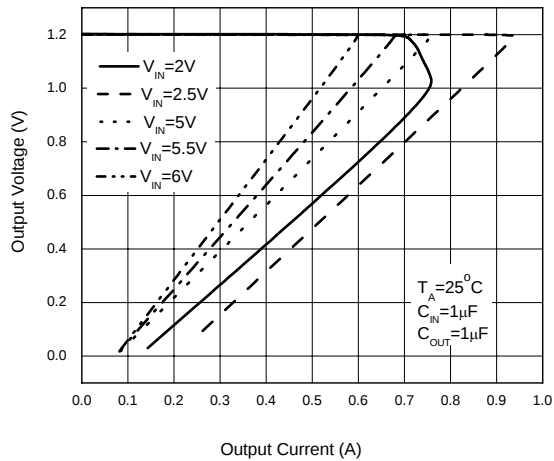


Figure 12. Output Voltage vs. Output Current

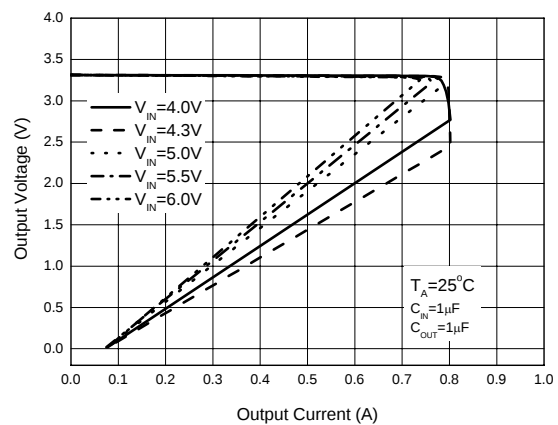


Figure 13. Output Voltage vs. Output Current

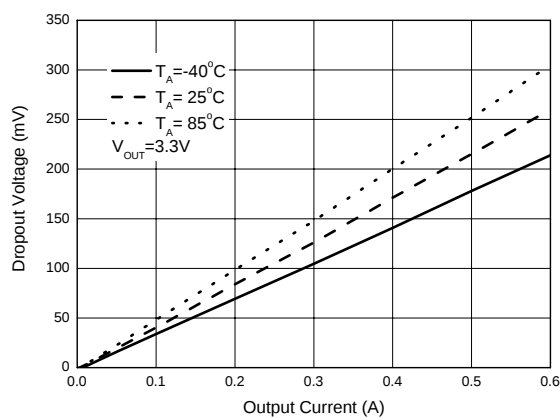


Figure 14. Dropout Voltage vs. Output Current

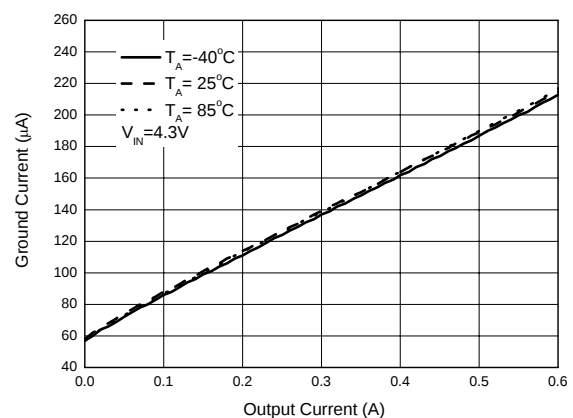


Figure 15. Ground Current vs. Output Current

600mA CMOS LDO REGULATOR WITH ENABLE

AP2112

Typical Performance Characteristics (Continued)

