
Low voltage 3-Mode Dual LDO

NO.EA-006-0825

OUTLINE

The R5328K Series are dual 150mA voltage regulator ICs with 3-mode. The 3-mode describes that they are the inactive standby, the active fast mode, and the active low power mode. The two active modes can be switched over with ECO pin. With this function, the output voltage maintains the level, and the mode can be switched over.

The minimum operating voltage is 1.4V, and the output voltage range is from 0.8V to 4.0V.

Since the package for these ICs is PLP2020-8, high density mounting of the ICs on boards is possible.

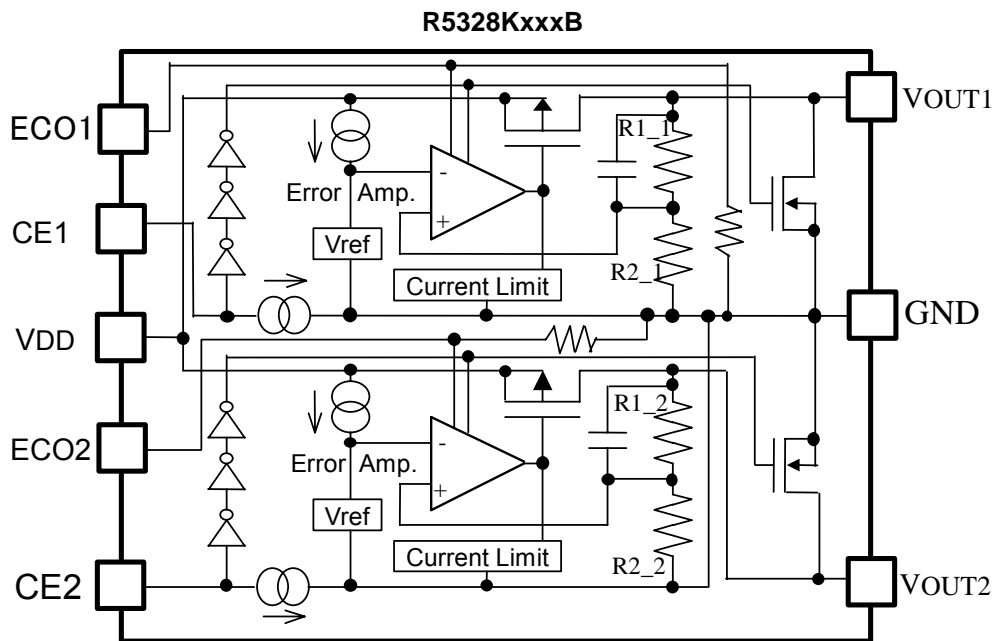
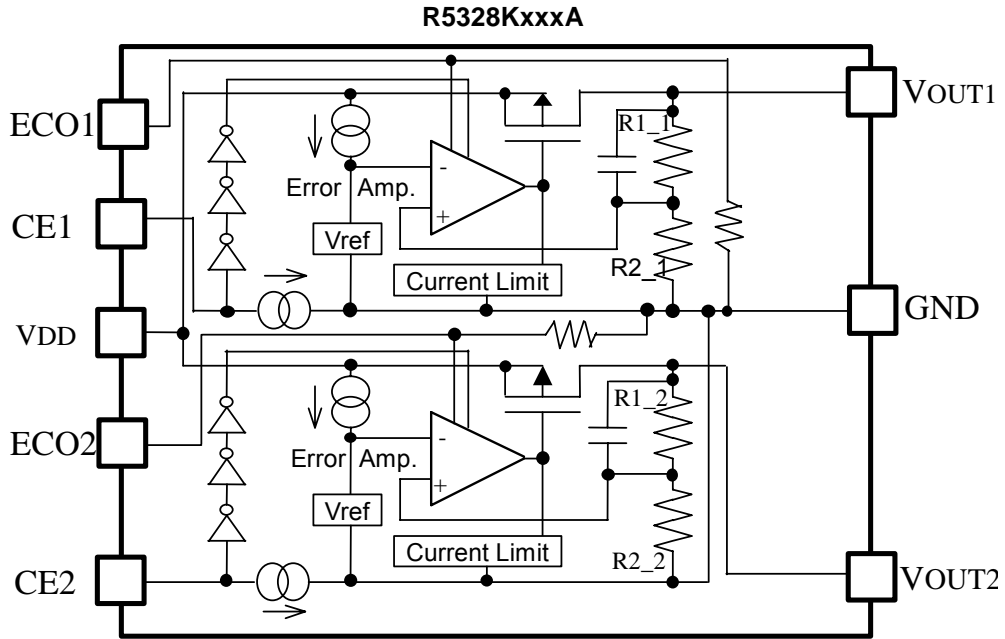
FEATURES

- Low Supply Current.....Typ. 2.0 μ A (VR1, VR2) Low Power Mode, Vout \leq 2.0V
.....Typ. 2.5 μ A (VR1, VR2) Low Power Mode, Vout>2.0V
.....Typ. 75 μ A (VR1, VR2) Fast Mode, Vout<2.0V
.....Typ. 65 μ A (VR1, VR2) Fast Mode, Vout \geq 2.0V
- Standby Mode.....Typ. 0.1 μ A (VR1, VR2)
- Low Dropout Voltage.....Typ. 0.25V (I_{OUT}=150mA Output Voltage=2.8V Type)
- High Ripple Rejection.....Typ. 70dB (f=1kHz, Fast Mode)
.....Typ. 55dB (f=10kHz, Fast Mode)
- Excellent Line Regulation.....Typ. 0.02%/V
- Small PackagesPLP2020-8
- Output VoltageStepwise setting with a step of 0.1V in the range of 0.8V to 4.0V is possible
- Input Voltage1.4V to 6.0V
- Built-in chip enable circuit (A/B: active high)
- Built-in fold-back protection circuit.....Typ. 50mA (Current at short mode)
- Ceramic Capacitor is recommended.C_{IN}=C_{OUT}=Ceramic 1.0 μ F

APPLICATIONS

- Power source for handheld communication equipment.
- Power source for electrical appliances such as cameras, VCRs and camcorders.
- Power source for battery-powered equipment.

BLOCK DIAGRAMS



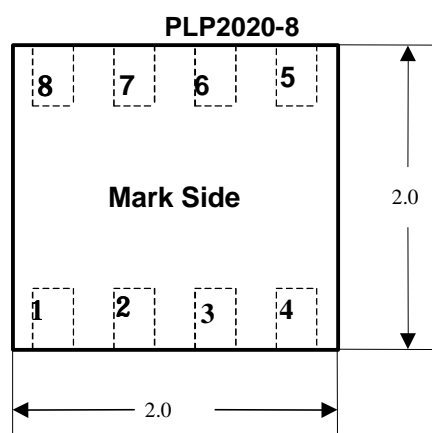
SELECTION GUIDE

The output voltage, mask option, and the taping type for the ICs can be selected at the user's request. The selection can be made with designating the part number as shown below;

R5328K $\overbrace{\text{xxx-xx}}$ ←Part Number
 ↑ ↑ ↑
 a b c

Code	Contents
a	Setting combination of 2ch Output Voltage (V_{OUT}): Serial Number for Voltage Setting, Stepwise setting with a step of 0.1V in the range of 0.8V to 4.0V is possible for each channel.
c	Designation of Mask Option: A version: without auto discharge function at OFF state. B version: with auto discharge function at OFF state.
d	Designation of Taping Type: Ex. TR (refer to Taping Specifications; TR type is the standard direction.)

PIN CONFIGURATION



PIN DESCRIPTION

PLP2020-8

Pin No.	Symbol	Description
1	GND	Ground Pin
2	V _{OUT1}	Output Pin 1
3	V _{DD}	Input Pin
4	V _{OUT2}	Output Pin 2
5	CE2	Chip Enable Pin 2
6	ECO2	Low Power/ Fast Mode Changer Pin2
7	ECO1	Low Power/ Fast Mode Changer Pin1
8	CE1	Chip Enable Pin 1

ABSOLUTE MAXIMUM RATINGS

Symbol	Item	Rating	Unit
V _{IN}	Input Voltage	6.5	V
V _{CE1,2,ECO1,2}	Input Voltage (CE/ECO Pin)	-0.3~6.5	V
V _{OUT1,2}	Output Voltage	-0.3~V _{IN} +0.3	V
I _{OUT1,2}	Output Current 1,2	160	mA
P _D	Power Dissipation (Mounted on board)*1	880	mW
T _{opt}	Operating Temperature Range	-40~85	°C
T _{stg}	Storage Temperature Range	-55~125	°C

*1 Test Condition: Mounted on board (wind velocity=0m/s)
 Board Material: FR4 (Double-layer)
 Board Dimensions: 40*40*1.6(mm)
 Wiring Ratio: 50% (Both sides)
 Thermal via holes: 0.5mmφ*40

ELECTRICAL CHARACTERISTICS

R5328KxxxA/B

Topt=25°C

Symbol	Item	Conditions	Min.	Typ.	Max.	Unit
V _{OUT}	Output Voltage (Fast Mode)	V _{IN} =Set V _{OUT} +1V=V _{ECO} 1mA=I _{OUT} (*1)	V _{OUT} ×0.99 (-15mV)		V _{OUT} ×1.01 (15mV)	V
V _{OUT}	Output Voltage (Low Power Mode)	V _{IN} =Set V _{OUT} +1V (*2) V _{ECO} =GND, 1mA=I _{OUT}	V _{OUT} ×0.985 (-22.5mV)		V _{OUT} ×1.015 (22.5mV)	V
I _{OUT}	Output Current	V _{IN} -V _{OUT} =1.0V	150			mA
ΔV _{OUT} /ΔI _{OUT}	Load Regulation (Fast Mode)	V _{IN} =Set V _{OUT} +1V =V _{ECO} 1mA≤I _{OUT} ≤150mA		20	40	mV
ΔV _{OUT} /ΔI _{OUT}	Load Regulation (Low Power Mode)	V _{IN} =Set V _{OUT} +1V V _{ECO} =GND 1mA≤I _{OUT} ≤150mA		25	45	mV
V _{DF}	Dropout Voltage	Refer to the Electrical Characteristics by OUTPUT VOLTAGE				
I _{SS1}	Supply Current (Fast Mode)	V _{IN} =Set V _{OUT} +1V, I _{OUT} =0mA V _{OUT} <1.8V, V _{ECO} =V _{IN}		75	95	μA
		V _{IN} =Set V _{OUT} +1V, I _{OUT} =0mA V _{OUT} ≥ 1.8V, V _{ECO} =V _{IN}		65	95	μA
I _{SS2}	Supply Current (Low Power Mode)	V _{IN} =Set V _{OUT} +1V, V _{ECO} =GND V _{OUT} <1.8V, Except CE pull-down current		2.0	4.0	μA
		V _{IN} =Set V _{OUT} +1V, V _{ECO} =GND V _{OUT} ≥ 1.8V, Except CE pull-down current		2.5	4.0	μA
I _{standby}	Supply Current (Standby)	V _{IN} =Set V _{OUT} +1V, V _{CE} =GND		0.1	1.0	μA
ΔV _{OUT} /ΔV _{IN}	Line Regulation (Fast Mode)	Set V _{OUT} +0.5V≤V _{IN} ≤6V I _{OUT} =1mA, V _{ECO} =V _{IN} If V _{OUT} ≤ 0.9V, 1.5V≤V _{IN} ≤6V		0.02	0.10	%/V
ΔV _{OUT} /ΔV _{IN}	Line Regulation (Low Power Mode)	Set V _{OUT} +0.5V≤V _{IN} ≤6V I _{OUT} =1mA, V _{ECO} =V _{IN} If V _{OUT} ≤ 0.9V, 1.5V≤V _{IN} ≤6V		0.1	0.2	%/V
RR	Ripple Rejection	Ripple 0.2Vp-p, V _{IN} =Set V _{OUT} +1V, I _{OUT} =30mA, V _{ECO} =V _{IN}		70		dB
V _{IN}	Input Voltage		1.4		6.0	V
ΔV _{OUT} /ΔT	Output Voltage Temperature Coefficient	I _{OUT} =1mA -40°C≤Topt≤85°C		±100		ppm/°C
I _{lim}	Short Current Limit	V _{OUT} =0V		50		mA
I _{PDC}	CE Pull-down Constant Current			0.3	0.8	μA
R _{PDE}	ECO Pull-down Resistance		2.4	5.0	15.0	MΩ
V _{CEH,ECH}	CE, ECO Input Voltage "H"		1.0		6.0	V
V _{CEL,ECL}	CE, ECO Input Voltage "L"		0.0		0.4	V
en	Output Noise	BW=10Hz to 100kHz		30		μVrms
R _{LOW}	Low Output Nch Tr. ON Resistance (of B version)	V _{CE} =0V		50		Ω

(*1) In case of V_{OUT} ≤ 1.5V, the output tolerance is ±15mV.(*2) In case of V_{OUT} ≤ 1.5V, the output tolerance is ±22.5mV.

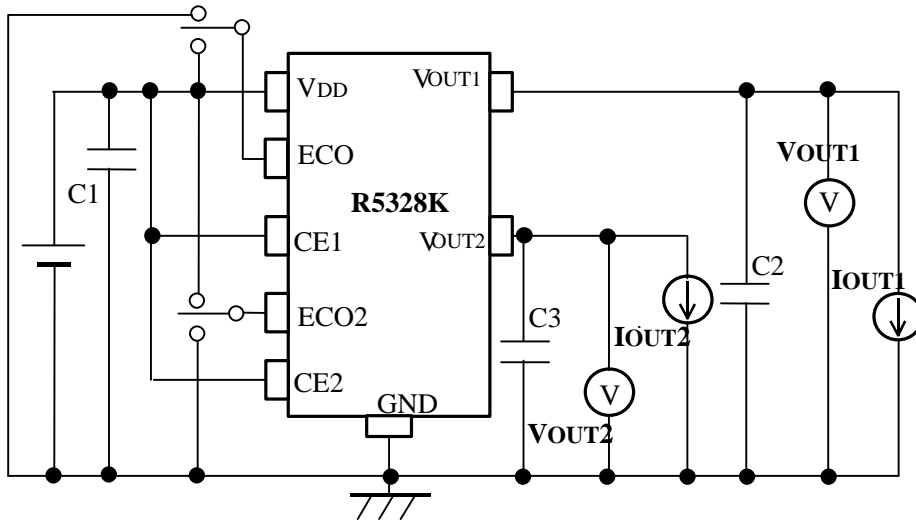
ELECTRICAL CHARACTERISTICS by OUTPUT VOLTAGE

T_{opt}=25°C

Output Voltage V _{OUT} (V)	Condition	Dropout Voltage (mV)			
		V _{DIF} (ECO=H)		V _{DIF} (ECO=L)	
		Typ.	Max.	Typ.	Max.
0.8≤V _{OUT} <0.9	I _{OUT} =150mA	755	1100	795	1100
0.9≤V _{OUT} <1.0		675	950	715	960
1.0≤V _{OUT} <1.2		600	890	645	930
1.2≤V _{OUT} <1.5		490	730	520	770
1.5≤V _{OUT} <2.0		395	610	415	640
2.0≤V _{OUT} <2.8		310	440	315	445
2.8≤V _{OUT} ≤4.0		250	350	255	350

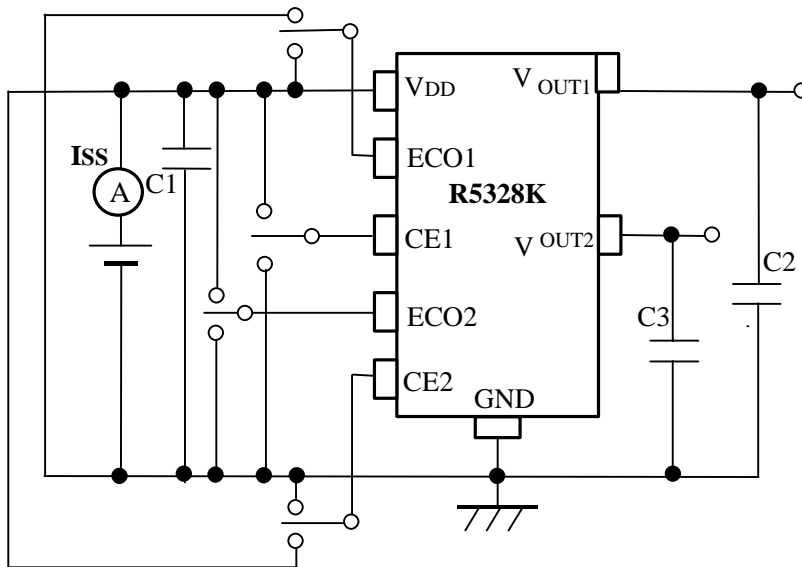
- * Recommended Ceramic capacitor for Output:
 General Example of External Components
 Ceramic Capacitors:

