

G62FP

CMOS Positive Voltage Regulator

Description

The G62FP series is a group of positive voltage output, three-pin regulators, that provide 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 G62FP consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Transient response to load variations have improved in comparison to the existing series.

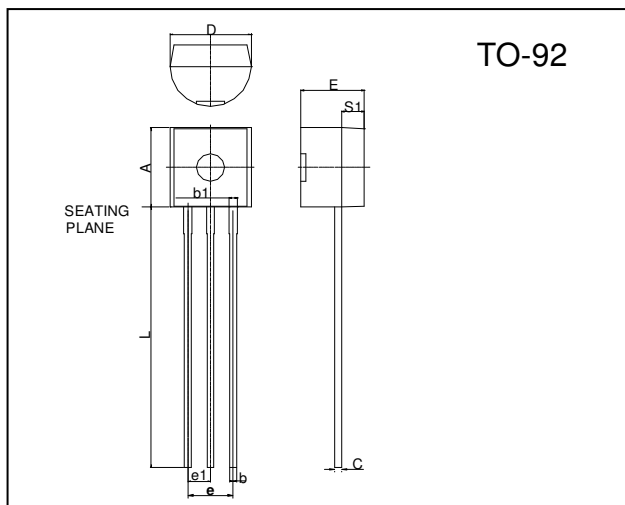
Features

- Maximum Output Current: 250mA (within max. power dissipation, $V_{out}=5.0V$)
- Output Voltage Range: 1.5V ~ 6V in 0.1V increments
- Low Power Consumption: Typ. 2.0uA @ $V_{OUT}=5.0V$
- Output Voltage Temperature Characteristics: Typ. $\pm 100\text{ppm}/^\circ\text{C}$
- Input Stability: Typ. 0.2%/V
- Small Input-Output Differential: $I_{OUT}=100\text{mA}$ @ $V_{OUT}=5.0V$ with a 0.12V differential
- Highly Accurate: Output voltage $\pm 2\%$

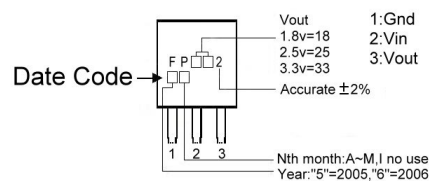
Applications

- Battery Powered Equipment
- Palmtops
- Portable Cameras and Video Recorders
- Reference Voltage Source

Package Dimensions

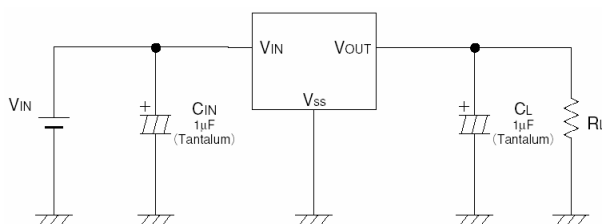


Marking :

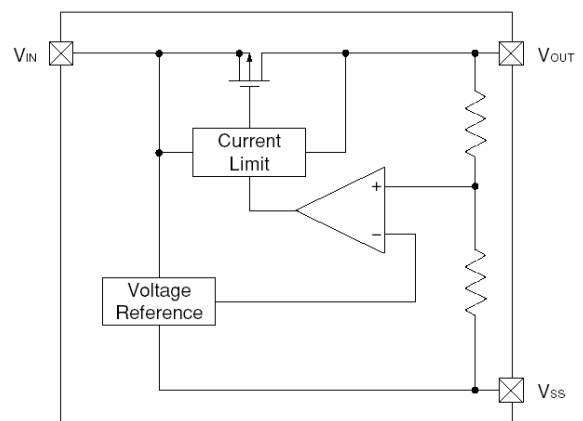


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.45	4.7	D	4.44	4.7
S1	1.02	-	E	3.30	3.81
b	0.36	0.51	L	12.70	-
b1	0.36	0.76	e1	1.150	1.390
C	0.36	0.51	e	2.42	2.66

