

General Description

The PM100XX Series is a three-terminal positive voltage regulator made using a CMOS process. The output voltage is fixed internally. The PM100XX Series has higher accuracy of output voltage ($\pm 2.0\%$) and smaller input/output voltage difference ($V_{\text{dif}}=0.12\text{ V}$ when I_{out} is 10 mA for PM10050) than the PM100XX Series, so battery-powered portable equipment can have a higher capacity and a longer service life.

Features

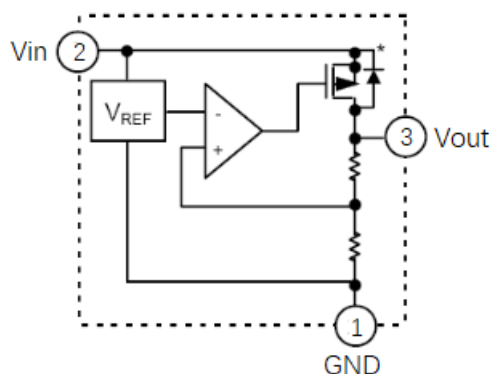
- Low current consumption: 2.5 μA typ.
- Small input/output voltage difference
(Ex: PM10050: 0.12 V typ. $I_{\text{out}}=10\text{ mA}$)
- High accuracy of output voltage:
 $\pm 2.0\%$
- Wide operating voltage range: 24 V max.
- TO-92 or SOT-89-3 or SOT23-3 plastic package

Selection Table

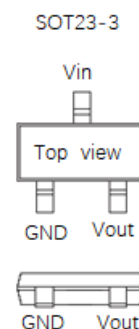
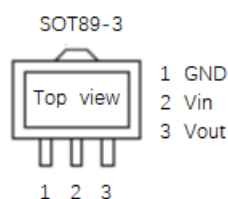
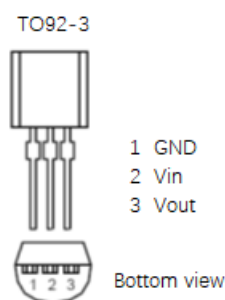
Model No	Package	Output Voltage	Marking
PM10030T	TO-92	3.0V	PM10030T
PM10030Q	SOT-89-3		H30XXX
PM10030S	SOT-23-3		H30XXX
PM10033T	TO-92	3.3V	PM10033T
PM10033Q	SOT-89-3		H33XXX
PM10033S	SOT-23-3		H33XXX
PM10036T	TO-92	3.6V	PM10036T
PM10036Q	SOT-89-3		H36XXX
PM10036S	SOT-23-3		H36XXX
PM10040T	TO-92	4.0V	PM10040T
PM10040Q	SOT-89-3		H40XXX
PM10040S	SOT-23-3		H40XXX
PM10044T	TO-92	4.4V	PM10044T
PM10044Q	SOT-89-3		H44XXX
PM10044S	SOT-23-3		H44XXX
PM10050T	TO-92	5.0V	PM10050T
PM10050Q	SOT-89-3		H50XXX
PM10050S	SOT-23-3		H50XXX
PM10060T	TO-92	6.0V	PM10060T
PM10060Q	SOT-89-3		H60XXX
PM10060S	SOT-23-3		H60XXX
PM10090T	TO-92	9.0V	PM10090T
PM10090Q	SOT-89-3		H90XXX
PM10090S	SOT-23-3		H90XXX

*The Output voltage and marking can be customized

Block Diagram



Pin Assignment



Absolute Maximum Ratings

Supply Voltage	-0.3V to 24V	Storage Temperature	-50°C to 125°C
Power Consumption (SOT89)	500mW	Operating Temperature	-40°C to 85°C
Power Consumption (TO-92)	500mW	Output Current	150mA
Power Consumption (SOT23)	200mW		

