

Features

- Low voltage drop: 0.26V@100mA
&VOUT=3.3V
- High input voltage: 15V
- Low temperature coefficient
- Large Output Current: 500mA
- Low Quiescent Current: 2.0uA
- Output voltage accuracy: tolerance $\pm 2\%$
- Built-in current limiter

Applications

- Battery-powered equipment
- Hand-Hold Equipment
- GPS Receivers
- Wireless LAN

General Description

The Y117xxxxx series is a group of positive voltage output, three-pin regulators, it provides a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

The Y117xxxxx consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Load Transient response has improved in comparison to the existing series. SOT89 packages

Selection Table

Part No.	Output Voltage	Package	Marking
Y11715MPx	1.5V	SOT89	Refer to Marking rule
Y11727MPx	2.7V		
Y11728MPx	2.8V		
Y11730MPx	3.0V		
Y11733MPx	3.3V		
Y11736MPx	3.6V		
Y11740MPx	4.0V		
Y11745MPx	4.5V		
Y11750MPx	5.0V		

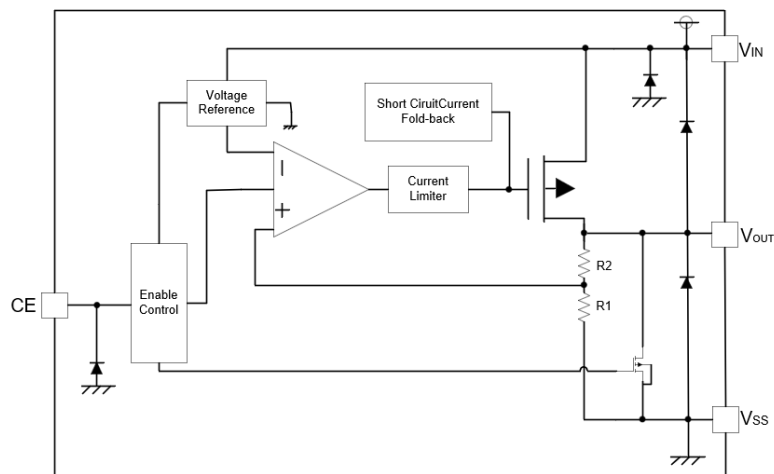
Order Information

Y117①②③④⑤

Designator	Symbol	Description
① ②	Integer	Output Voltage(1.5~5.0V)
③	M	Standard
④	P	Package: SOT89
⑤	R	RoHS / Pb Free
	G	Halogen Free

Note: "①②" stands for output voltages. Other voltages can be specially customized

Block Diagram



Pin Assignment

SOT89 (Top View)

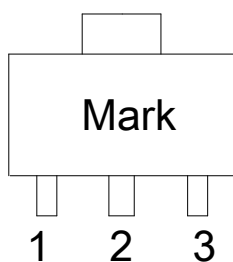


Table4: Y117XXMPR series (SOT89 PKG)

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin



Output Voltage Code:

Vout	Code	Vout	Code	Vout	Code
1.5V	1	2.7V	C	3.9V	O
1.6V	2	2.8V	D	4.0V	P
1.7V	3	2.9V	E	4.1V	Q
1.8V	4	3.0V	F	4.2V	R
1.9V	5	3.1V	G	4.3V	S
2.0V	6	3.2V	H	4.4V	T
2.1V	7	3.3V	I	4.5V	U
2.2V	8	3.4V	J	4.6V	V
2.3V	9	3.5V	K	4.7V	W
2.4V	0	3.6V	L	4.8V	X
2.5V	A	3.7V	M	4.9V	Y
2.6V	B	3.8V	N	5.0V	Z

Data Code: XX

Note: The last two of them are based on the time of this product which is the first time into production, and the third is the launch of this product, it can be in 1 ~ 9 , which is expressed in "0" in October, in November with an "A", in December with "B"; the fourth is of the launch of the product, such as expressed in "0" in 2010, in "3" in 2013. For example: EZ81 represents Y11750PR product is first put into production in August in 2011.