TEST CIRCUITS



*C1=C2=C3=Ceramic 1.0μF

Fig.1 Standard Test Circuit



*C1=C2=C3=Ceramic 1.0μF

Fig.2 Supply Current Test Circuit

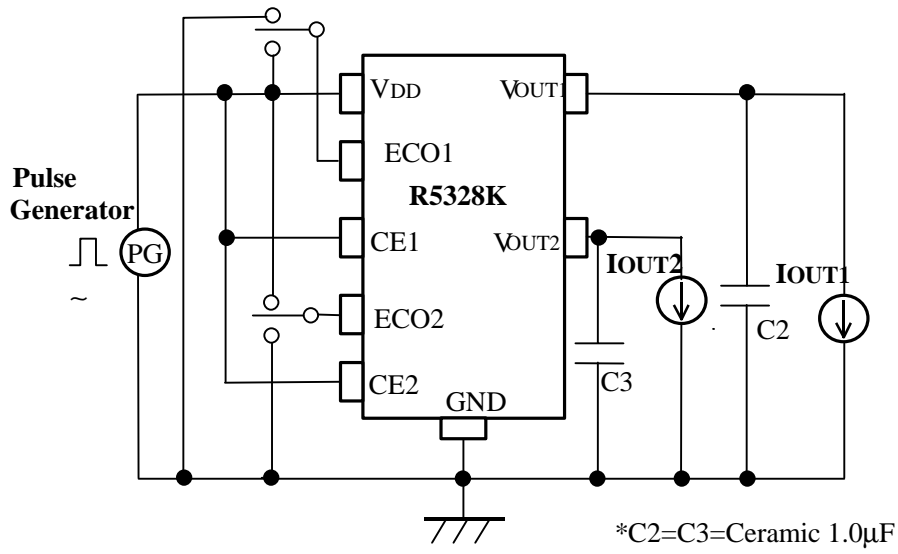


Fig.3 Ripple Rejection, Line Transient Response Test Circuit

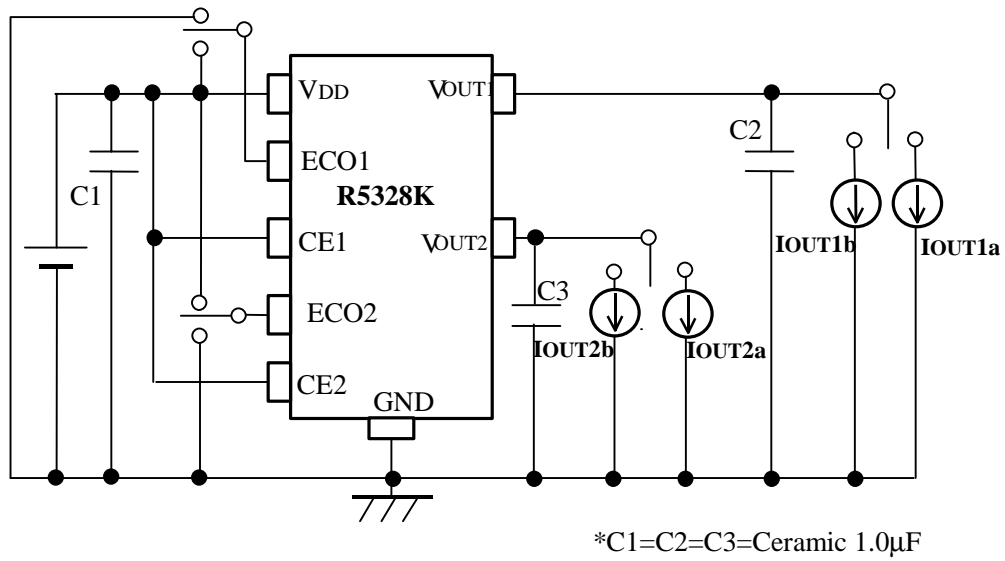
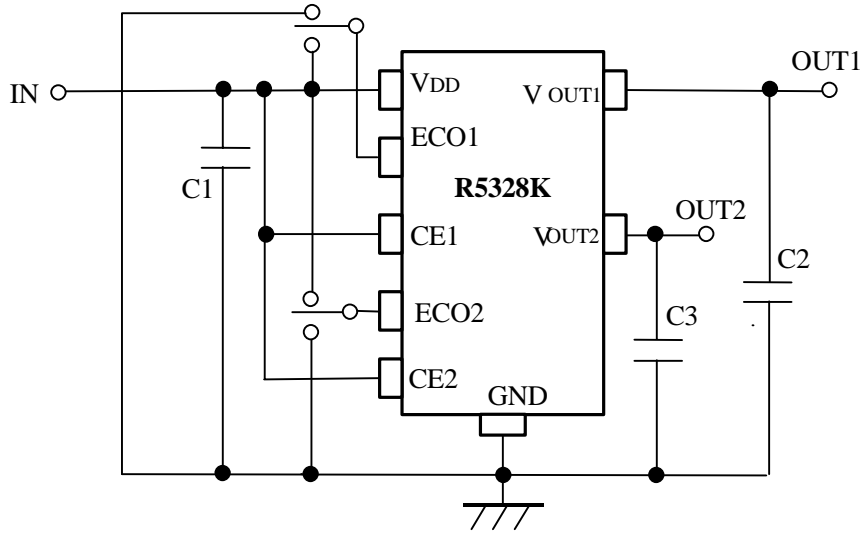


Fig.4 Load Transient Response Test Circuit

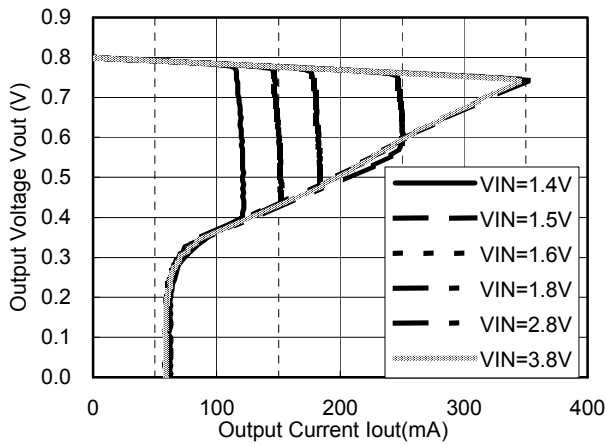
TYPICAL APPLICATION



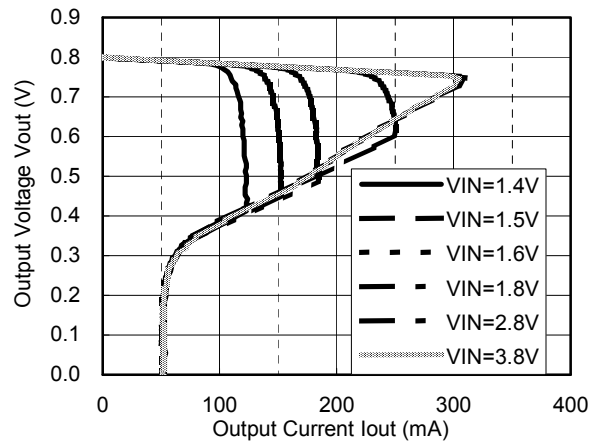
(External Components) Output Capacitor; Ceramic Type
 CM05X5R105K06AB (Kyocera)
 C1005JB0J105K (TDK)
 GRM155B30J105KE18B (Murata)

TYPICAL CHARACTERISTICS

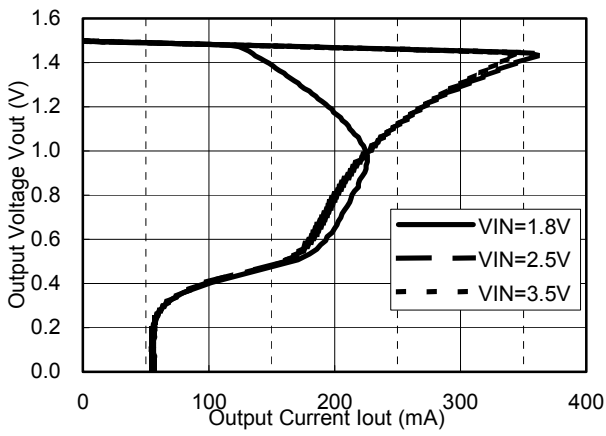
1) Output Voltage vs. Output Current (Topt=25°C)
 V_{OUT}=0.8V(ECO=H)



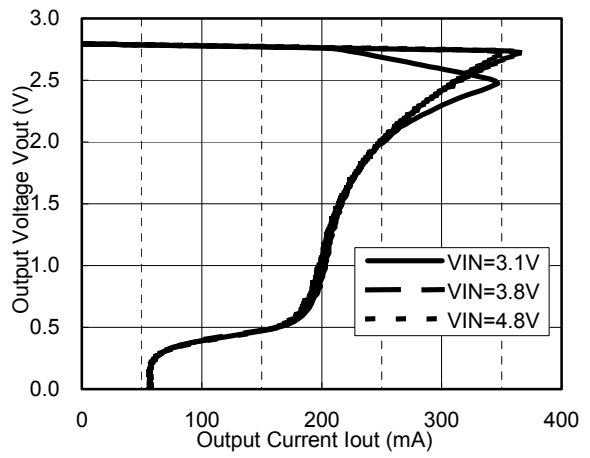
V_{OUT}=0.8V(ECO=L)



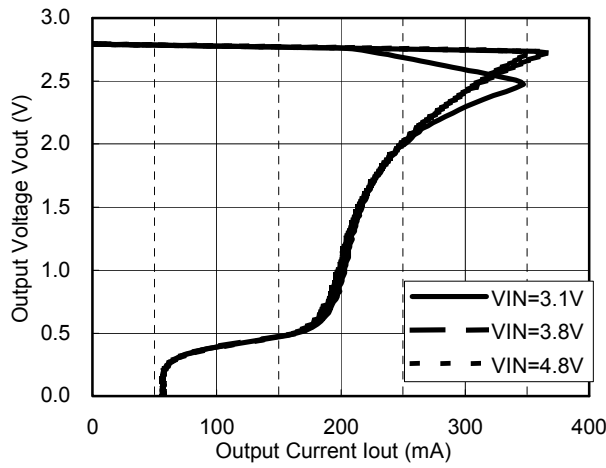
V_{OUT}=1.5V(ECO=H)



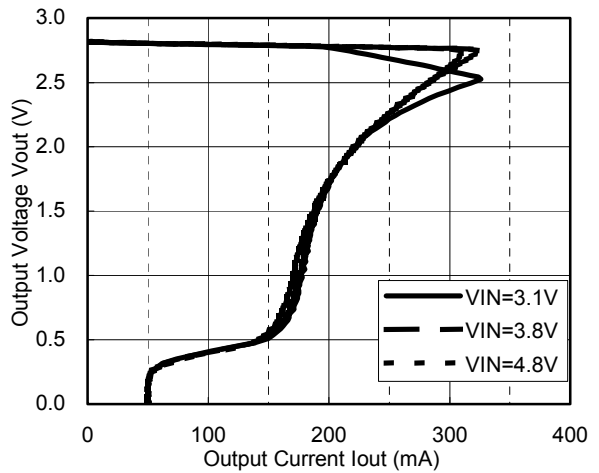
V_{OUT}=1.5V(ECO=L)



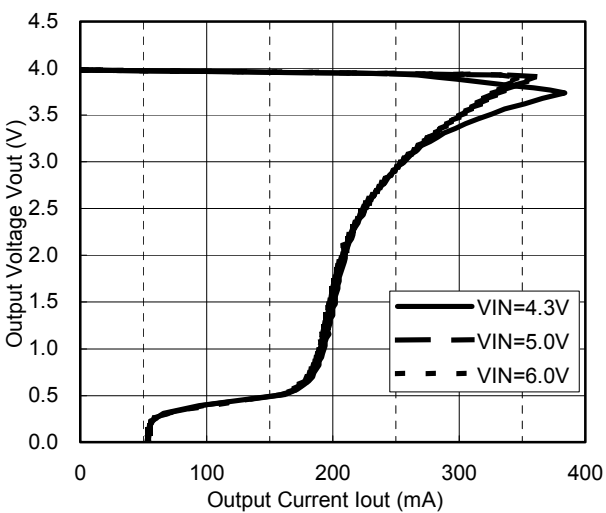
V_{OUT}=2.8V(ECO=H)



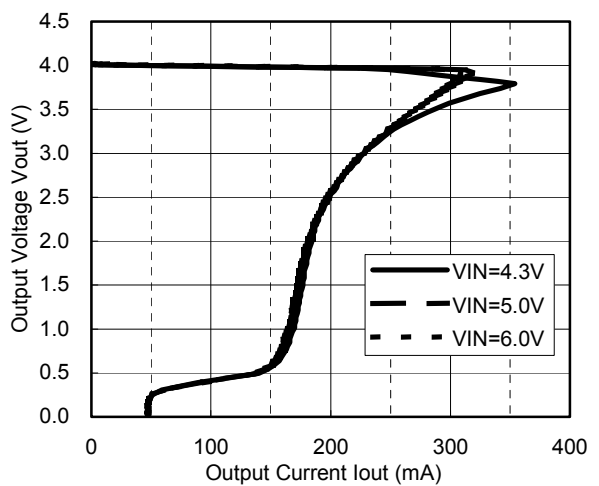
V_{OUT}=2.8V(ECO=L)



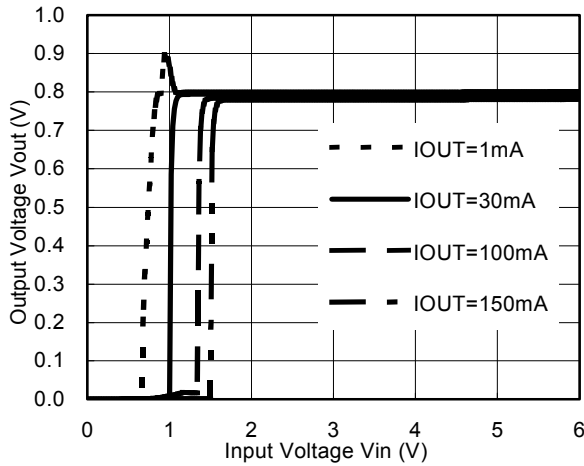
V_{OUT}=4.0V(ECO=H)



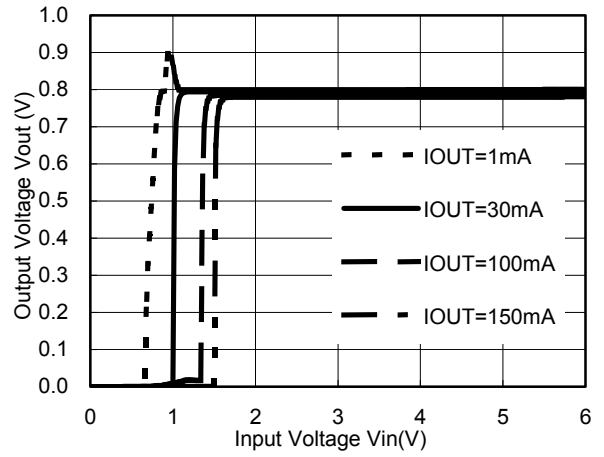
V_{OUT}=4.0V(ECO=L)