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

PM10033, +3.3V Output Type

Ta=25°C

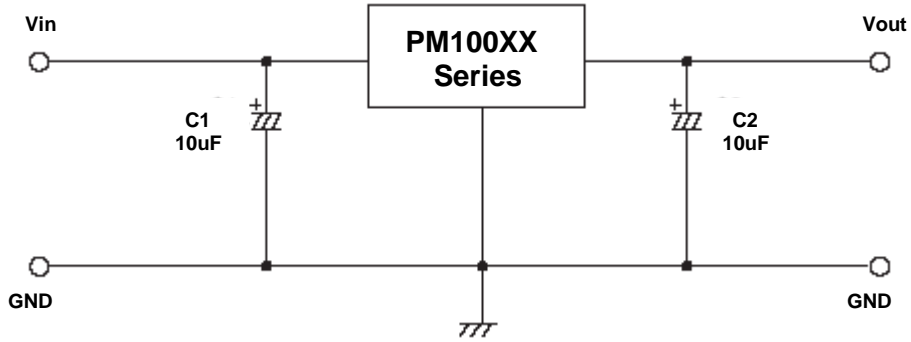
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V _{IN}	Conditions				
V _{OUT}	Output Voltage Tolerance	5.3V	I _{OUT} =10mA	3.234	3.300	3.366	V
I _{OUT}	Output Current	5.3V	—	—	100	—	mA
ΔV _{OUT}	Load Regulation	5.3V	1mA ≤ I _{OUT} ≤ 50mA	—	60	150	mV
V _{DIF}	Voltage Drop	—	I _{OUT} = 10mA	—	120	—	mV
I _{SS}	Current Consumption	5.3V	No load	—	2.0	7	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	4.3V ≤ V _{IN} ≤ 9V I _{OUT} = 1mA	—	0.2	—	%/V
V _{IN}	Input Voltage	—	I _{OUT} = 1mA	—	—	24	V
$\frac{\Delta V_{OUT}}{\Delta T_a}$	Temperature Coefficient	5.3V	I _{OUT} = 10mA -40°C < T _a < +85°C	—	±0.5	—	mV/°C

PM10050, +5.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V _{IN}	Conditions				
V _{OUT}	Output Voltage Tolerance	7V	I _{OUT} =10mA	4.900	5.000	5.100	V
I _{OUT}	Output Current	7V	—	—	100	—	mA
ΔV _{OUT}	Load Regulation	7V	1mA ≤ I _{OUT} ≤ 50mA	—	60	150	mV
V _{DIF}	Voltage Drop	—	I _{OUT} = 10mA	—	120	—	mV
I _{SS}	Current Consumption	7V	No load	—	2.5	7	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	6V ≤ V _{IN} ≤ 9V I _{OUT} = 1mA	—	0.2	—	%/V
V _{IN}	Input Voltage	—	I _{OUT} = 1mA	—	—	24	V
$\frac{\Delta V_{OUT}}{\Delta T_a}$	Temperature Coefficient	7V	I _{OUT} = 10mA -40°C < T _a < +85°C	—	±0.75	—	mV/°C