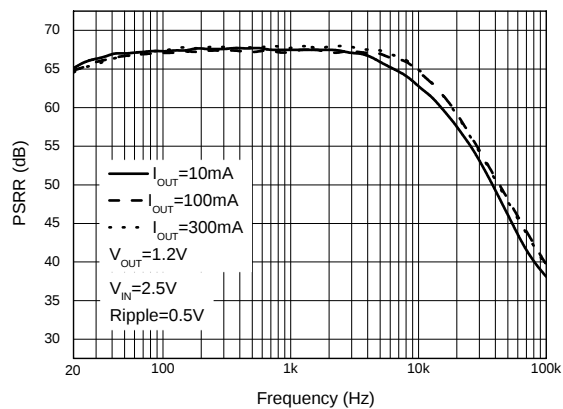


Figure 16. PSRR vs. Frequency

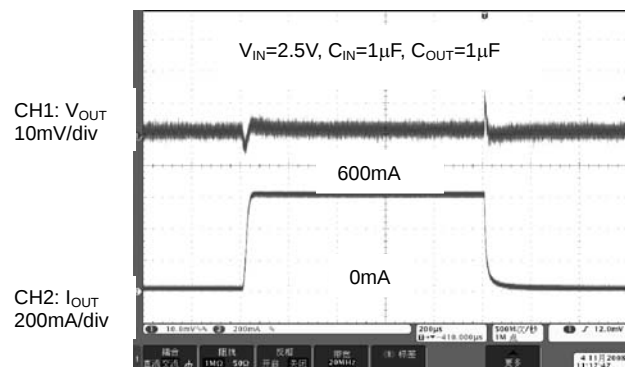


Figure 17. Load Transient

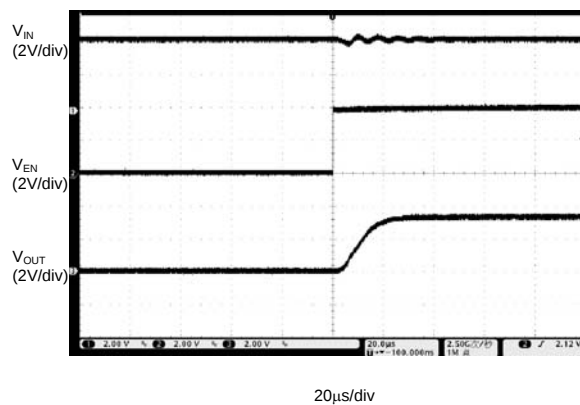