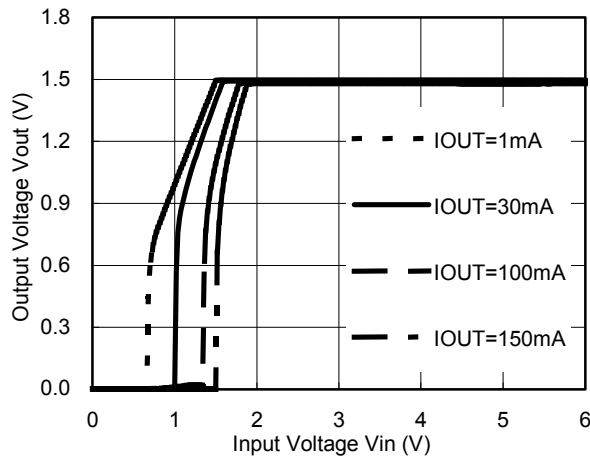
2) Output Voltage vs. Input Voltage (Topt=25°C)
 VOUT=0.8V(ECO=H)



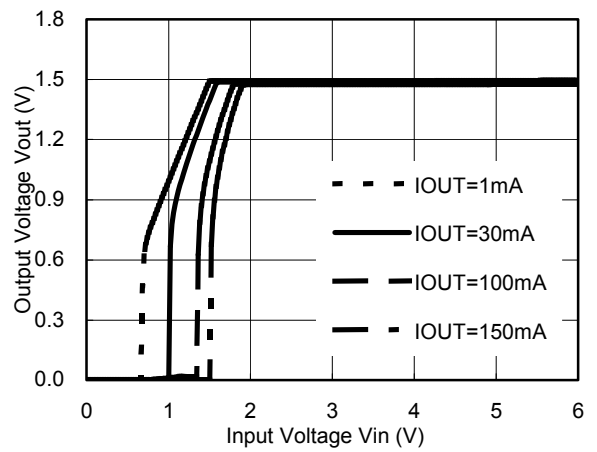
VOUT=0.8V(ECO=L)



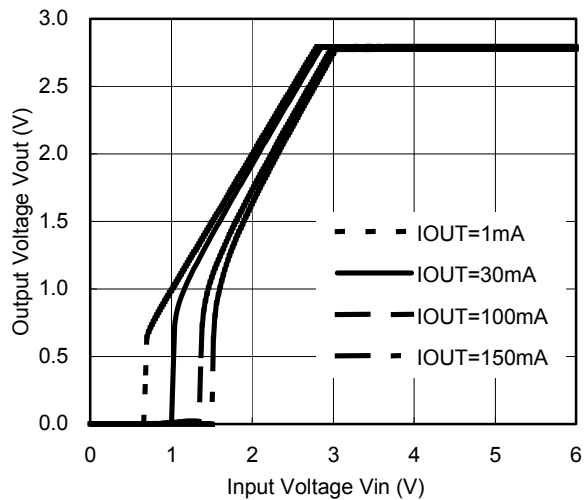
VOUT=1.5V(ECO=H)



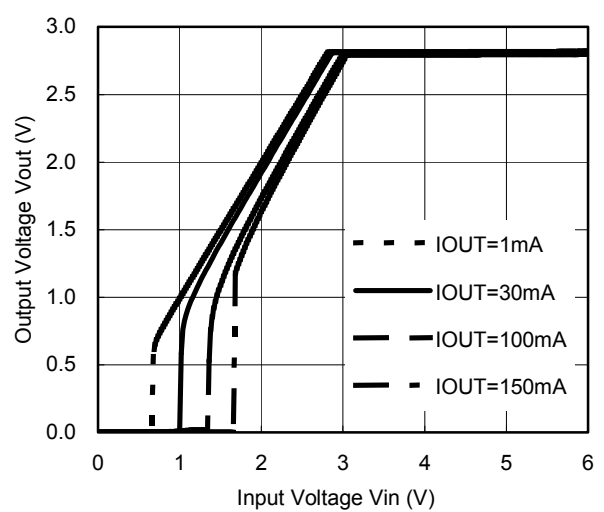
VOUT=1.5V(ECO=L)



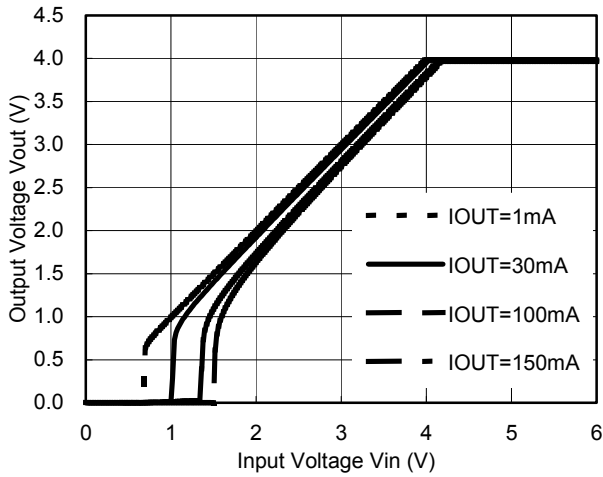
VOUT=2.8V(ECO=H)



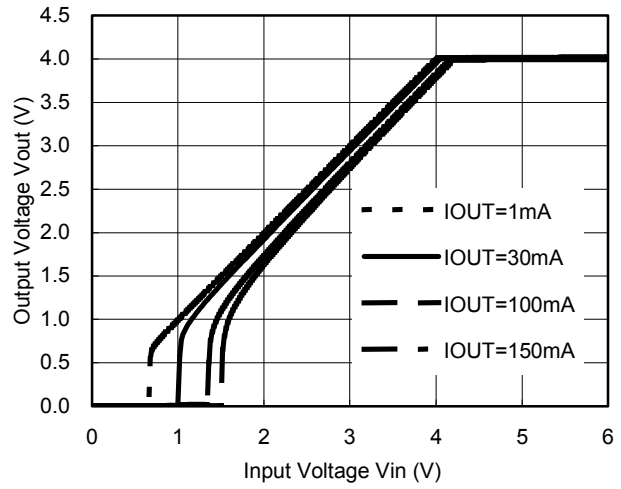
VOUT=2.8V(ECO=L)



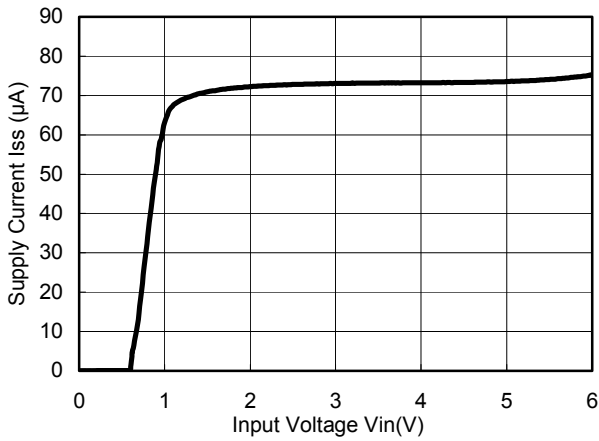
V_{OUT}=4.0V(ECO=H)



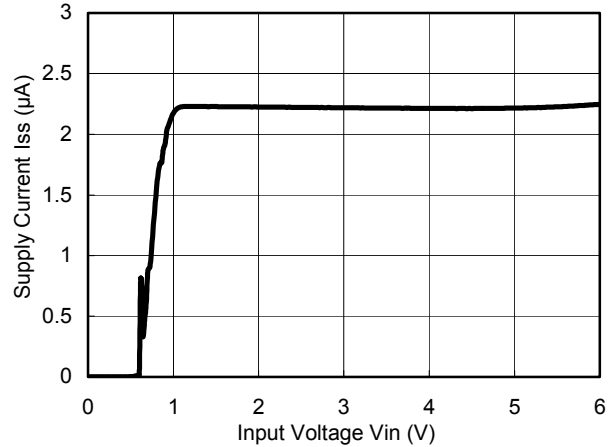
V_{OUT}=4.0V(ECO=L)



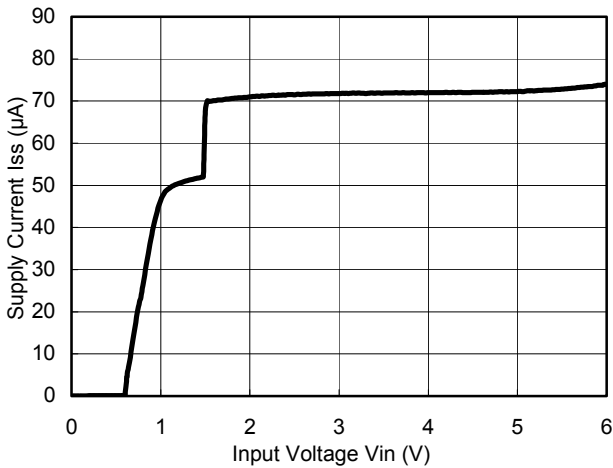
3) Supply Current vs. Input Voltage (T_{opt}=25°C)
V_{OUT}=0.8V(ECO=H)



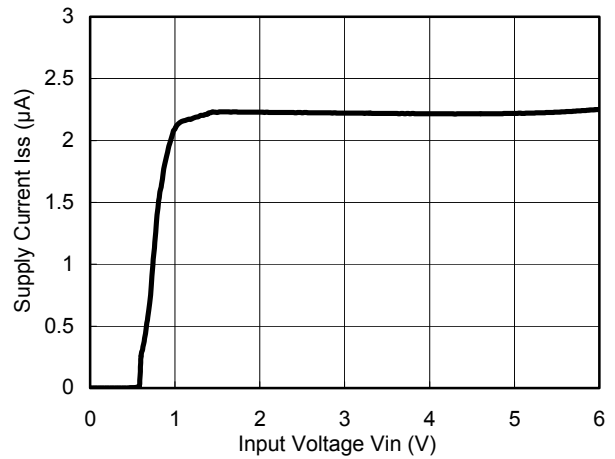
V_{OUT}=0.8V(ECO=L)



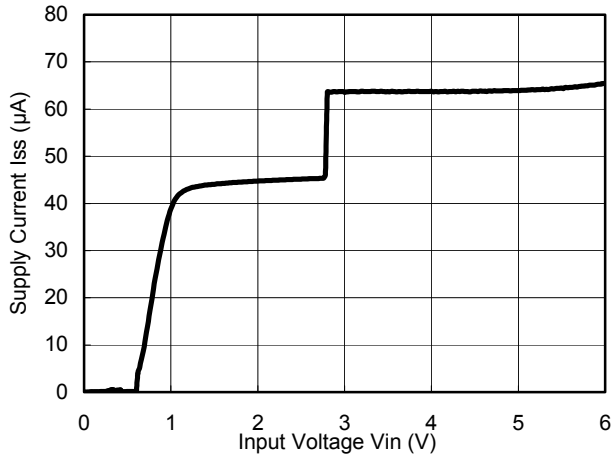
V_{OUT}=1.5V(ECO=H)



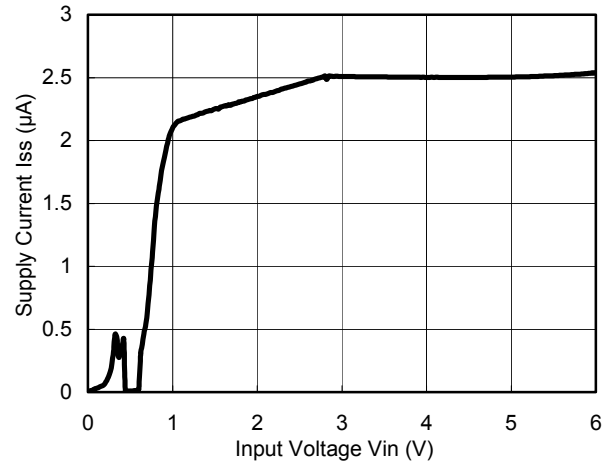
V_{OUT}=1.5V(ECO=L)



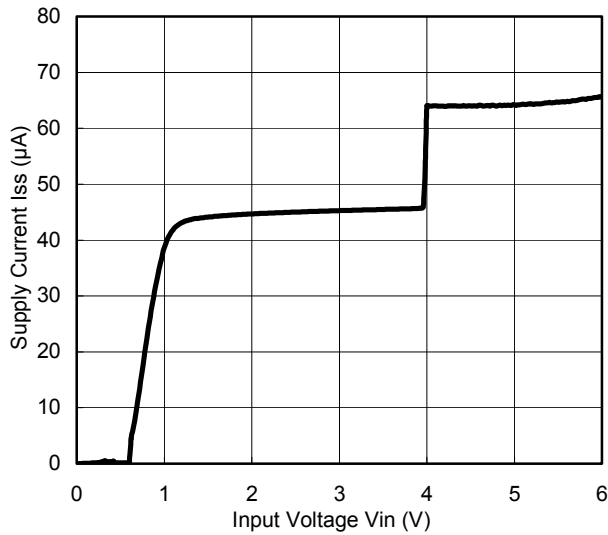
V_{OUT}=2.8V(ECO=H)



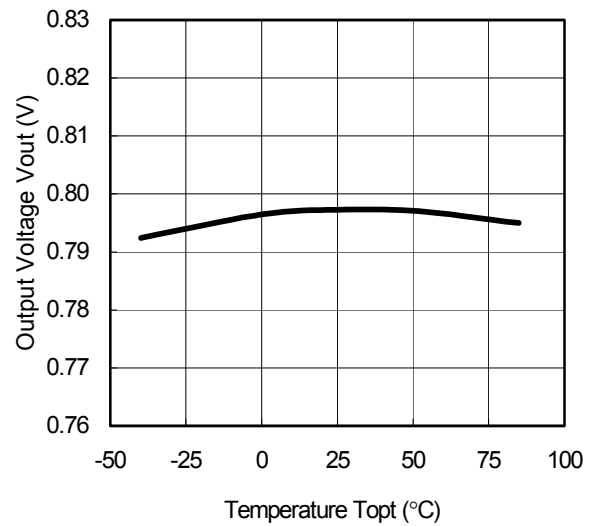
V_{OUT}=2.8V(ECO=L)



V_{OUT}=4.0V(ECO=H)

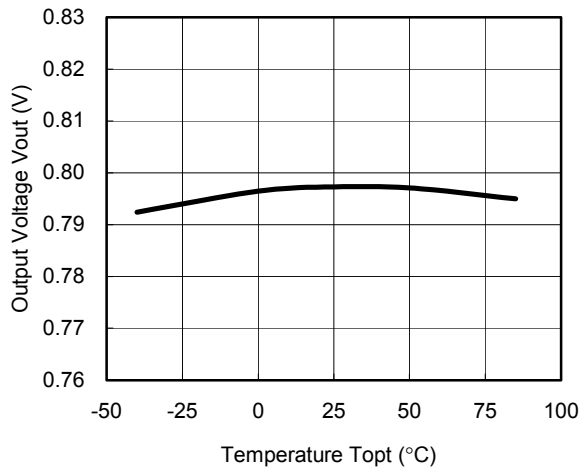


V_{OUT}=4.0V(ECO=L)

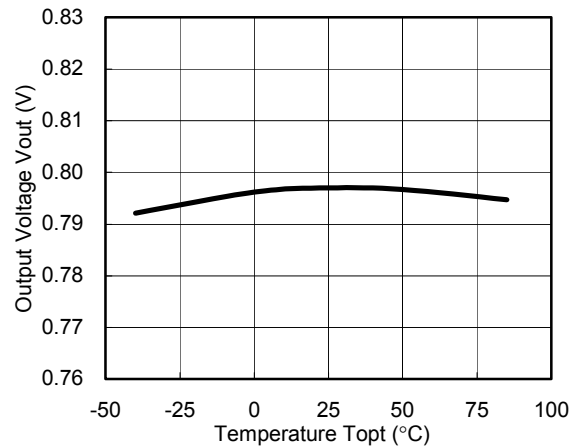


4) Output Voltage vs. Temperature

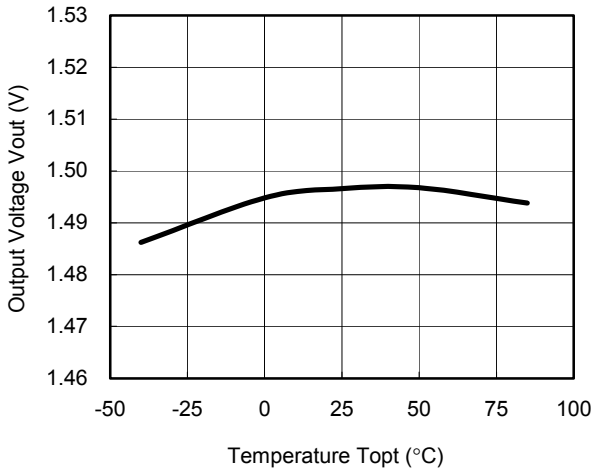
V_{OUT}=0.8V(ECO=H)