Typical Application Circuit



Block Diagram



Absolute Maximum Ratings Ta=25°C

Parameter	Symbol	Ratings	Unit
Input Voltage	V _{IN}	12	V
Output Current	I _{OUT}	500	mA
Output Voltage	V _{OUT}	V _{SS} -0.3 ~ V _{IN} +0.3	V
Operating Ambient Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +125	°C
Continuous Total Power Dissipation	PD	300	mW

Electrical Characteristics Ta=25°C**G62FP-50 V_{OUT} (T) =5.0V (Note1)**

Parameter	Symbol	Condition	Min	TYP	Max	Unit
Output Voltage	V _{OUT} (E) (Note2)	V _{IN} =6.0V, I _{OUT} =40mA	4.900	5.000	5.100	V
Max. Output Current	I _{OUT max}	V _{IN} =6V, V _{OUT} (E)≥4.5V	250	-	-	mA
Load Stability	ΔV _{OUT}	V _{IN} =6V, I _{OUT} =1mA to 100mA	-	40	80	mV
Input-Output Voltage Differential (Note3)	V _{dif1}	I _{OUT} =100mA	-	120	300	mV
	V _{dif2}	I _{OUT} =200mA	-	380	600	
Supply Current	I _{SS}	V _{IN} =6V	-	2.0	5.0	μA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I _{OUT} =40mA V _{IN} =6V to 10V	-	0.2	0.3	%/V
Input Voltage	V _{IN}		-	-	10	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_{opr} \cdot V_{OUT}}$	I _{OUT} =40mA -40°C ≤ T _{opr} ≤ 85°C	-	±100	-	ppm/°C

Note 1: V_{OUT} (T) =Specified Output Voltage.2: V_{OUT} (E) =Effective Output Voltage (i.e. the output voltage when "V_{OUT} (T) +1.0V" is provided at the V_{IN} pin while maintaining a certain I_{OUT} value).3: V_{dif}=V_{IN} (Note4) -V_{OUT} (E)4: V_{IN1}=The input voltage at the time 98% of V_{OUT} (E) is output (input voltage has been gradually reduced).**G62FP-40 V_{OUT} (T) =4.0V (Note1)**

Parameter	Symbol	Condition	Min	TYP	Max	Unit
Output Voltage	V _{OUT} (E) (Note2)	V _{IN} =5.0V, I _{OUT} =40mA	3.920	4.000	4.080	V
Max. Output Current	I _{OUT max}	V _{IN} =5V, V _{OUT} (E)≥3.6V	200	-	-	mA
Load Stability	ΔV _{OUT}	V _{IN} =5V, I _{OUT} =1mA to 100mA	-	45	90	mV
Input-Output Voltage Differential (Note3)	V _{dif1}	I _{OUT} =100mA	-	170	330	mV
	V _{dif2}	I _{OUT} =200mA	-	400	630	
Supply Current	I _{SS}	V _{IN} =5V	-	2.0	4.5	μA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I _{OUT} =40mA V _{IN} =5V to 10V	-	0.2	0.3	%/V
Input Voltage	V _{IN}		-	-	10	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_{opr} \cdot V_{OUT}}$	I _{OUT} =40mA -40°C ≤ T _{opr} ≤ 85°C	-	±100	-	ppm/°C

G62FP-30 $V_{OUT}(T) = 3.0V$ (Note1)

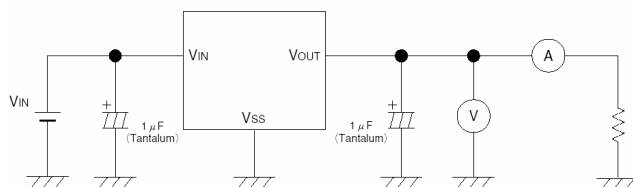
Parameter	Symbol	Condition	Min	TYP	Max	Unit
Output Voltage	$V_{OUT}(E)$ (Note2)	$V_{IN}=4.0V, I_{OUT}=40mA$	2.940	3.000	3.060	V
Max. Output Current	$I_{OUT\ max}$	$V_{IN}=4V, V_{OUT}(E) \geq 2.7V$	150	-	-	mA
Load Stability	ΔV_{OUT}	$V_{IN}=4V, I_{OUT}=1mA\ to\ 80mA$	-	45	90	mV
Input-Output Voltage Differential (Note3)	V_{dif1}	$I_{OUT}=80mA$	-	180	360	mV
	V_{dif2}	$I_{OUT}=160mA$	-	400	700	
Supply Current	I_{SS}	$V_{IN}=4V$	-	2.0	4.5	μA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=40mA$ $V_{IN}=4V\ to\ 10V$	-	0.2	0.3	%/V
Input Voltage	V_{IN}		-	-	10	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_{opr} \cdot V_{OUT}}$	$I_{OUT}=40mA$ $-40^{\circ}C \leq T_{opr} \leq 85^{\circ}C$	-	± 100	-	ppm/ $^{\circ}C$