Figure 18. Enable On

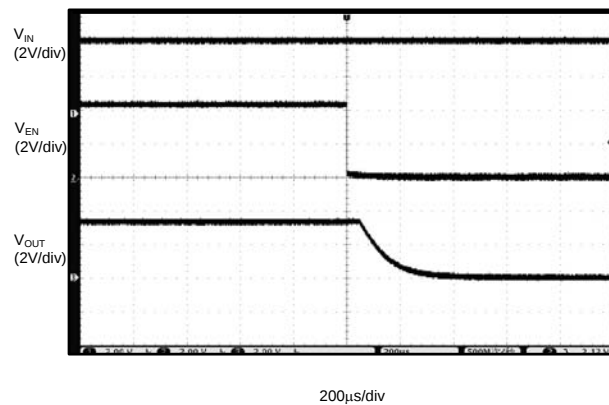
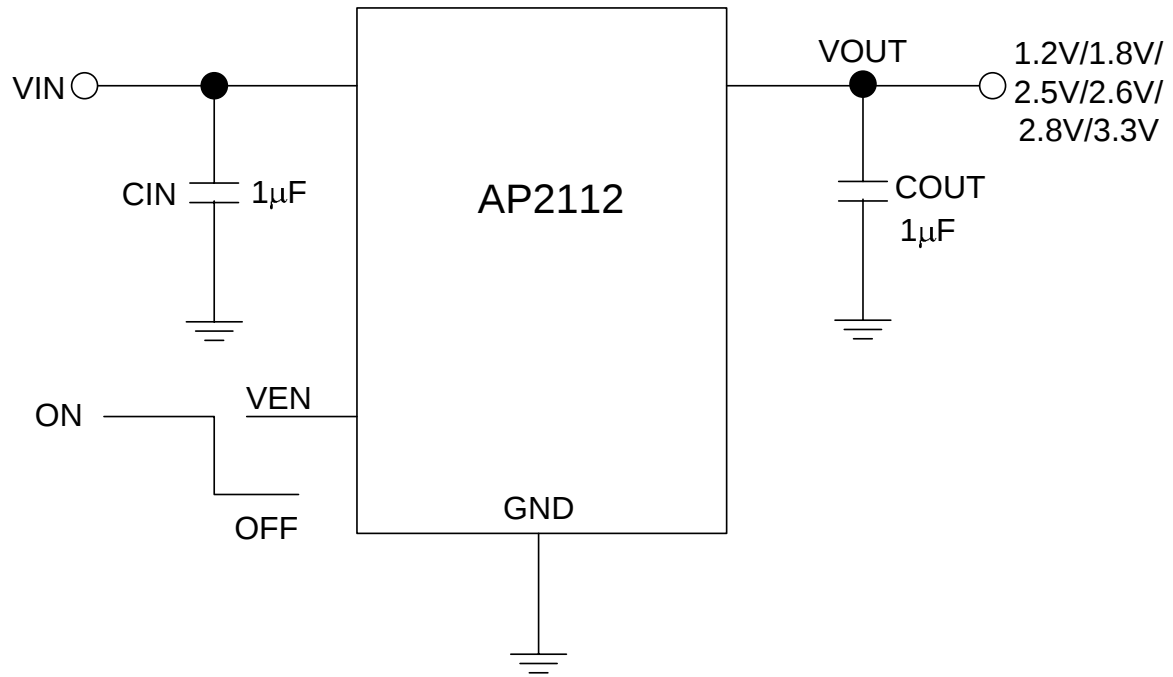
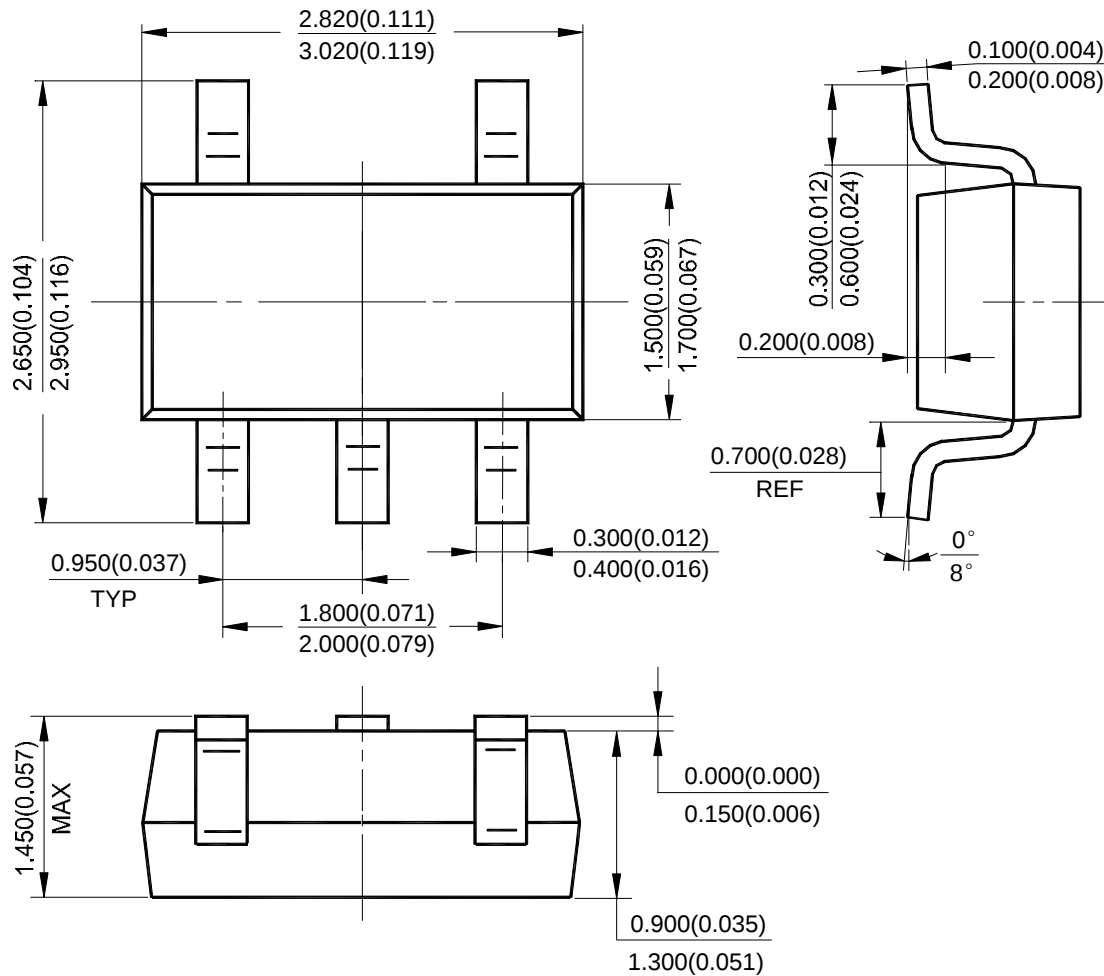