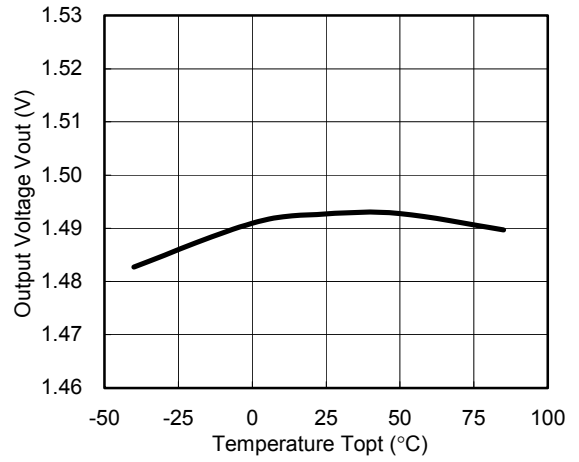
V_{OUT}=0.8V(ECO=L)



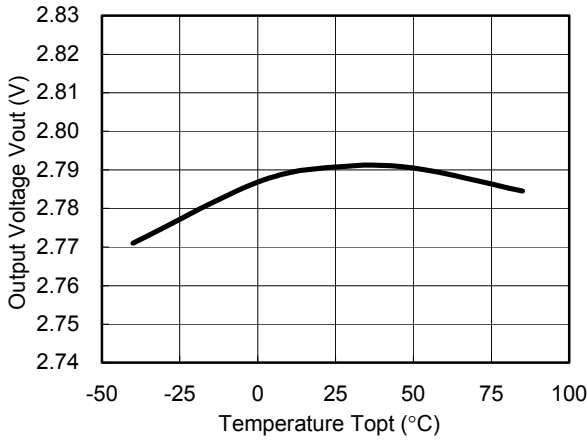
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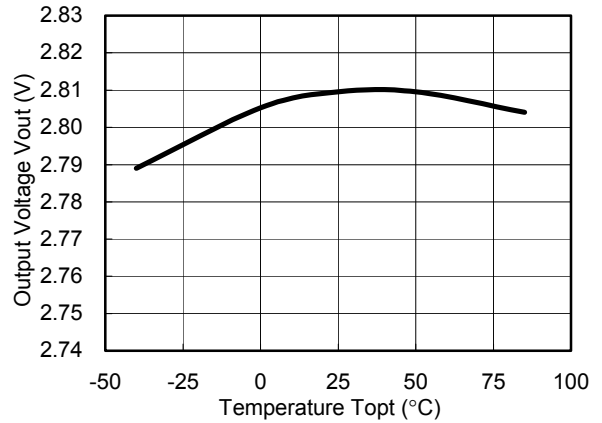
V_{OUT}=1.5V(ECO=L)



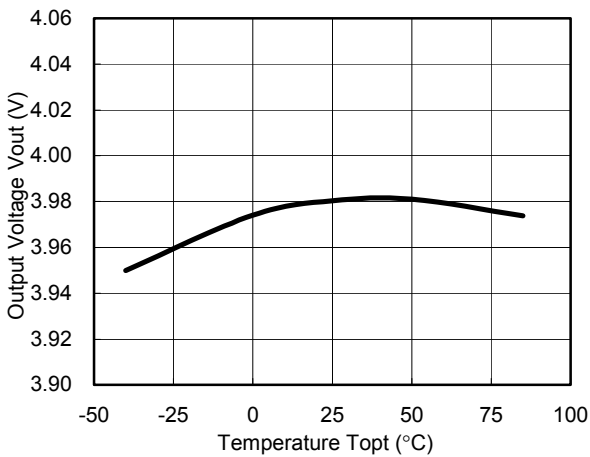
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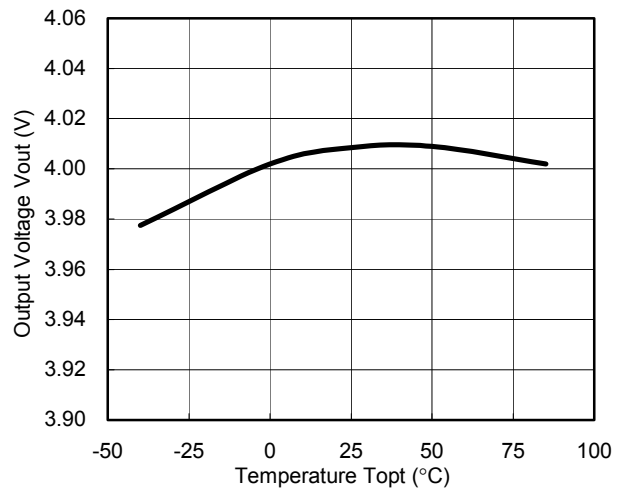
V_{OUT}=2.8V(ECO=L)



V_{OUT}=4.0V(ECO=H)

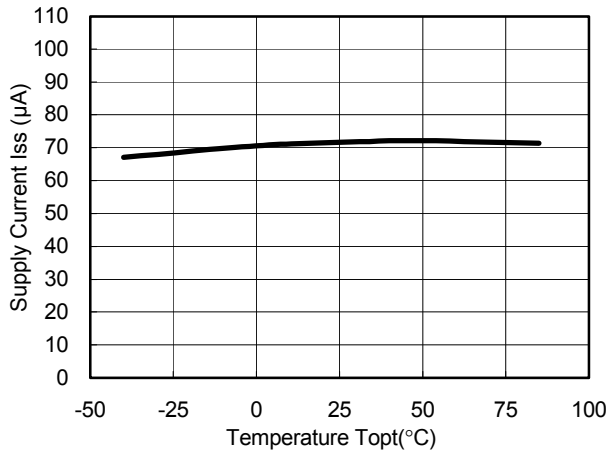


V_{OUT}=4.0V(ECO=L)

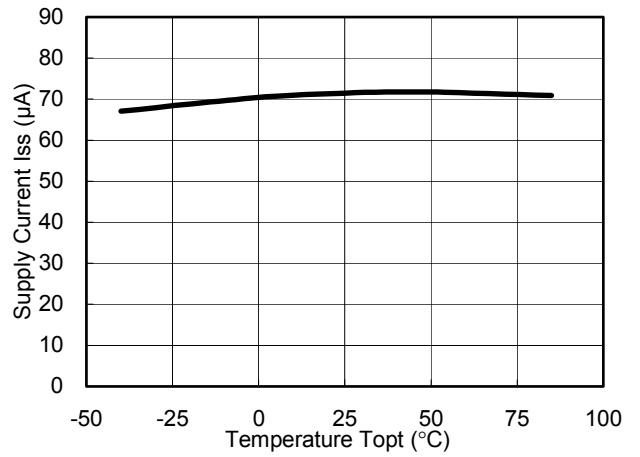


5) Supply Current vs. Temperature

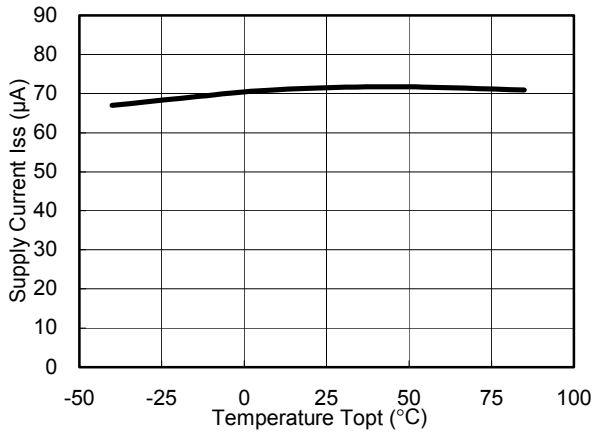
V_{OUT}=0.8V(ECO=H)



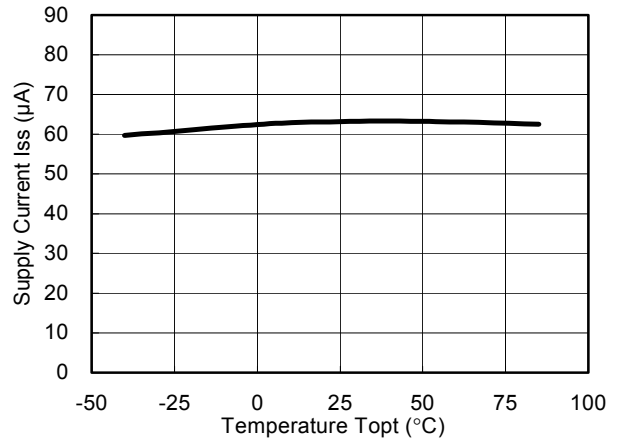
V_{OUT}=0.8V(ECO=L)



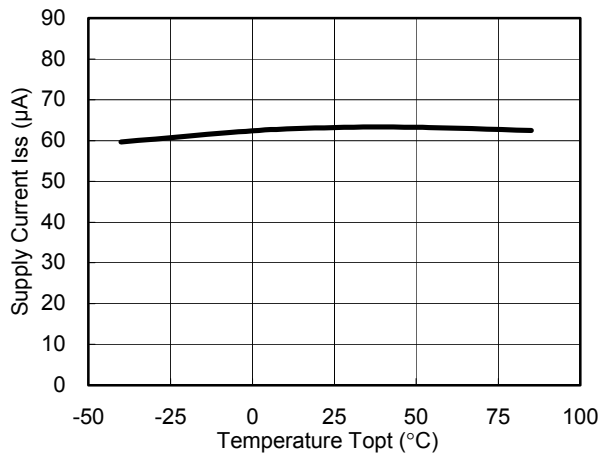
V_{OUT}=1.5V(ECO=H)



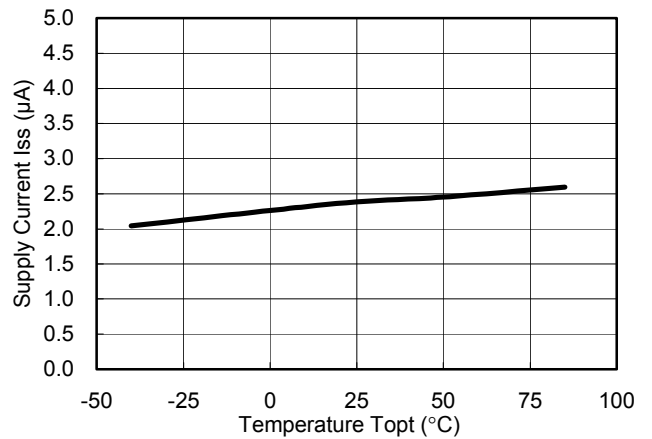
V_{OUT}=1.5V(ECO=L)



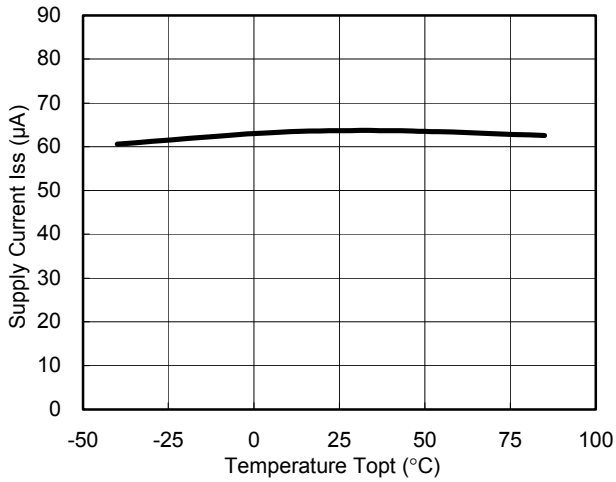
V_{OUT}=2.8V(ECO=H)



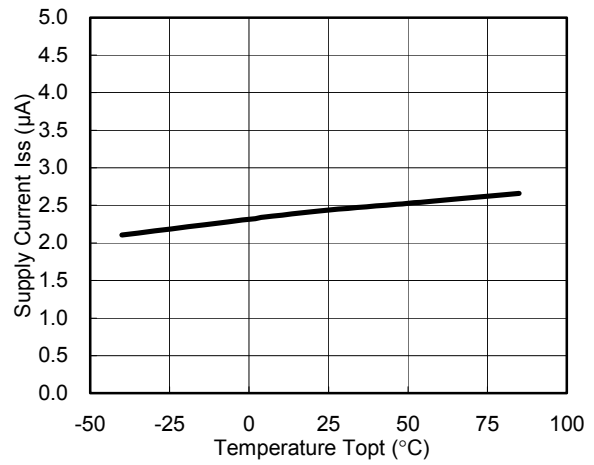
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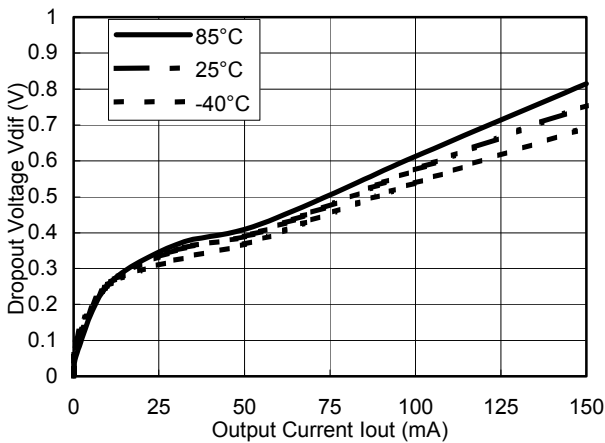
V_{OUT}=4.0V(ECO=H)



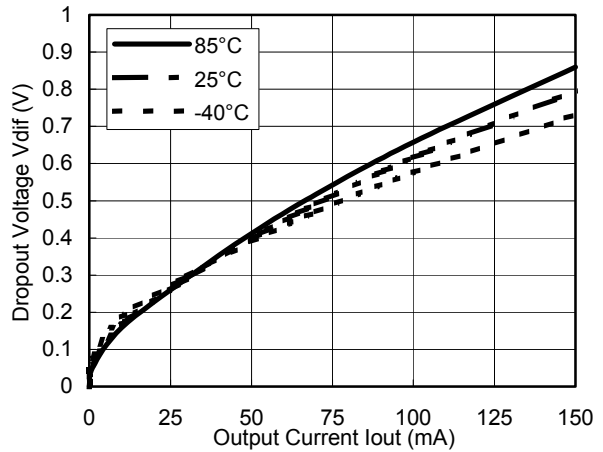
V_{OUT}=4.0V(ECO=L)



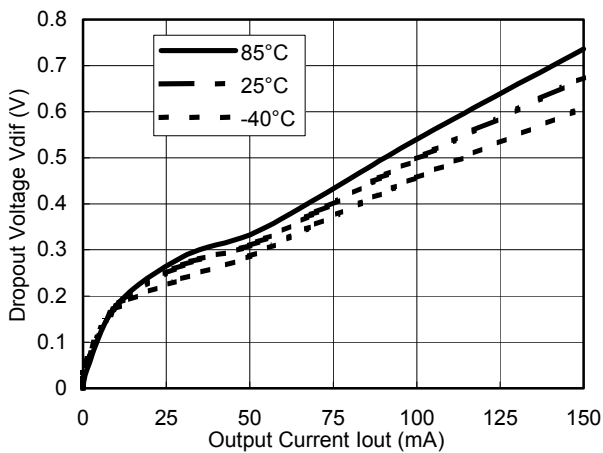
6) Dropout Voltage vs. Output Voltage
V_{OUT}=0.8V(ECO=H)