G62FP-20 $V_{OUT}(T) = 2.0V$ (Note1)

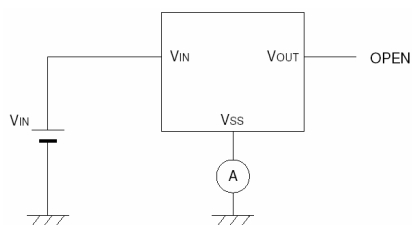
Parameter	Symbol	Condition	Min	TYP	Max	Unit
Output Voltage	$V_{OUT}(E)$ (Note2)	$V_{IN}=3.0V, I_{OUT}=40mA$	1.960	2.000	2.040	V
Max. Output Current	$I_{OUT\ max}$	$V_{IN}=3V, V_{OUT}(E) \geq 1.8V$	100	-	-	mA
Load Stability	ΔV_{OUT}	$V_{IN}=3V, I_{OUT}=1mA\ to\ 60mA$	-	45	90	mV
Input-Output Voltage Differential (Note3)	V_{dif1}	$I_{OUT}=60mA$	-	180	360	mV
	V_{dif2}	$I_{OUT}=120mA$	-	400	700	
Supply Current	I_{SS}	$V_{IN}=3V$	-	2.0	4.5	μA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=40mA$ $V_{IN}=3V\ to\ 10V$	-	0.2	0.3	%/V
Input Voltage	V_{IN}		-	-	10	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_{opr} \cdot V_{OUT}}$	$I_{OUT}=40mA$ $-40^{\circ}C \leq T_{opr} \leq 85^{\circ}C$	-	± 100	-	ppm/ $^{\circ}C$

Test Circuit

Circuit1

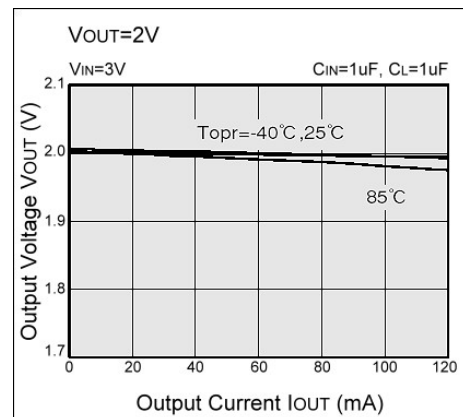
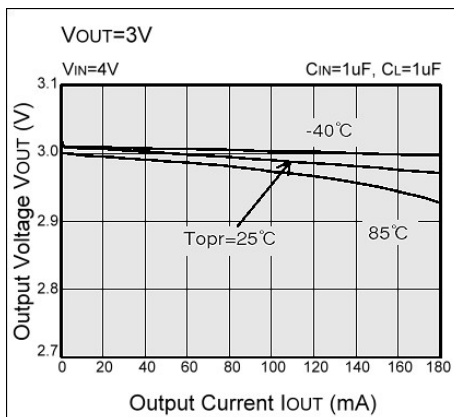
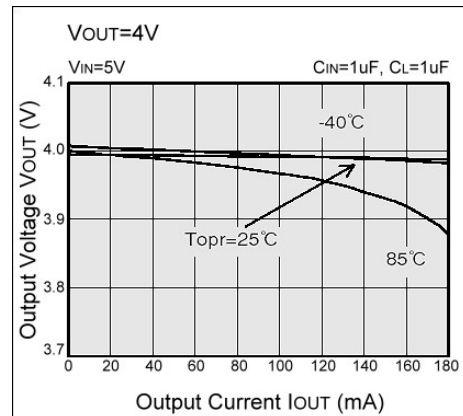
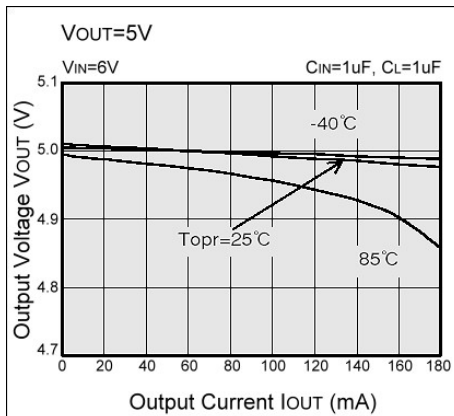