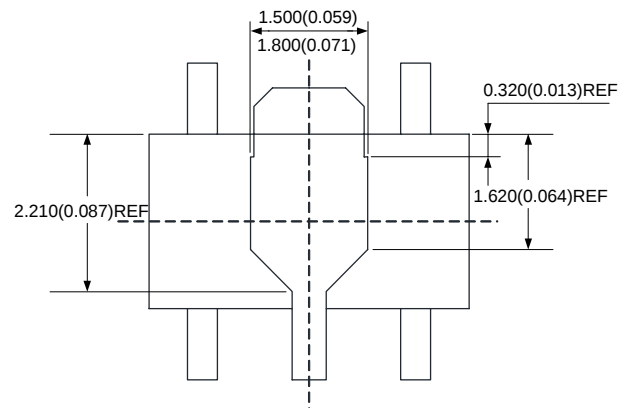
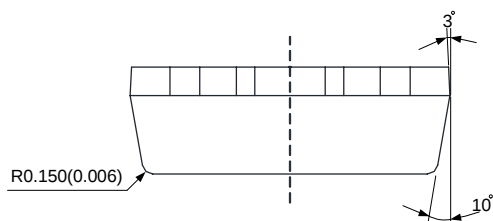
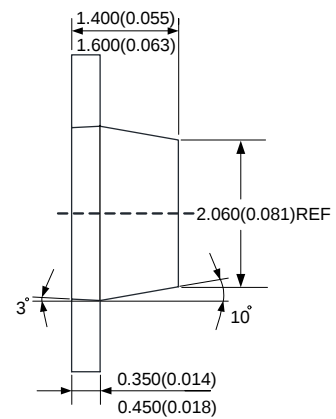
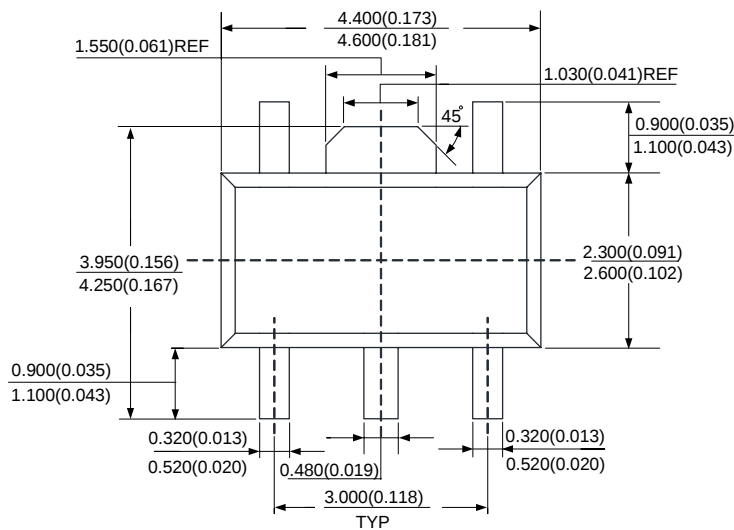
Figure 19. Enable Off

600mA CMOS LDO REGULATOR WITH ENABLE**AP2112****Typical Application (Note 4)**

Note 4: It is recommended to use X7R or X5R dielectric capacitor if 1.0 μ F ceramic capacitor is selected as input/output capacitors.