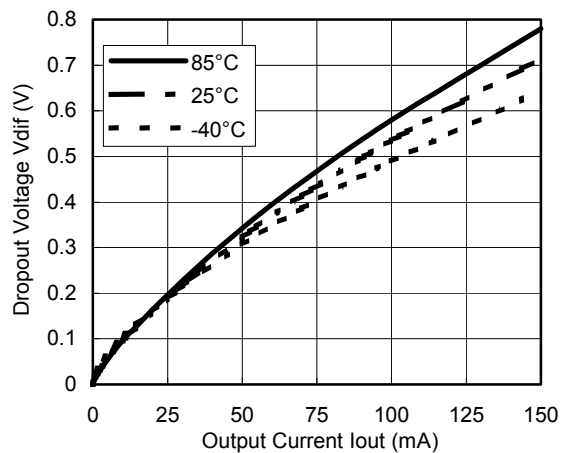
V_{OUT}=0.8V(ECO=L)



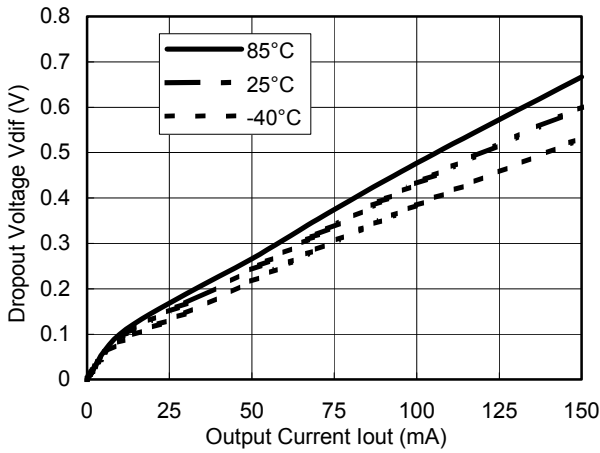
V_{OUT}=0.9V(ECO=H)



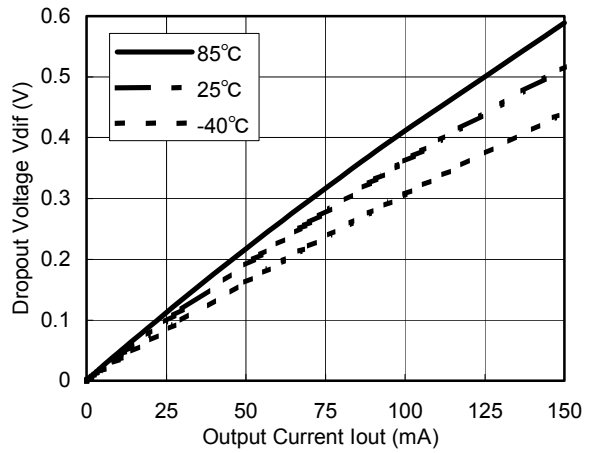
V_{OUT}=0.9V(ECO=L)



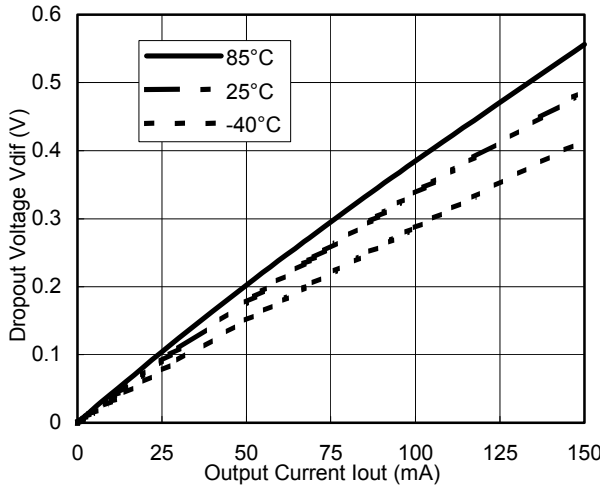
V_{OUT}=1.0V(ECO=H)



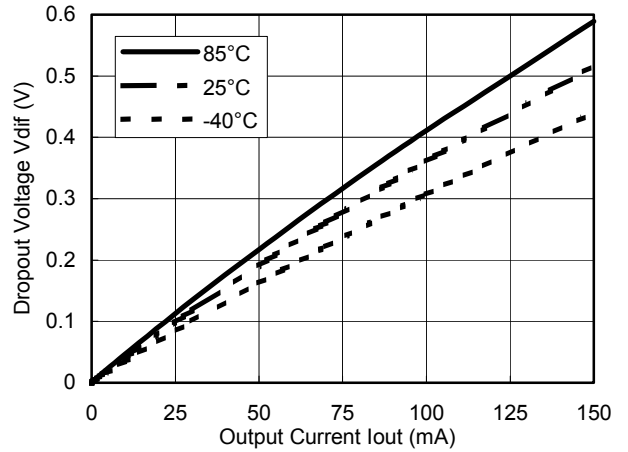
V_{OUT}=1.0V(ECO=L)



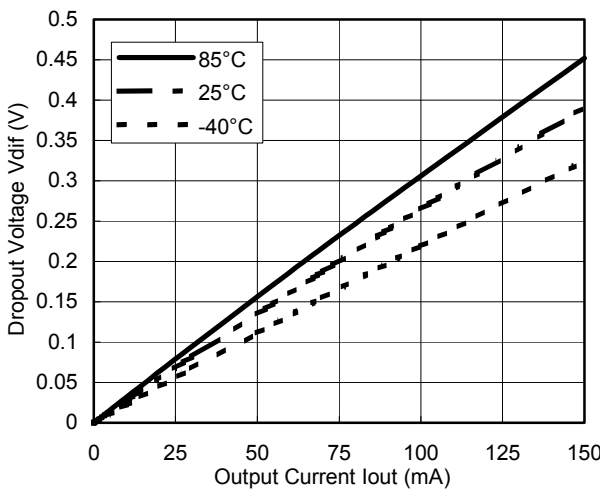
V_{OUT}=1.2V(ECO=H)



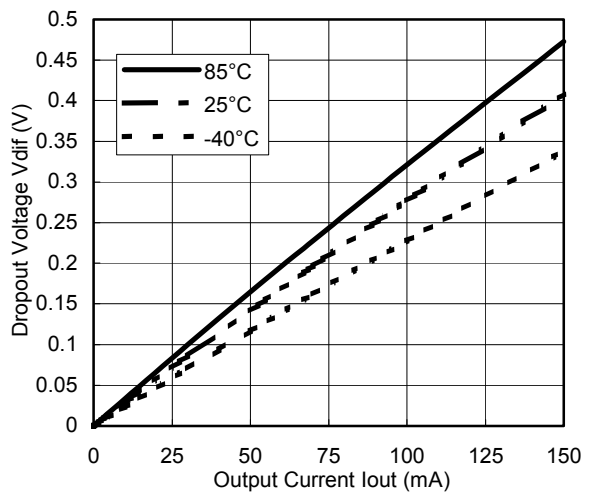
V_{OUT}=1.2V(ECO=L)



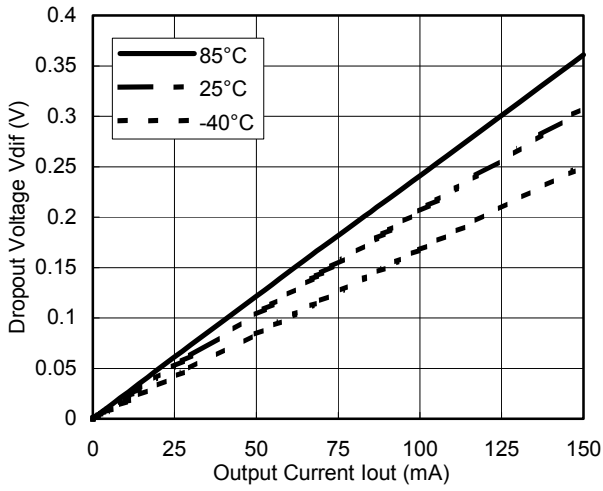
V_{OUT}=1.5V(ECO=H)



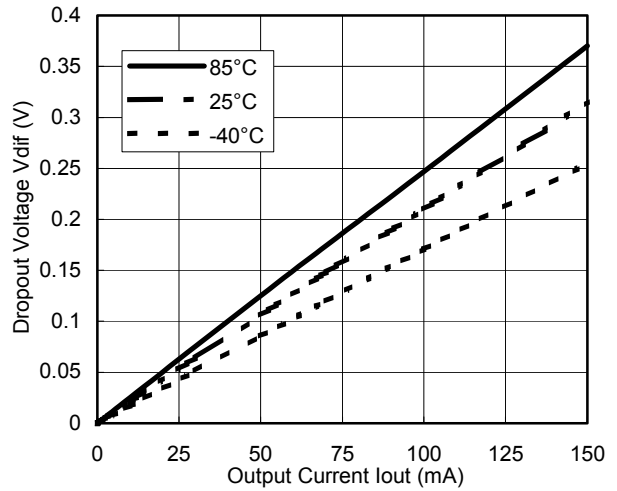
V_{OUT}=1.5V(ECO=L)



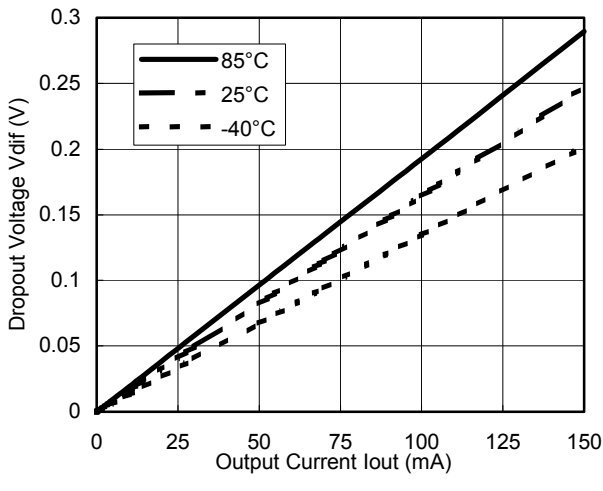
V_{OUT}=2.0V(ECO=H)



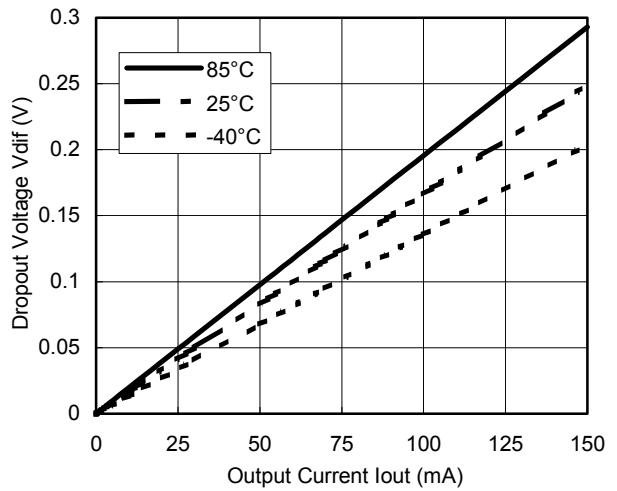
V_{OUT}=2.0V(ECO=L)



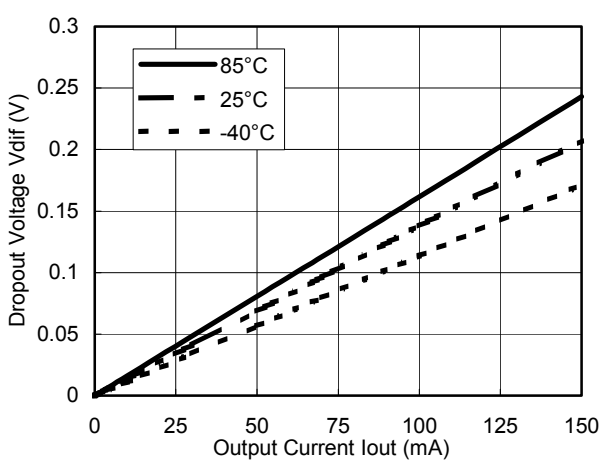
V_{OUT}=2.8V(ECO=H)



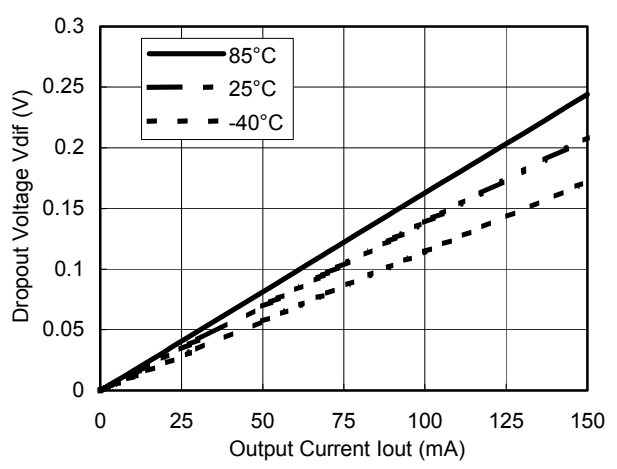
V_{OUT}=2.8V(ECO=L)



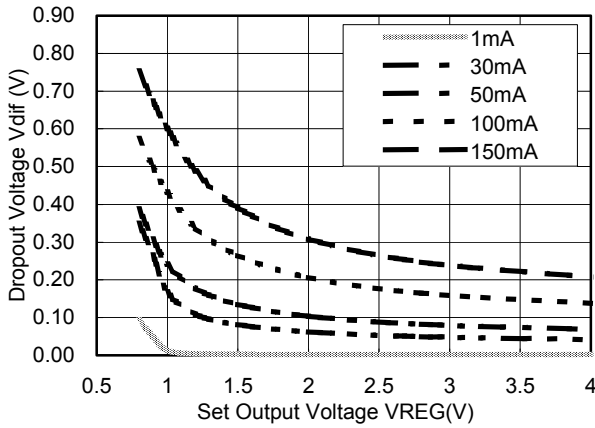
V_{OUT}=4.0V(ECO=H)



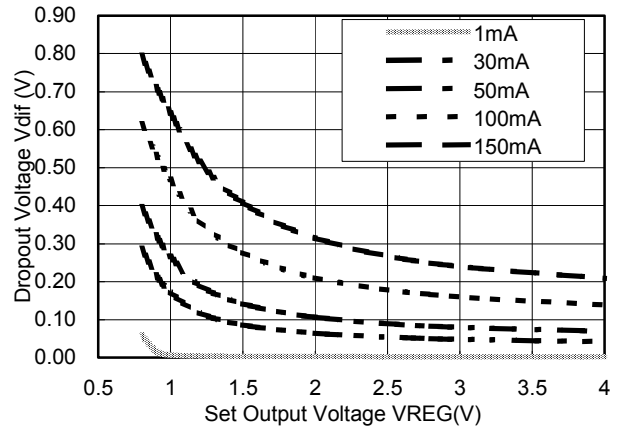
V_{OUT}=4.0V(ECO=L)



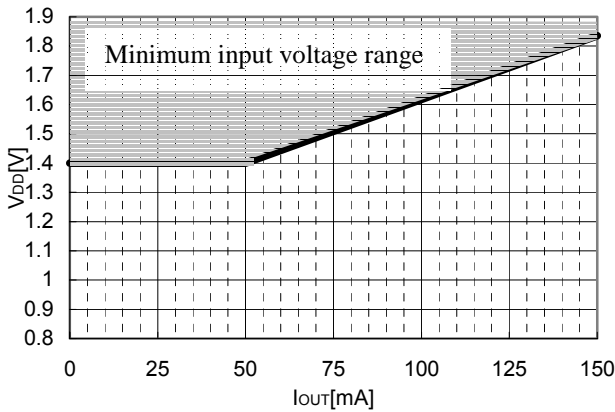
7) Dropout Voltage vs. Set Output Voltage (Topt=25°C)
R5328KXXXX(ECO=H)



R5328KXXXX(ECO=L)