Circuit2

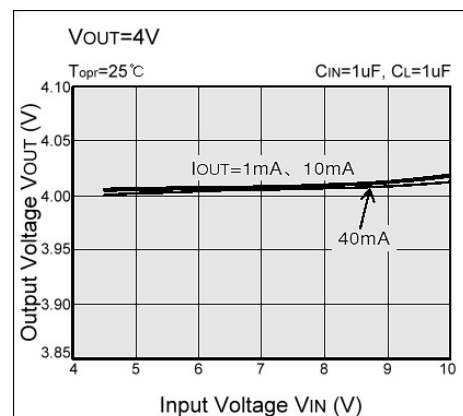
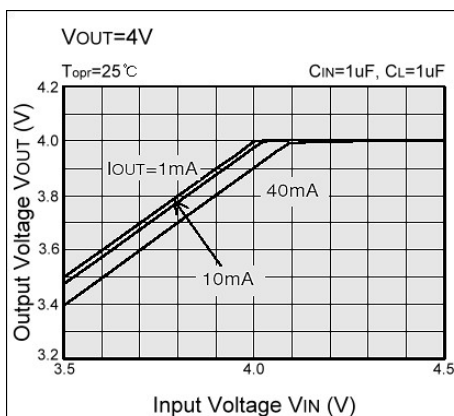
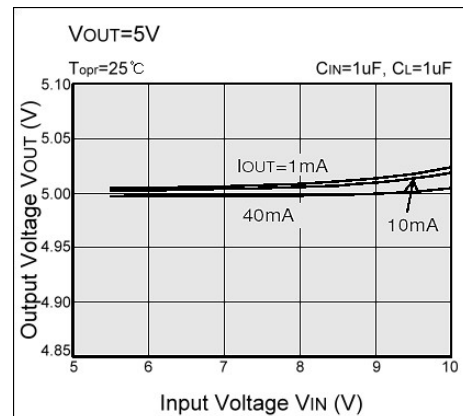
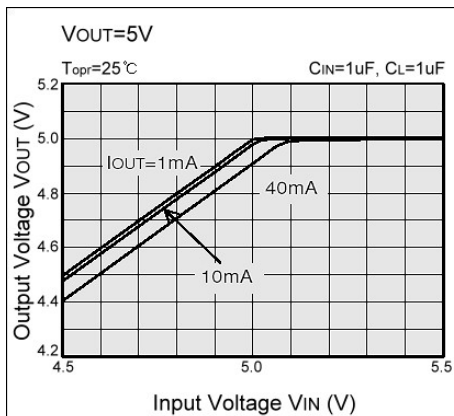