Absolute Maximum Ratings

Input Voltage3.5V to 18V
 CE Voltage8V
 Operating Temperature-40℃ to 125℃
 Storage Temperature-40℃ to 150℃

Note: These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics

Y117XXM for any output voltage

(Ta=25℃)

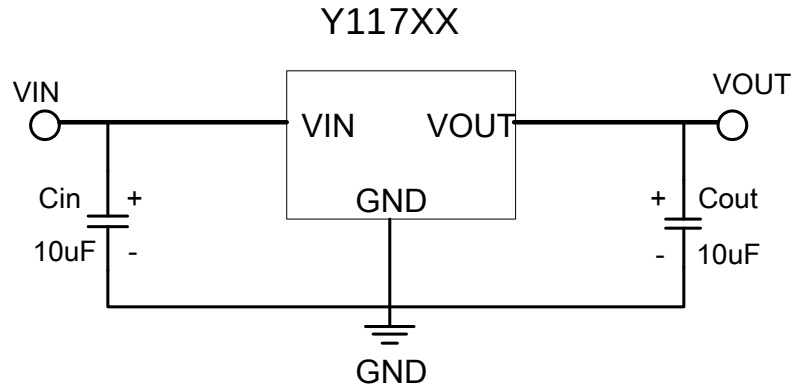
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	Vout	Vin=Vout+1V 1.0mA≤Iout≤30mA	Vout×0.98	--	Vout×1.02	V
Output Current*1	Iout	Vin-Vout=1.5V	--	500	--	mA
Low dropout*2	Vdrop	Refer to the next table				
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	4.3V≤Vin≤8V Iout=100mA	--	0.75	0.9	%/V
Load Regulation	△Vout	Vin= Vout+1V 1.0mA≤Iout≤100mA	--	12	30	mV
Output voltage Temperature Coefficiency	$\frac{\Delta V_{OUT}}{\Delta Ta}$	Iout=30mA 0℃≤Ta≤70℃	--	±100	--	Ppm/℃
PSRR	PSRR	F=1KHz Vin=Vout+1V	--	40	--	dB
Supply Current	Iss1	--	--	1	2	uA
Input Voltage	Vin	--	3.5	--	15	V

Electrical Characteristics by Output Voltage:

Output Voltage Vout(V)	Dropout Voltage Vdif (V)		
	Conditions	Typ.	Max.
2.0 < Vout ≤ 2.8	Iout=80 mA	0.4	0.6
2.8 < Vout ≤ 4.0	Iout=100 mA	0.26	0.46
4.0 < Vout ≤ 5.0		0.23	0.42
2.8 < Vout ≤ 4.0	Iout=200 mA	0.53	0.82
4.0 < Vout ≤ 5.0		0.42	0.76
3.0 < Vout ≤ 4.0	Iout=500 mA	1.5	1.8
4.0 < Vout ≤ 5.0		1.2	1.5