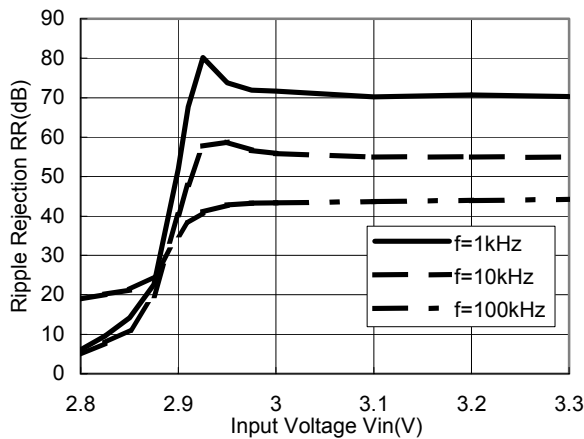
8) 0.8V type minimum input voltage limit (Topt=25°C)



9) Ripple Rejection vs. Input Bias Voltage (Topt=25°C, CIN=none, COU=Ceramic 1.0μF, ECO=H)

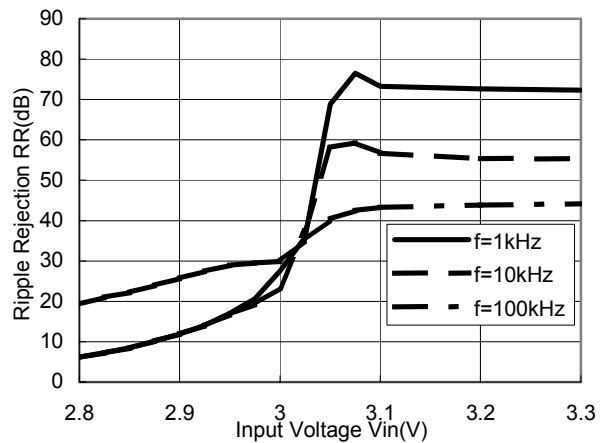
VOUT=2.8V

Ripple 0.2Vp-p, IOUT=1mA

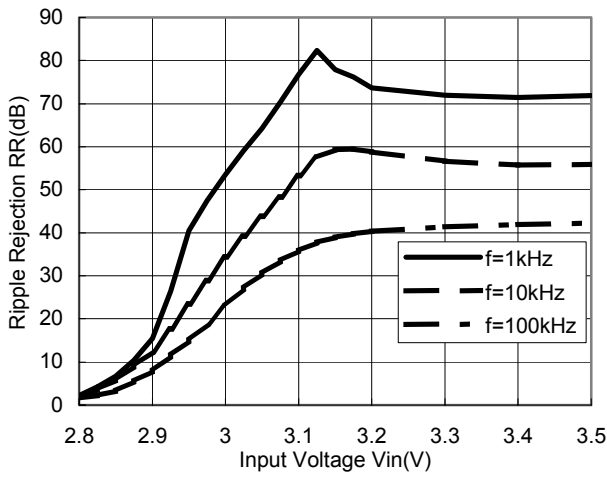


VOUT=2.8V

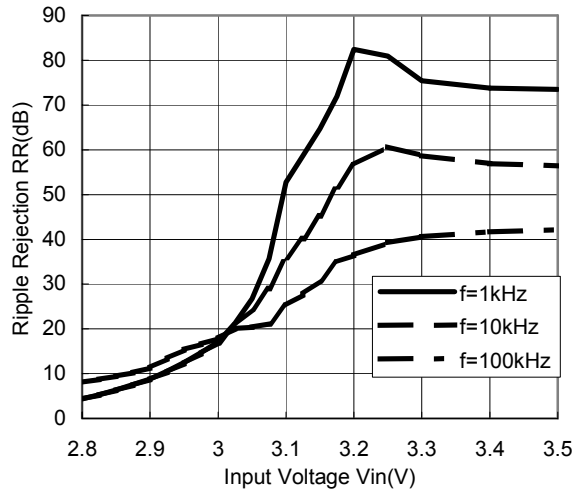
Ripple 0.5Vp-p, IOUT=1mA



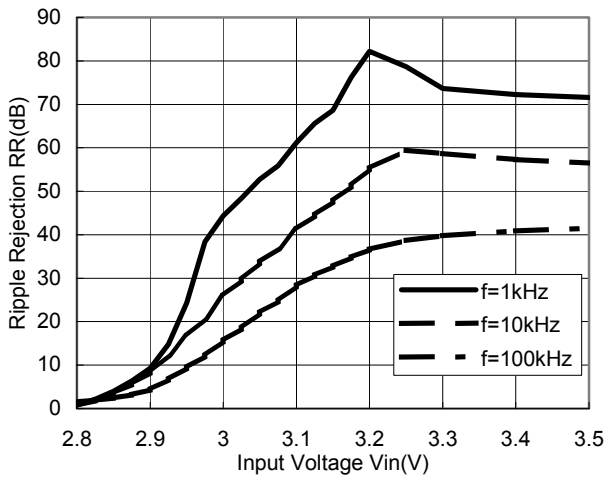
V_{OUT}=2.8V, Ripple 0.2Vp-p, I_{OUT}=30mA



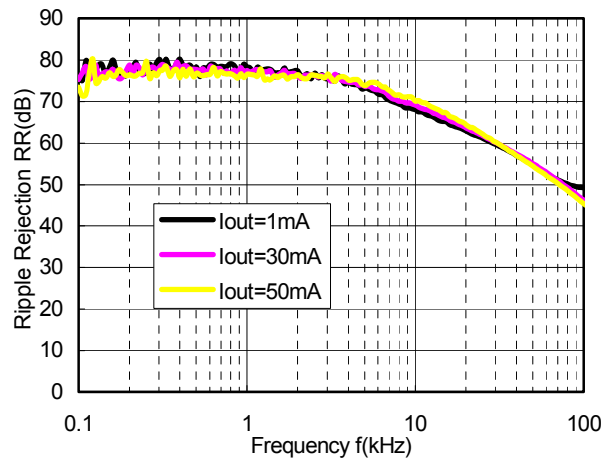
V_{OUT}=2.8V, Ripple 0.5Vp-p, I_{OUT}=30mA



V_{OUT}=2.8V Ripple 0.2Vp-p, I_{OUT}=50mA

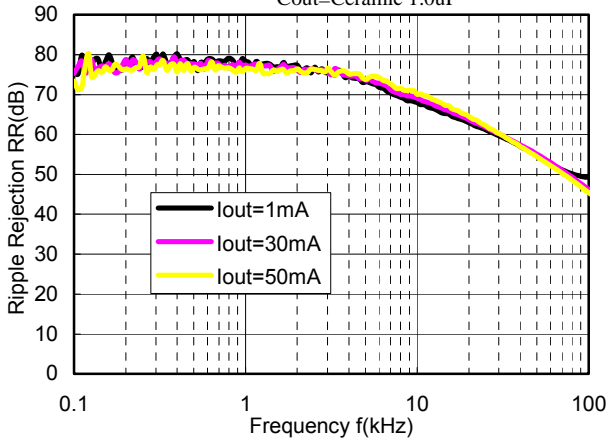


V_{OUT}=2.8V Ripple 0.5Vp-p, I_{OUT}=50mA

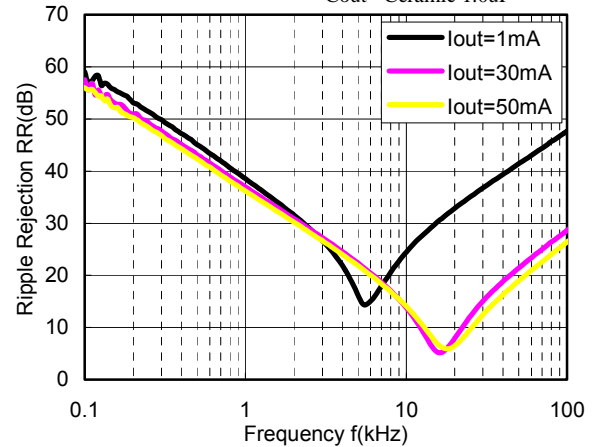


10) Ripple Rejection vs. Frequency (T_{opt}=25°C, C_{IN}=none)

V_{OUT}=0.8V (ECO=H) V_{IN}= 1.8VDC+0.2Vp-p
C_{out}=Ceramic 1.0uF

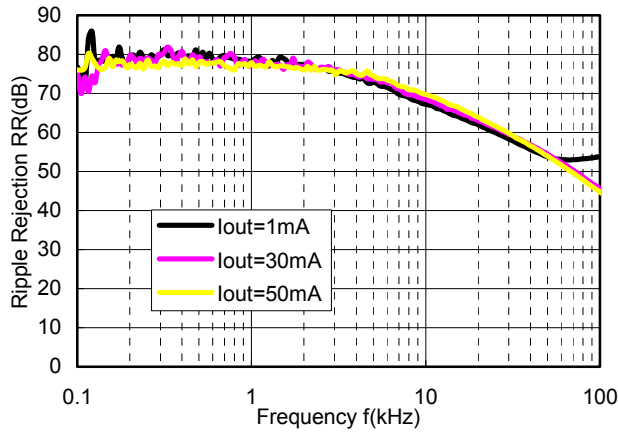


V_{OUT}=0.8V (ECO=L) V_{IN}= 1.8VDC+0.2Vp-p
C_{out}= Ceramic 1.0uF



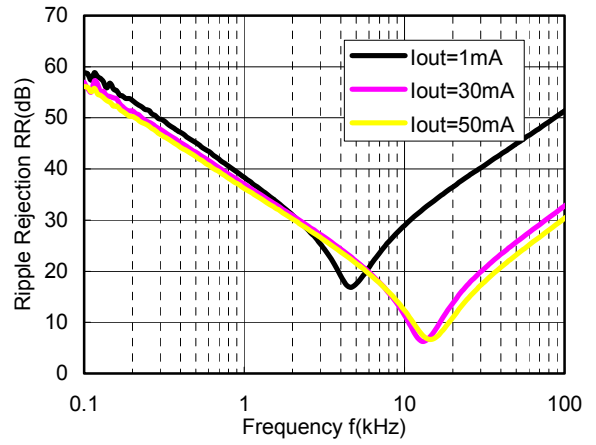
VOUT=0.8V(ECO=H)

VIN = 1.8VDC+0.2Vp-p
Cout=Ceramic 2.2uF



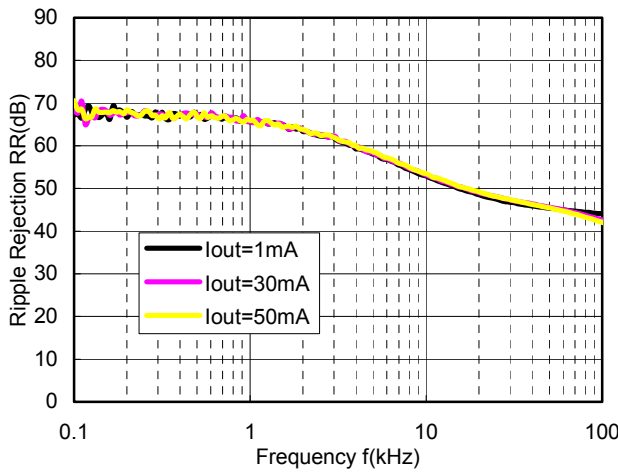
VOUT=0.8V(ECO=L)

VIN = 1.8VDC+0.2Vp-p
Cout=Ceramic 2.2uF



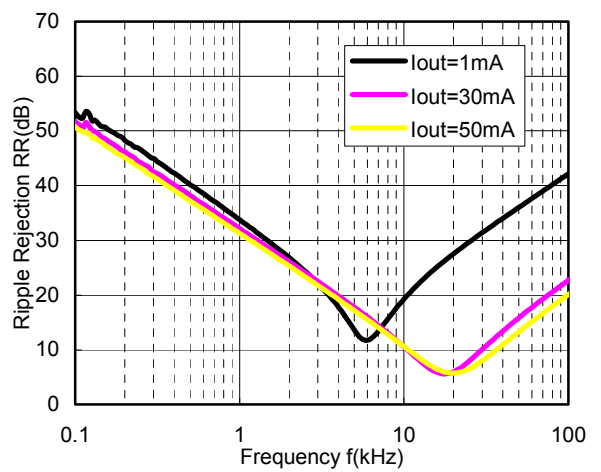
VOUT=1.5V(ECO=H)

VIN = 2.5VDC+0.2Vp-p
Cout= Ceramic 1.0uF



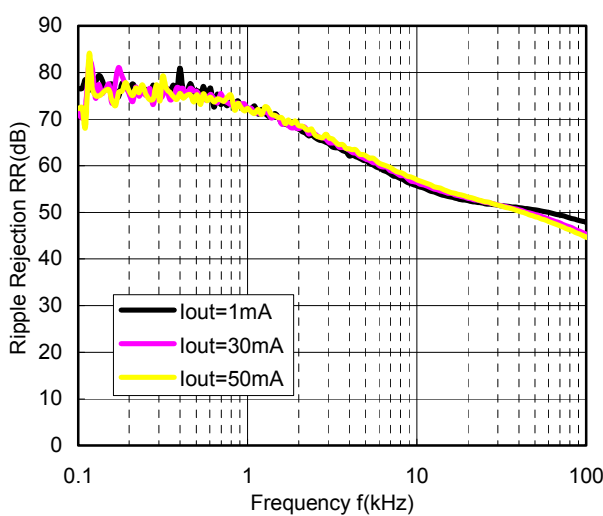
VOUT=1.5V(ECO=L)

VIN = 2.5VDC+0.2Vp-p
Cout= Ceramic 1.0uF



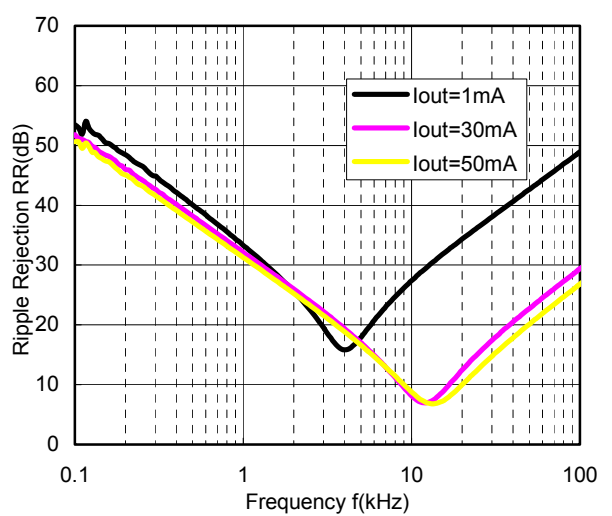
VOUT=1.5V(ECO=H)