Characteristics Curve

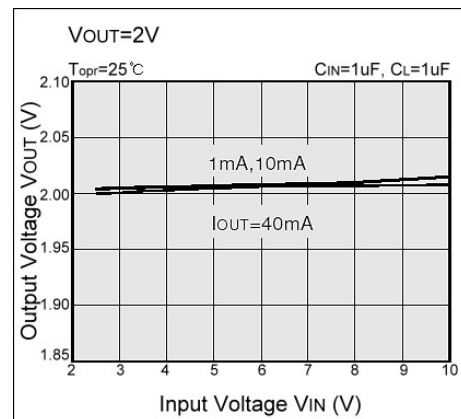
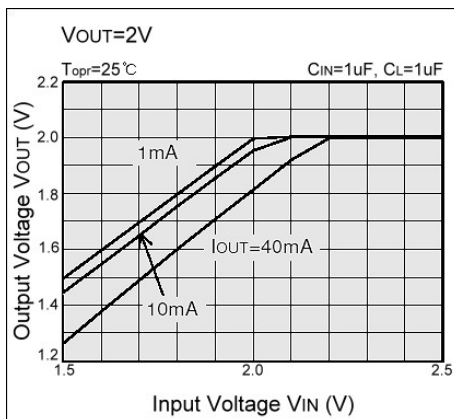
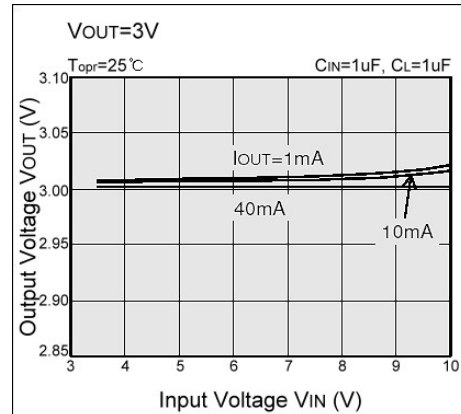
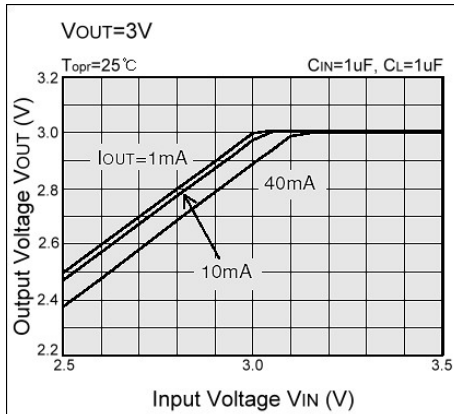
(1) Output Voltage vs. Output Current



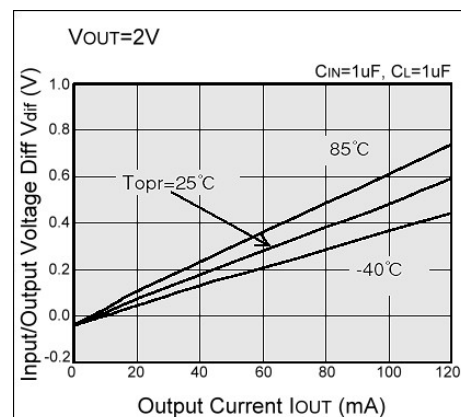
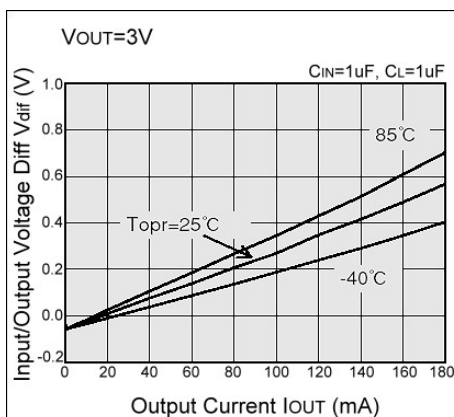
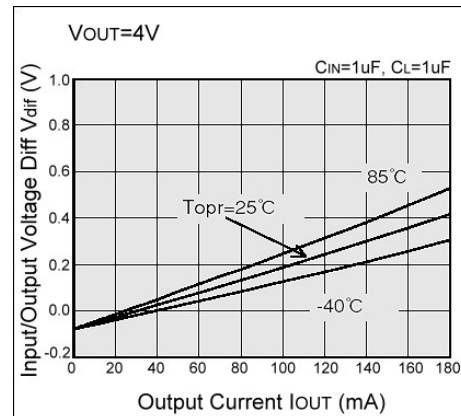
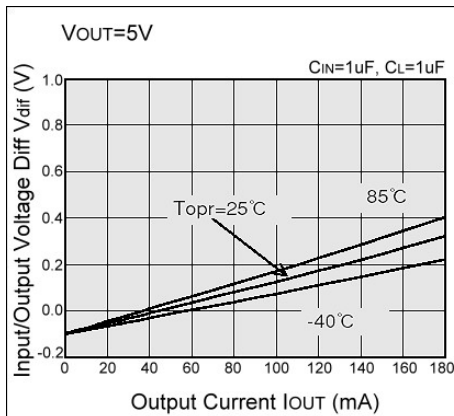
(2) Output Voltage vs. Input Voltage