Application Circuits

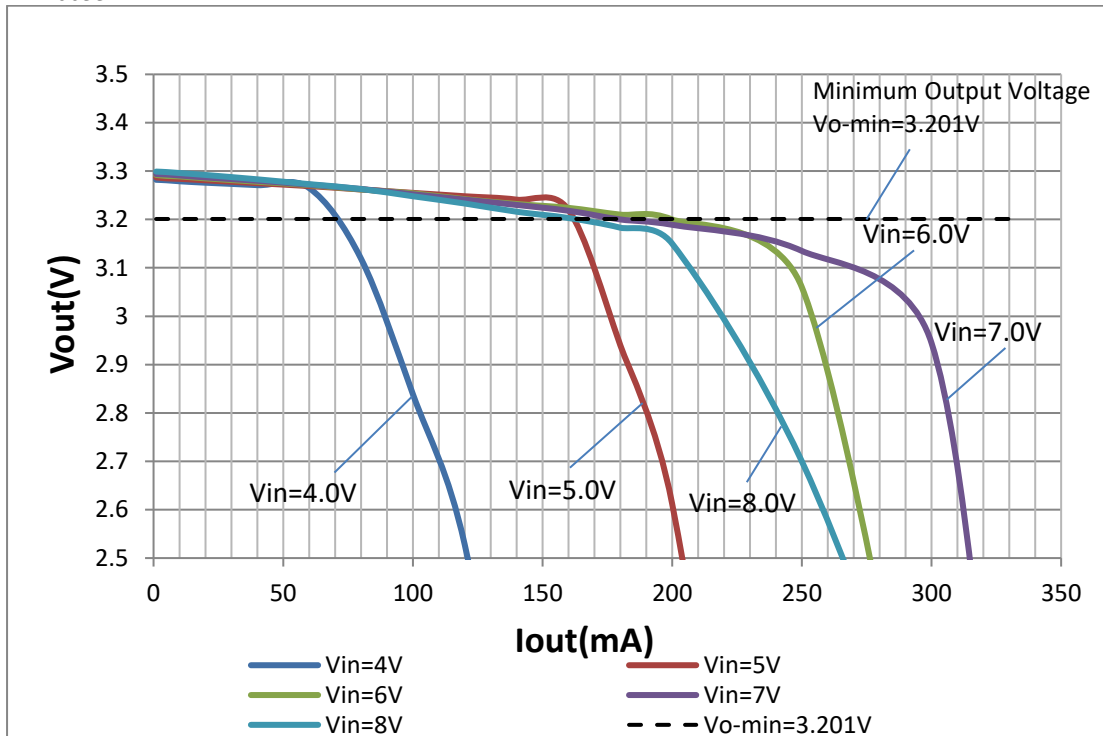


Note:

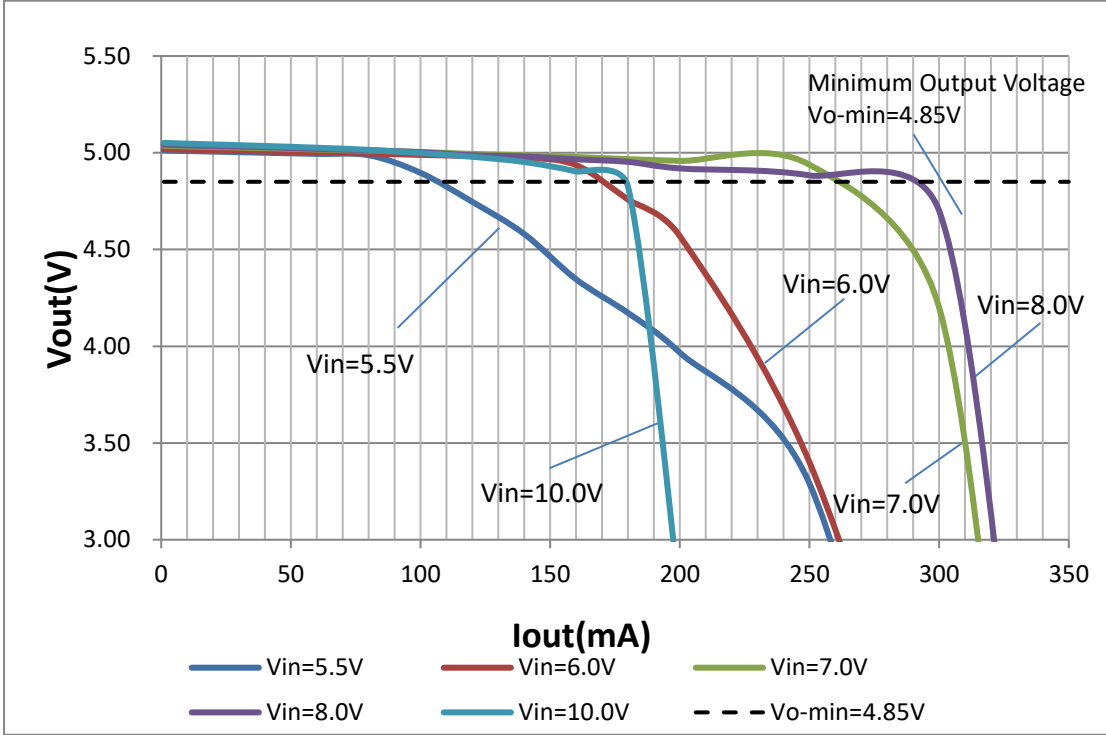
- 1, Capacitance should be located as close as possible to the Vin and Vout pins
- 2, Pay attention to the input / output voltage and load current conditions to avoid the power consumption inside the IC exceeding the maximum power dissipation allowed by the package.