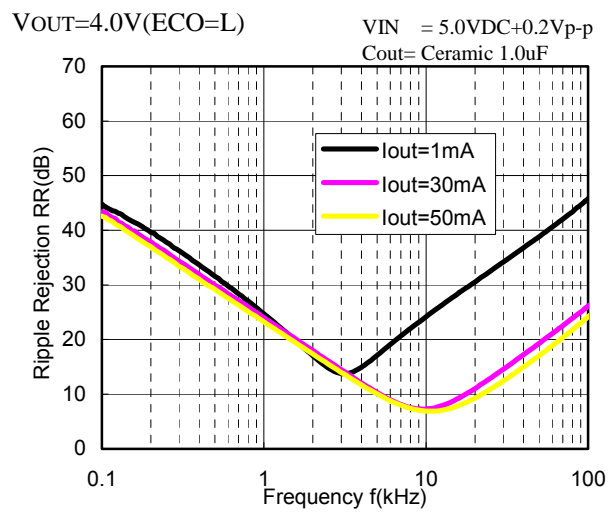
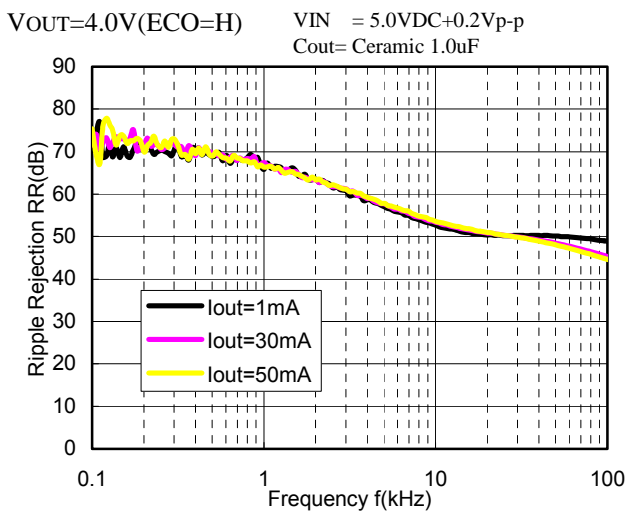
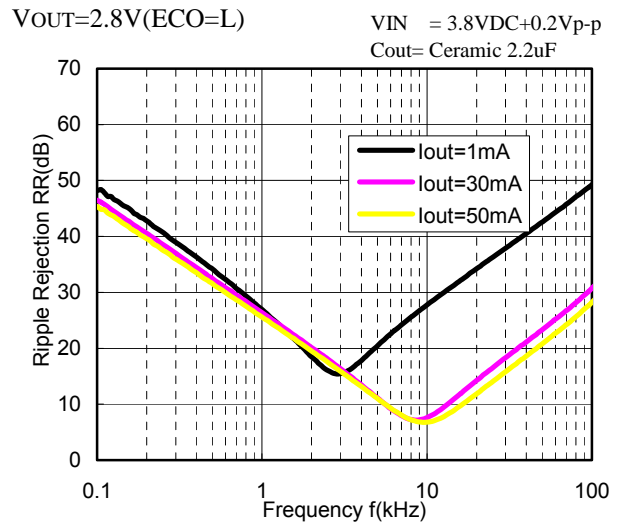
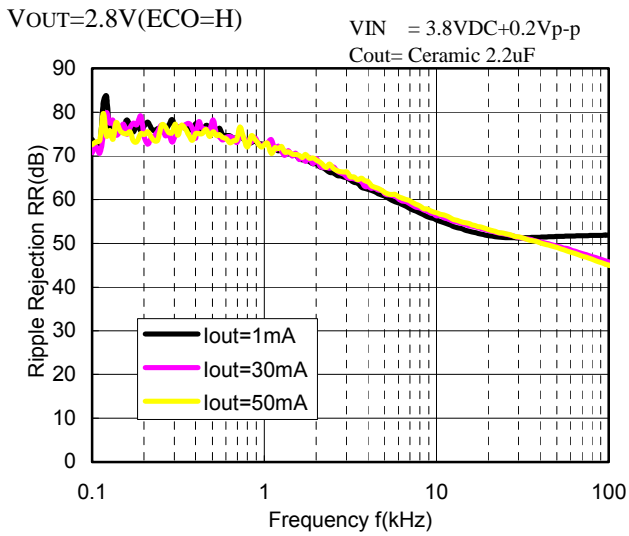
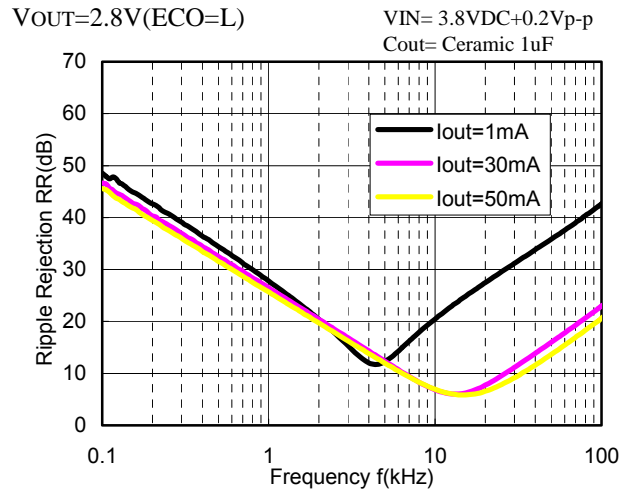
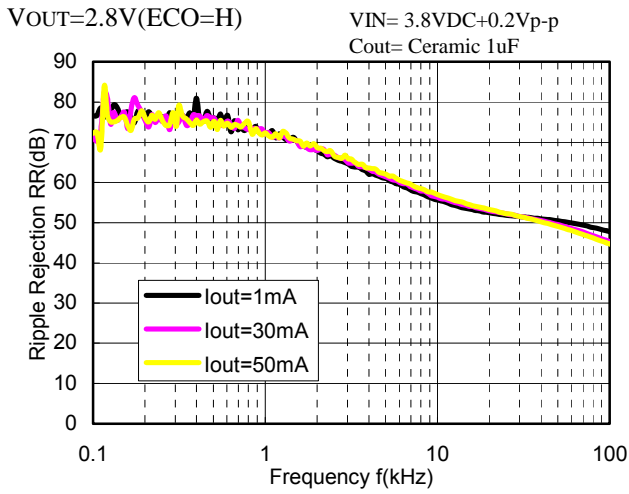
VIN = 2.5VDC+0.2Vp-p
Cout= Ceramic 2.2uF



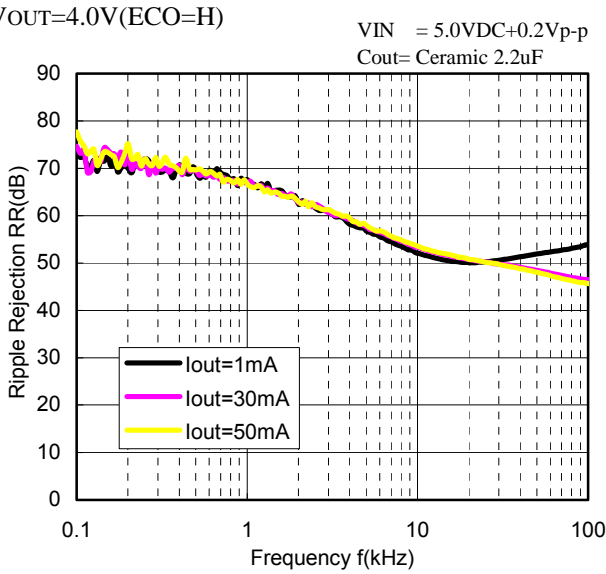
VOUT=1.5V(ECO=L)

VIN = 2.5VDC+0.2Vp-p
Cout= Ceramic 2.2uF

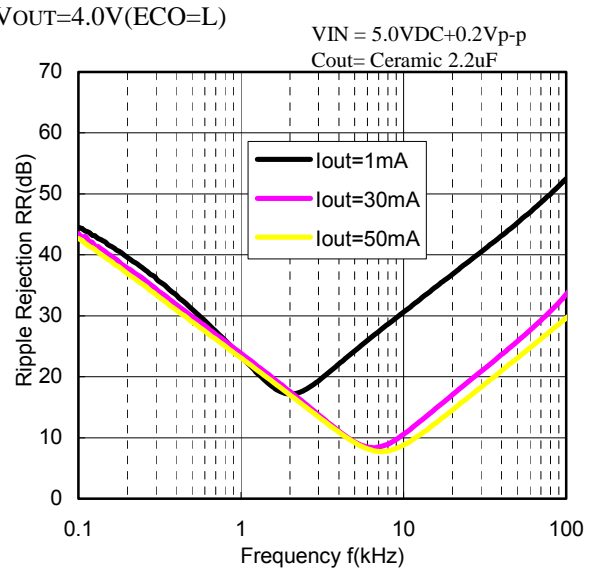




VOUT=4.0V(ECO=H)

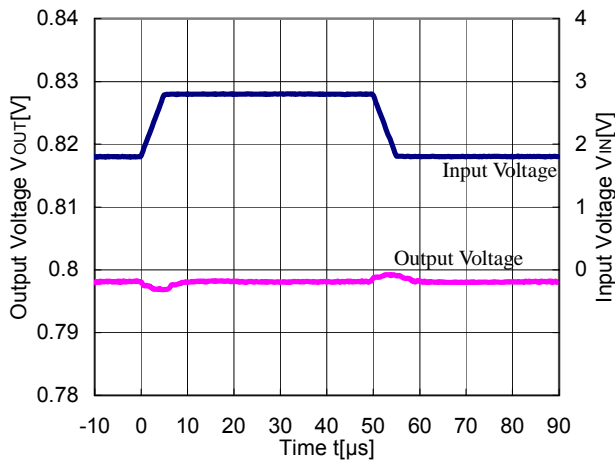


VOUT=4.0V(ECO=L)

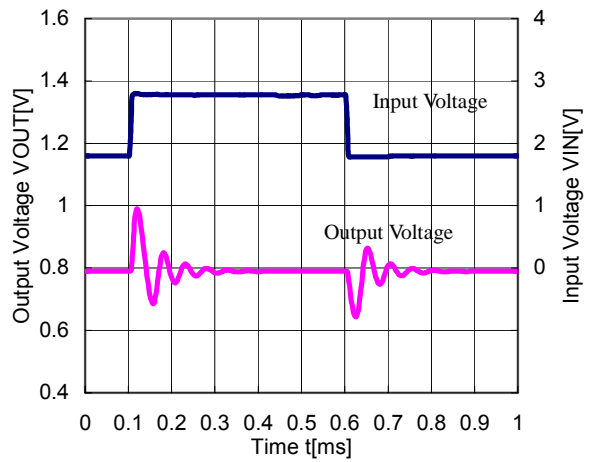


11) Input Transient Response (CIN=none)

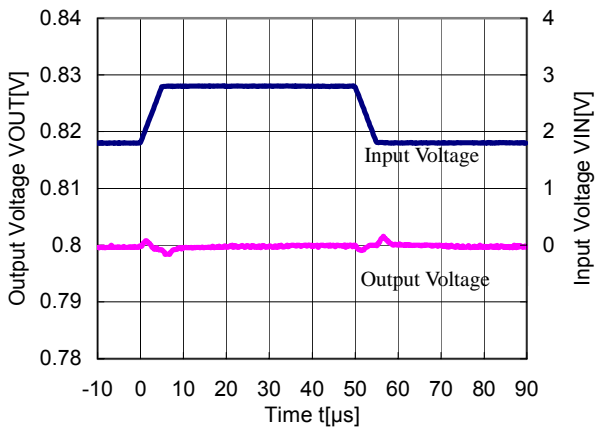
VOUT=0.8V(ECO=H), IOUT=30mA, COUT=1uF



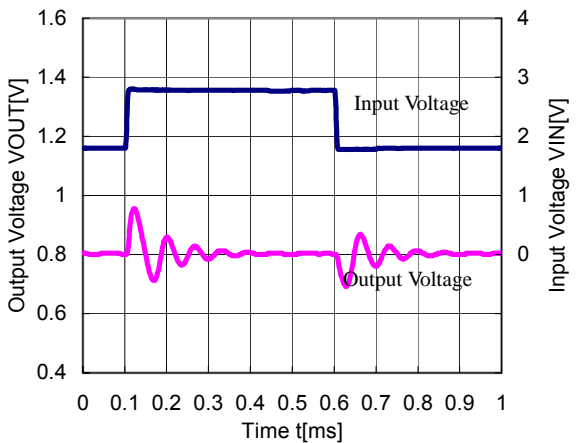
VOUT=0.8V(ECO=L), IOUT=10mA, COUT=1uF



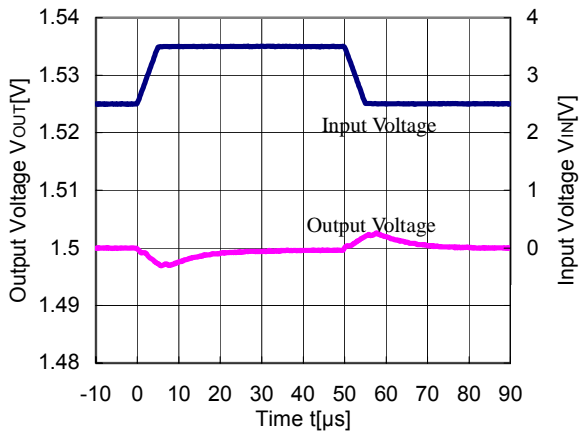
VOUT=0.8V(ECO=H) IOUT=30mA, COUT=2.2uF



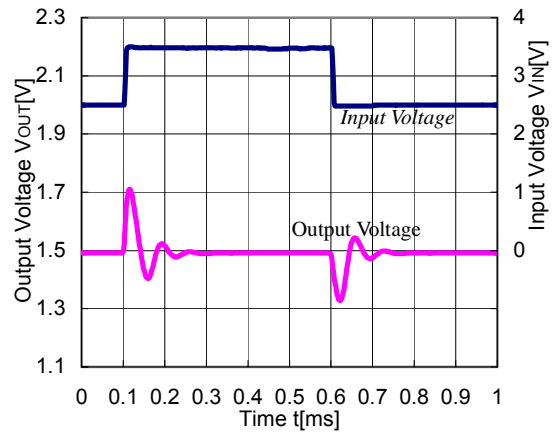
VOUT=0.8V(ECO=L) IOUT=10mA, COUT=2.2uF



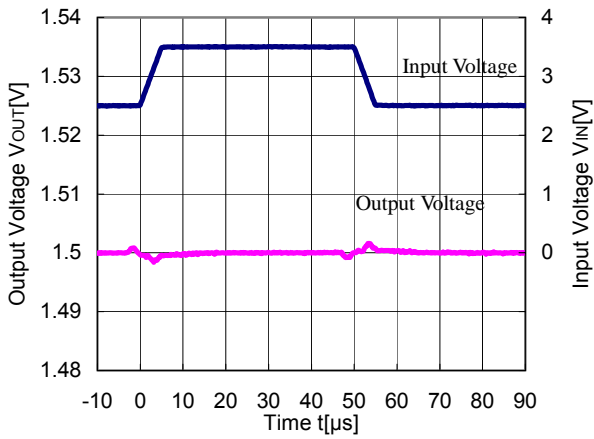
VOUT=1.5V(ECO=H) IOUT=30mA, COUT=Ceramic 1.0μF



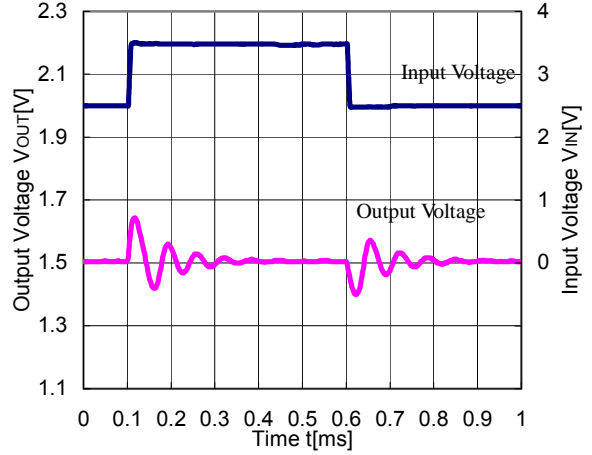
VOUT=1.5V(ECO=L) IOUT=10mA, COUT=1μF



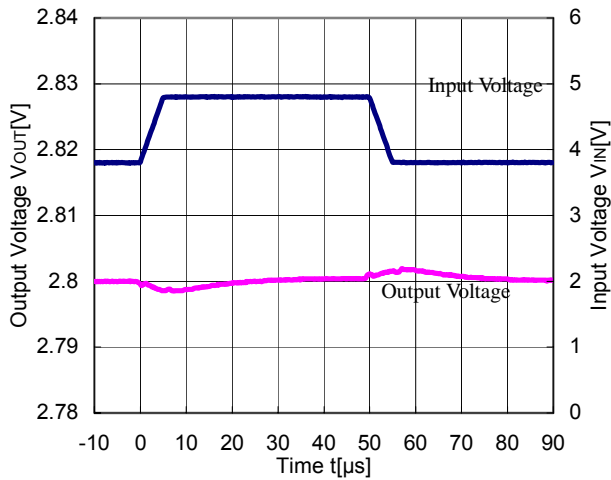
VOUT=1.5V(ECO=H) IOUT=30mA COUT=Ceramic 2.2μF