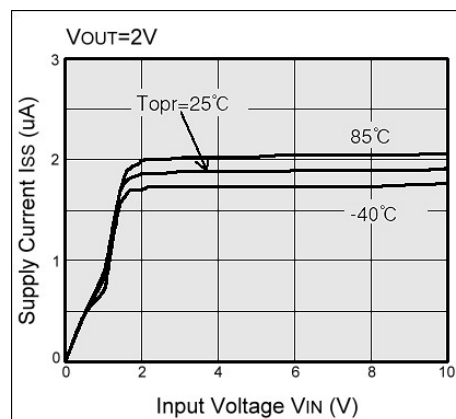
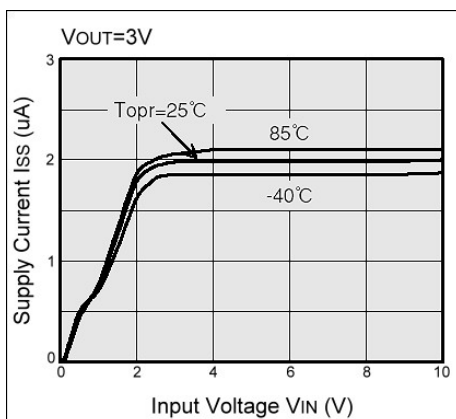
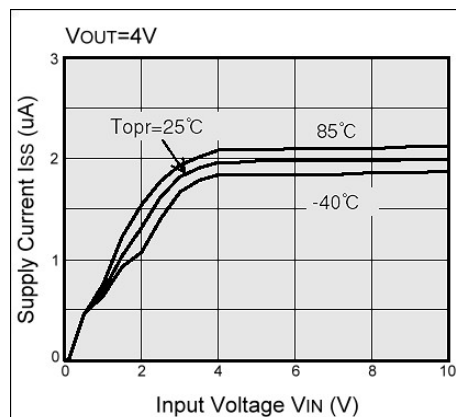
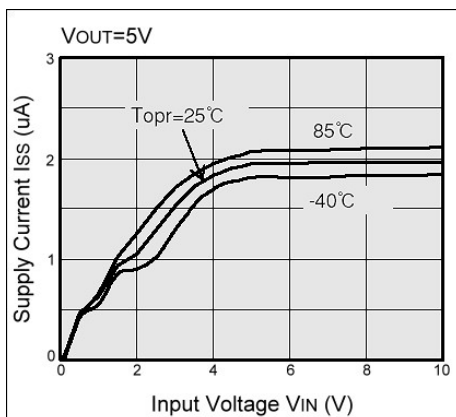
(2) Output Voltage vs. Input Voltage