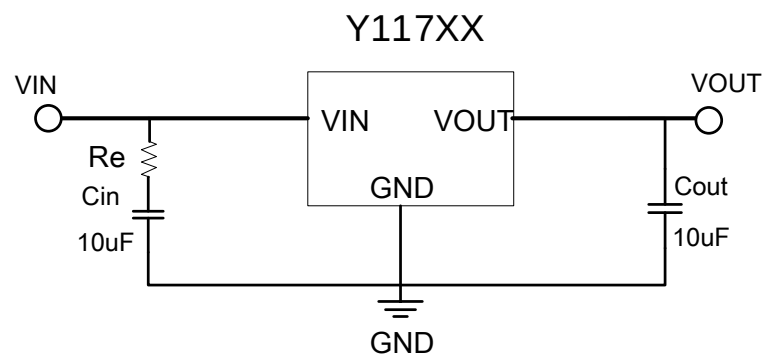


Typical Application

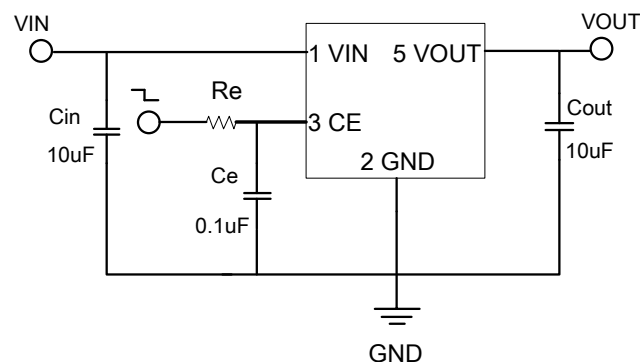


Note1: $C_{in}=C_{out}=10\mu F$. (10uF Electrolytic capacitor is recommended).

Note2: If the input and output capacitors are ceramic, add a resistor at the input, as follows.



Note: $R_e = (1.2 \sim 1.8) \Omega$.



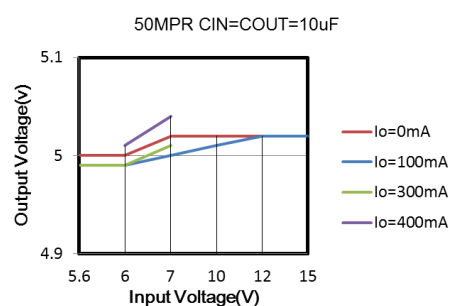
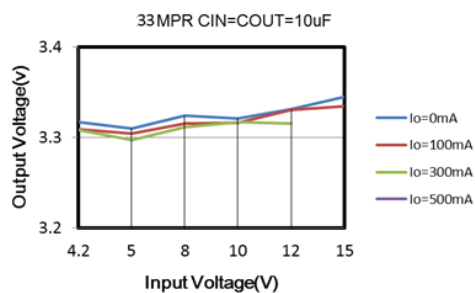
Note1: Input capacitor $C_{IN}=10\mu F$.

Note2: Output capacitor $C_{OUT}=10\mu F/6.8\mu F$ (10uF Tantalum capacitor or 6.8uF ceramic capacitor is recommended).

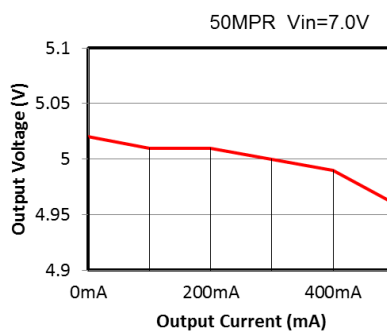
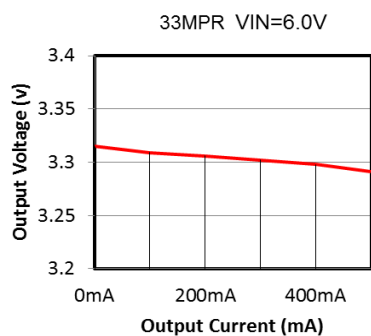
Note3: The CE port is recommended to connect the current limiting resistor R_e . The recommended resistance is 10K~47K. When the input voltage is larger than or equal to 12V, it is recommended to add a 0.1uF capacitor C_e .