Reference Data

Output Voltage VS Output Current
PM10033

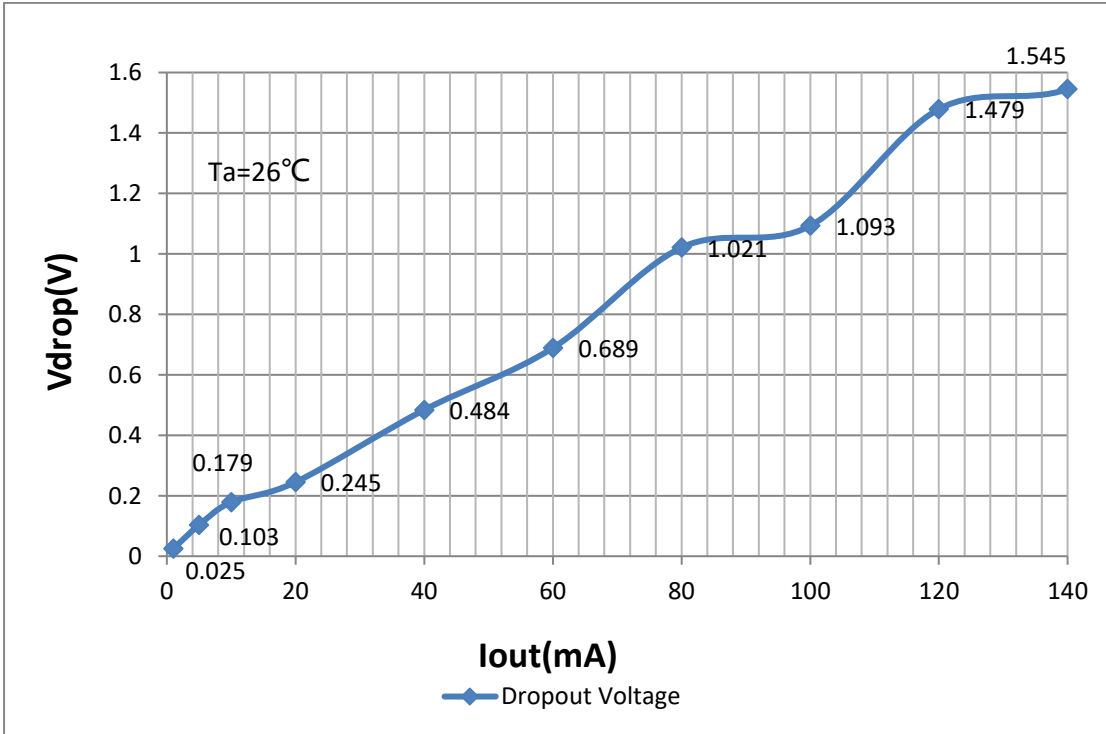


PM10050

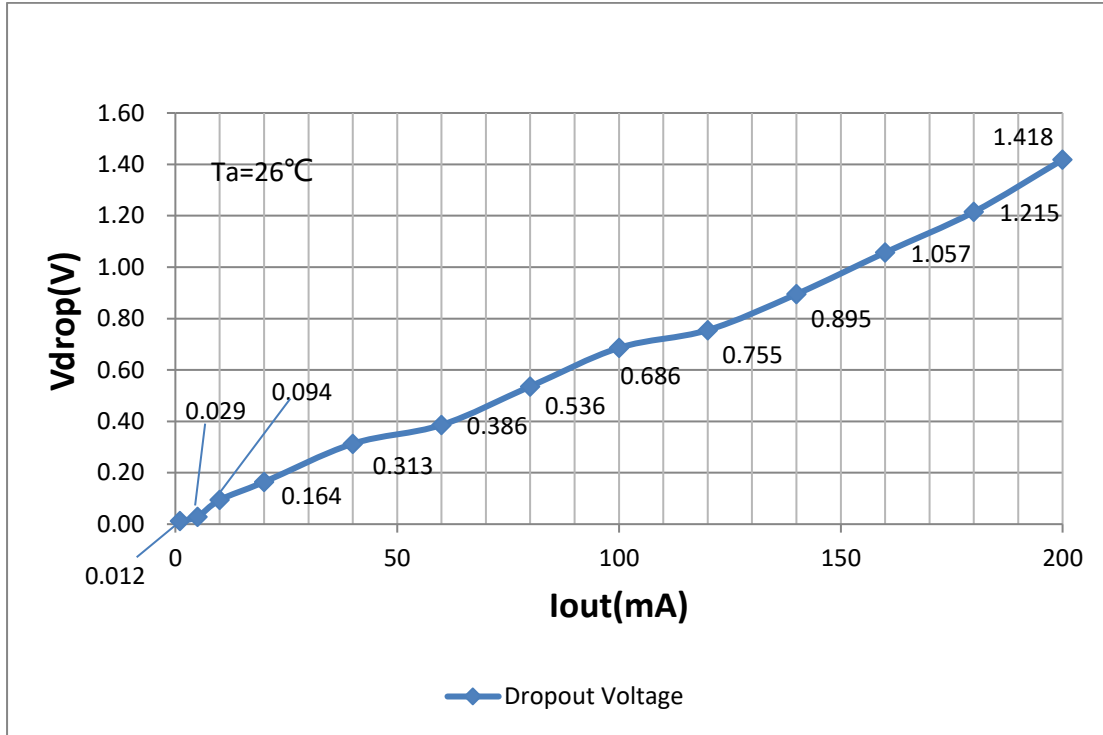