Figure 20. AP2112 Typical Application

600mA CMOS LDO REGULATOR WITH ENABLE
AP2112
Mechanical Dimensions
SOT-23-5
Unit: mm(inch)


600mA CMOS LDO REGULATOR WITH ENABLE
AP2112
Mechanical Dimensions (Continued)
SOT-89-5
Unit: mm(inch)


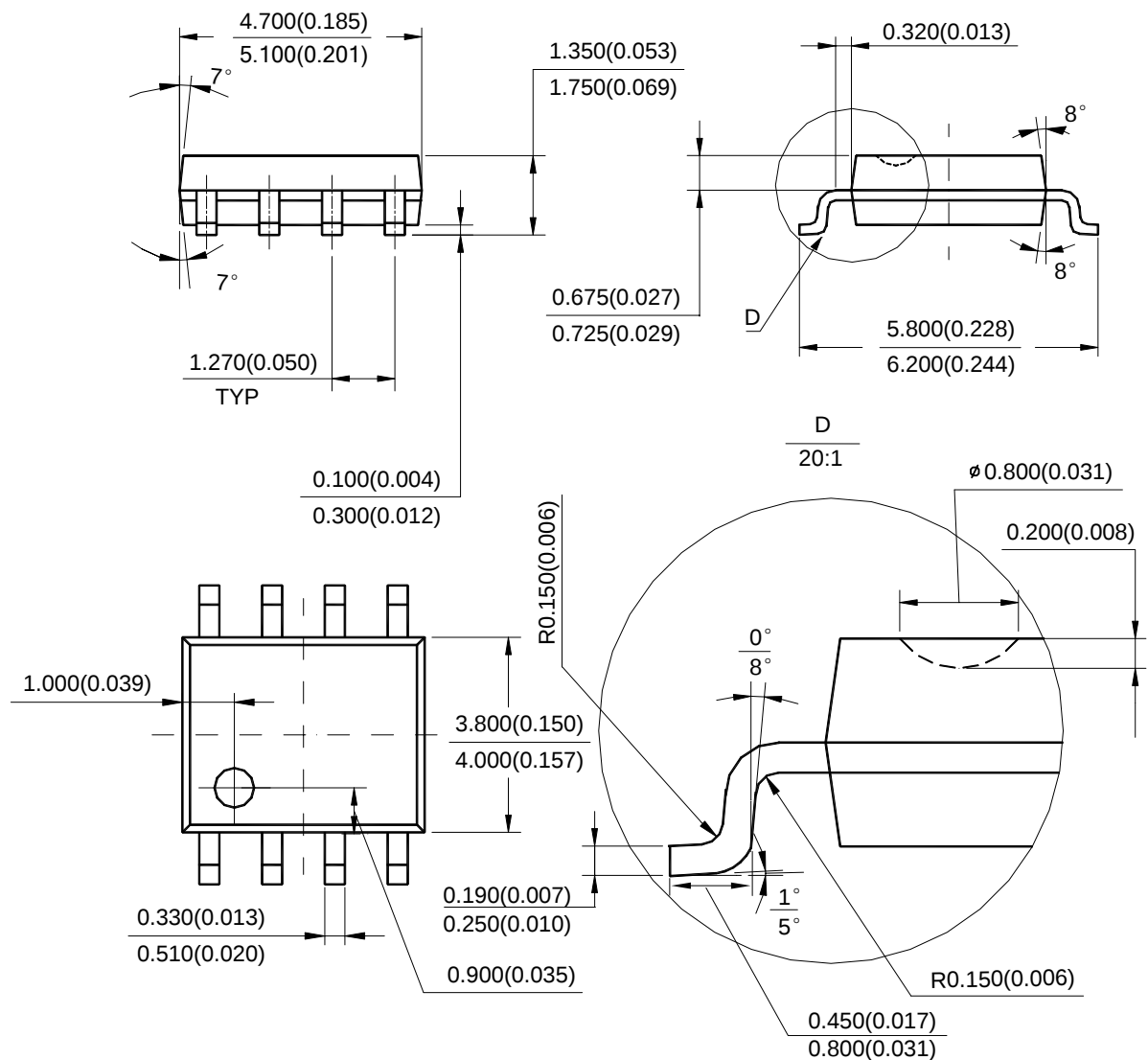
600mA CMOS LDO REGULATOR WITH ENABLE

AP2112

Mechanical Dimensions (Continued)

SOIC-8

Unit: mm(inch)



Note: Eject hole, oriented hole and mold mark is optional.



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- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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