Typical Performance Characteristics

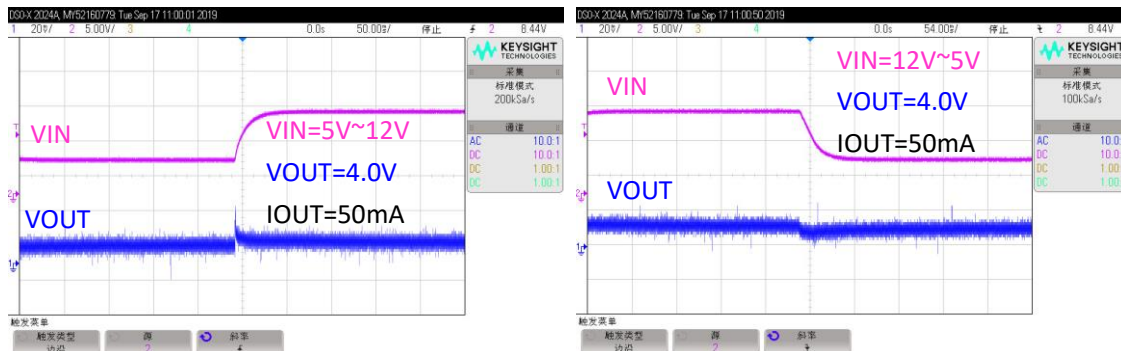
(1) Output Voltage vs Input voltage



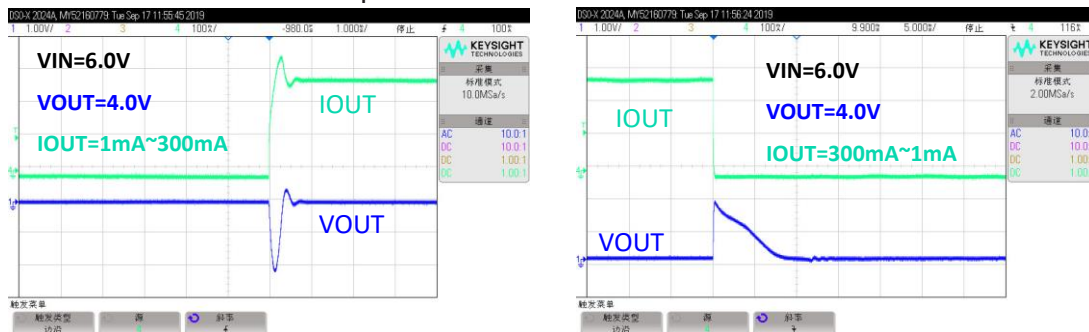
(2) Output Voltage vs. Output Current



(3) Input Transient Response

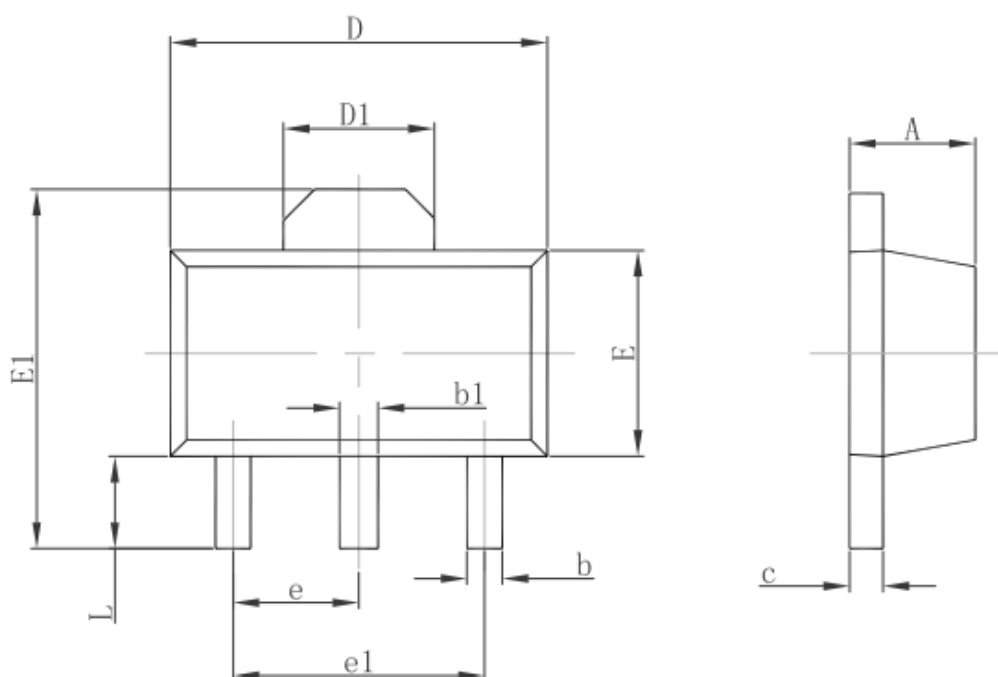


(4) Load Transient Response



Package Information

3-pin SOT89 Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047