Dropout Voltage VS Output Current

PM10033

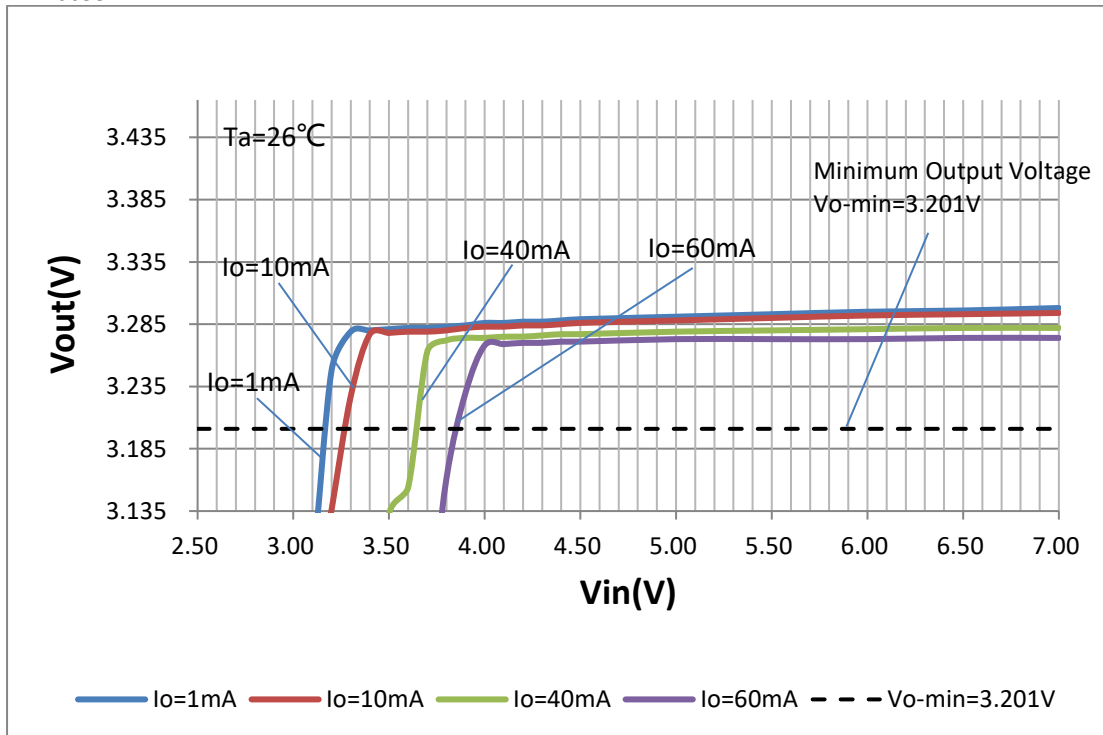


PM10050



Output Voltage VS Input Voltage

PM10033



PM10050