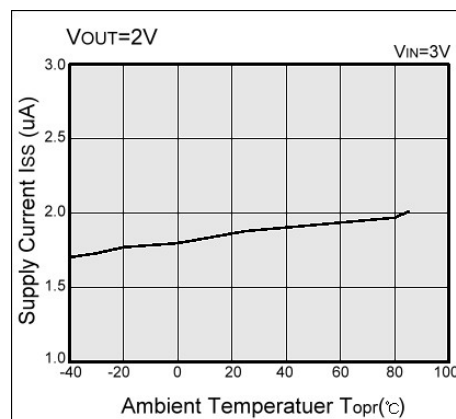
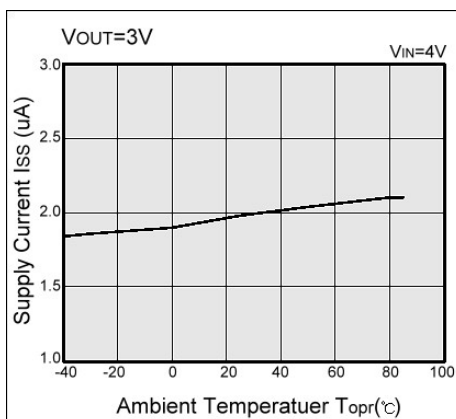
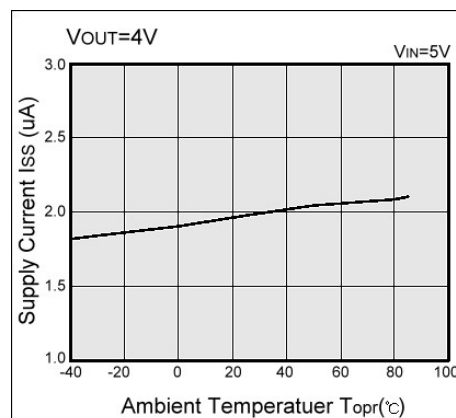
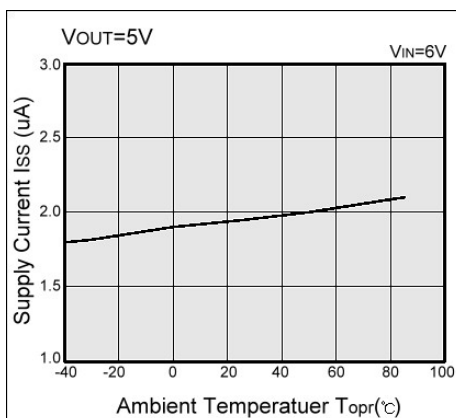
(3) Input/Output Voltage Differential vs. Output Current



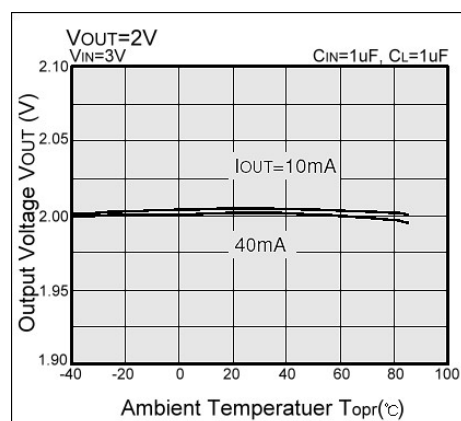
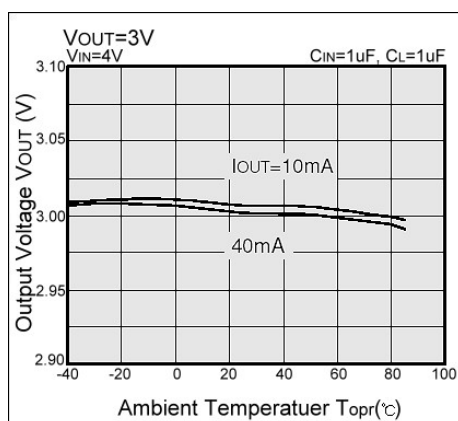
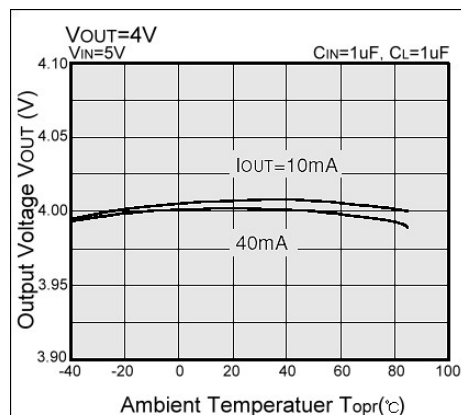
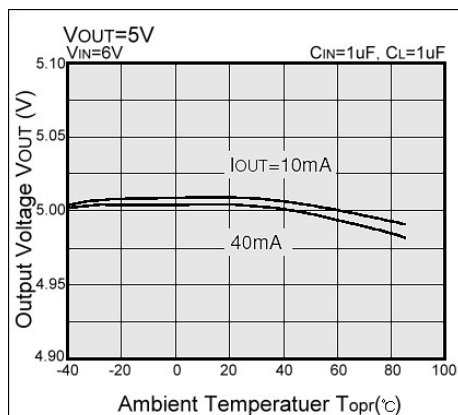
(4) Supply Current vs. Input Voltage



(5) Supply Current vs. Ambient Temperature



(6) Output Voltage vs. Ambient Temperature

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