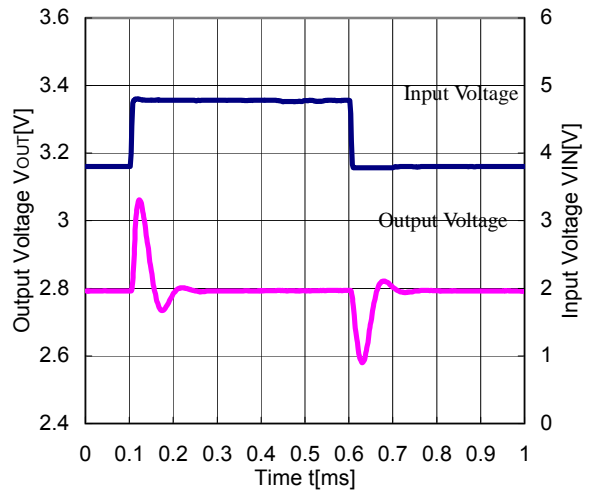
VOUT=1.5V(ECO=L) IOUT=10mA COUT=Ceramic 2.2μF



VOUT=2.8V(ECO=H) IOUT=30mA COUT=Ceramic 1μF



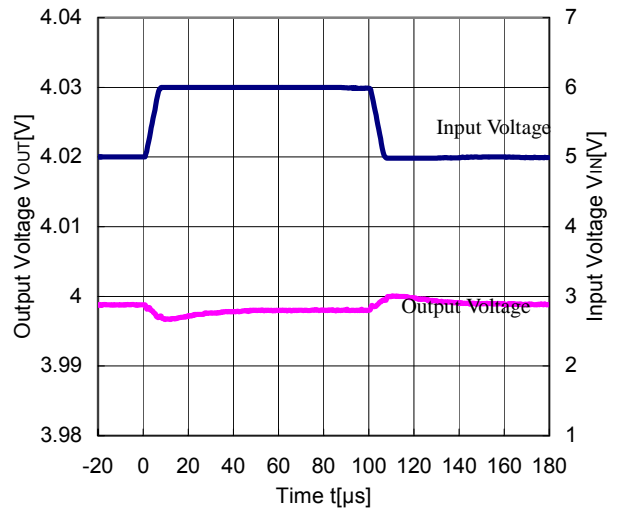
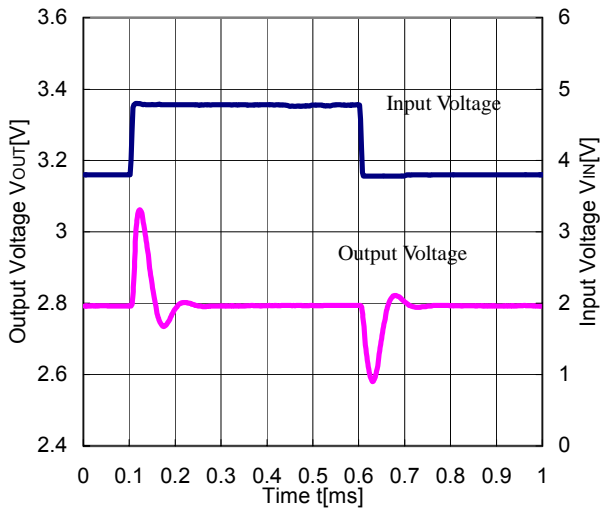
VOUT=2.8V(ECO=L) IOUT=10mA COUT=Ceramic 1μF



$V_{OUT}=2.8V$ (ECO=L)

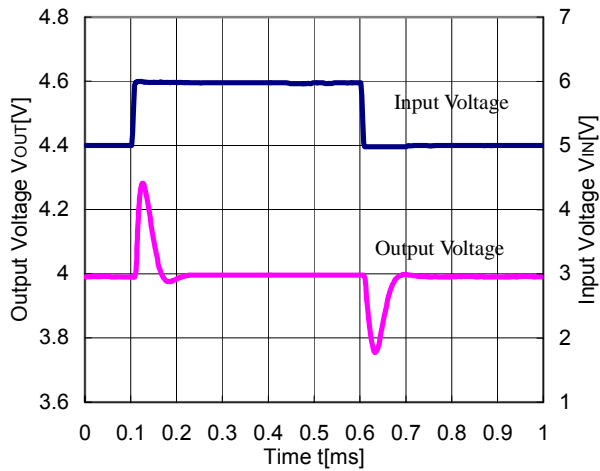
$I_{OUT}=10mA$, $C_{OUT}=\text{Ceramic } 2.2\mu F$

$V_{OUT}=4.0V$ (ECO=H) $I_{OUT}=30mA$, $C_{OUT}=\text{Ceramic } 1.0\mu F$



$V_{OUT}=4.0V$ (ECO=L)

$I_{OUT}=10mA$, $C_{OUT}=\text{Ceramic } 1.0\mu F$

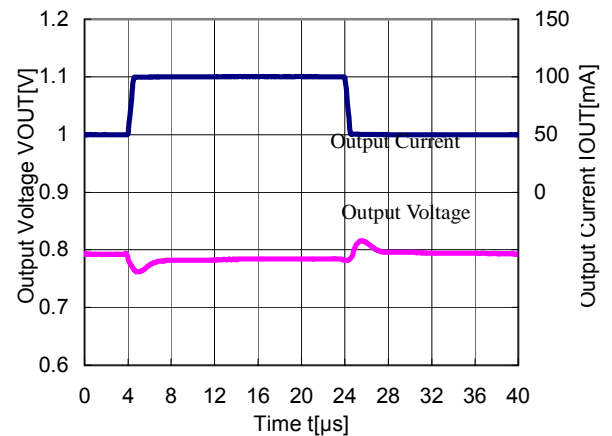
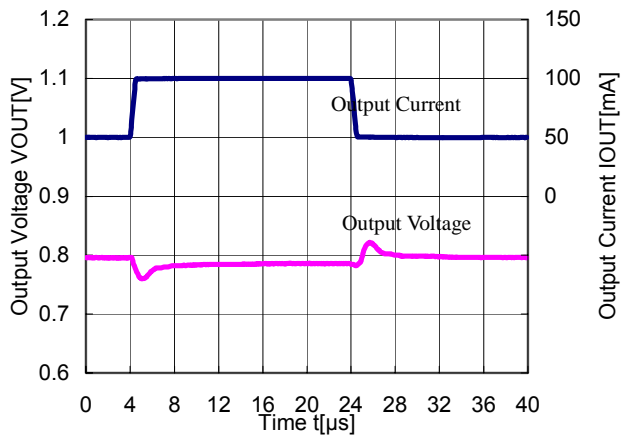


12) Load Transient Response ($C_{IN}=\text{Ceramic } 1.0\mu F$)

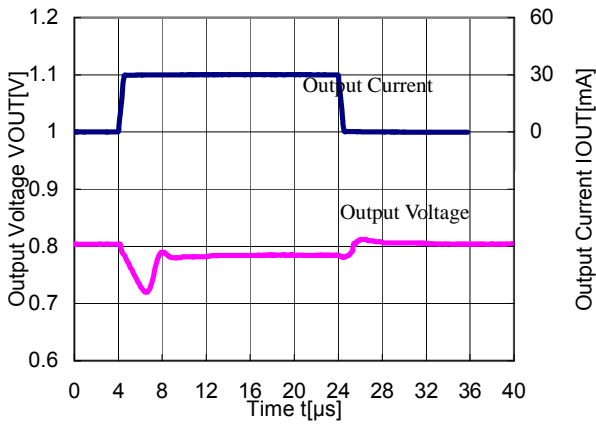
$V_{out}=0.8V$ (ECO="H")

$V_{IN}=1.8V$, $C_{OUT}=\text{Ceramic } 1.0\mu F$

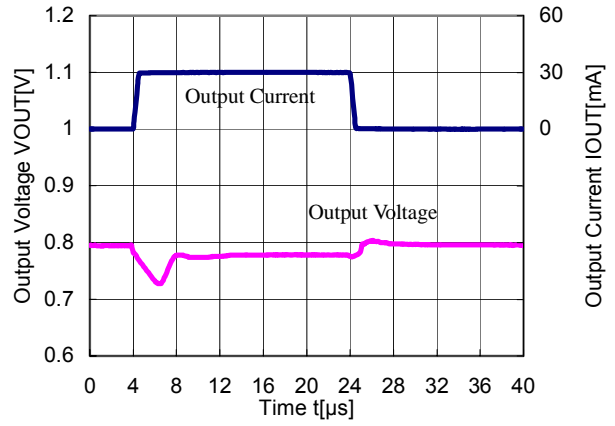
$V_{out}=0.8V$ (ECO="H") $V_{in}=1.8V$, $C_{out}=\text{Ceramic } 2.2\mu F$



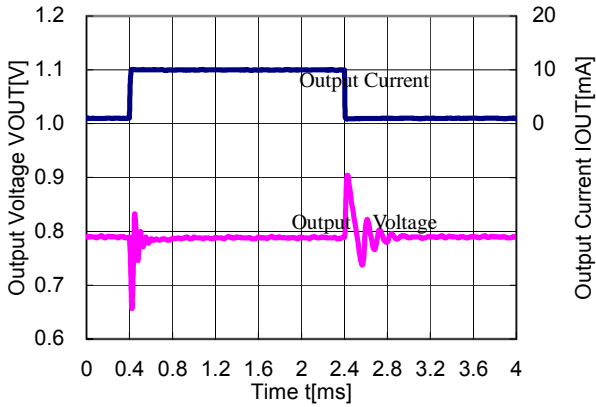
VOUT=0.8V(ECO=H) Vin=1.8V, Cout=Ceramic 1μF



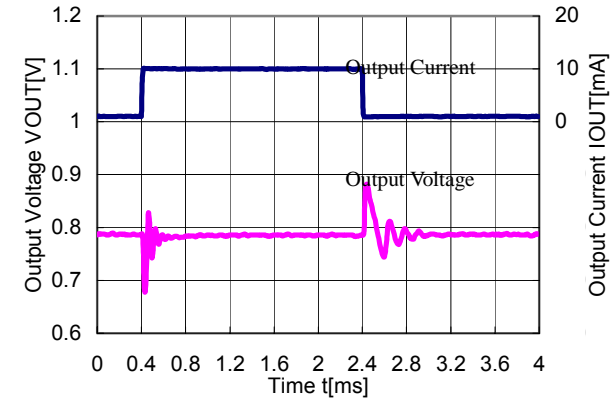
VOUT=0.8V(ECO=H) Vin=1.8V, Cout=Ceramic 2.2μF



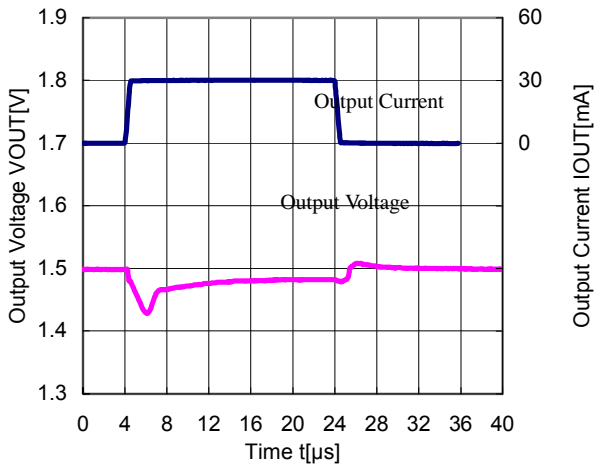
VOUT=0.8V(ECO=L) VIN=1.8V, COUT=Ceramic 1.0μF



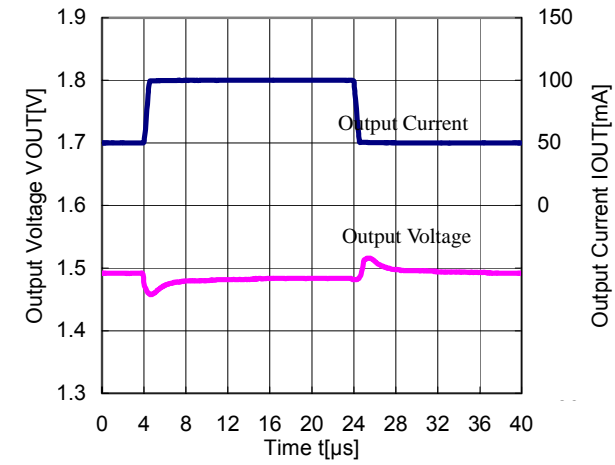
VOUT=0.8V(ECO=L) VIN=1.8V, COUT=Ceramic 2.2μF



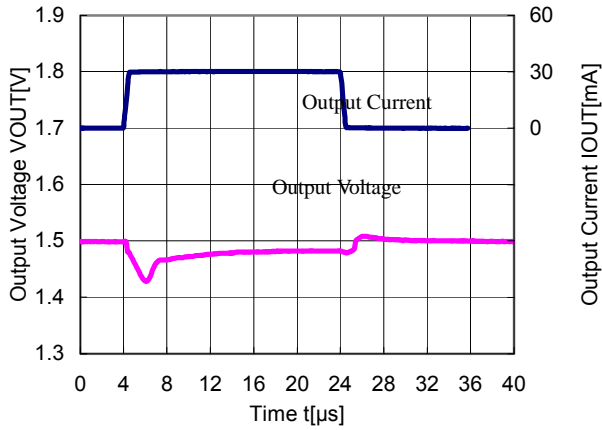
VOUT=1.5V(ECO=H) VIN=2.5V, COUT=Ceramic 1.0μF



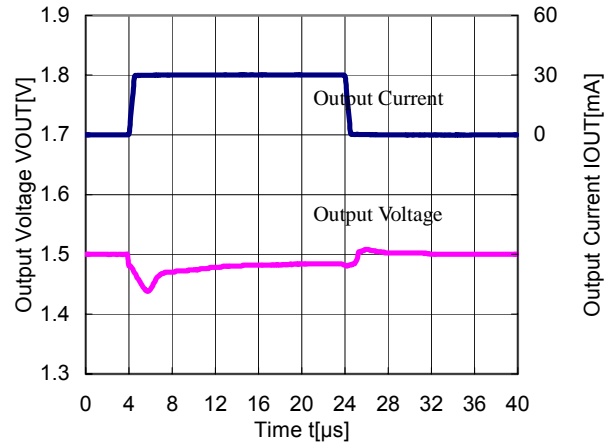
VOUT=1.5V(ECO=H) VIN=2.5V, COUT=Ceramic 2.2μF



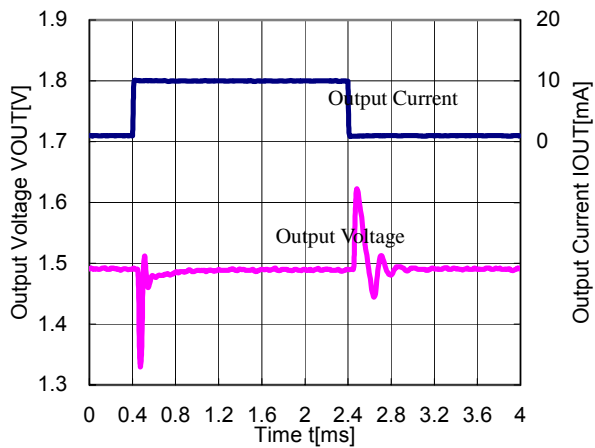
VOUT=1.5V(ECO=H) VIN=2.5V, COUT=Ceramic 1.0μF



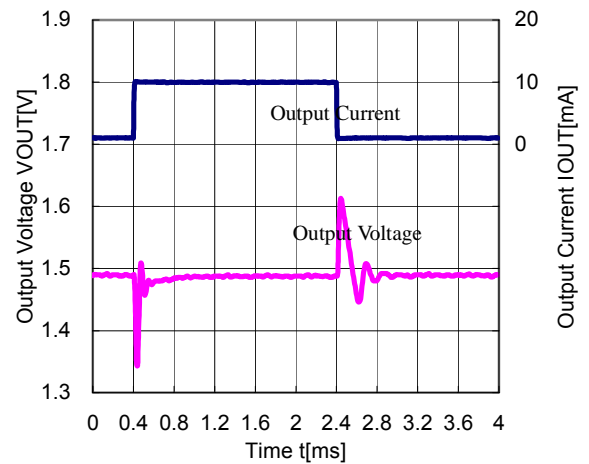
VOUT=1.5V(ECO=H) VIN=2.5V, COUT=Ceramic 2.2μF



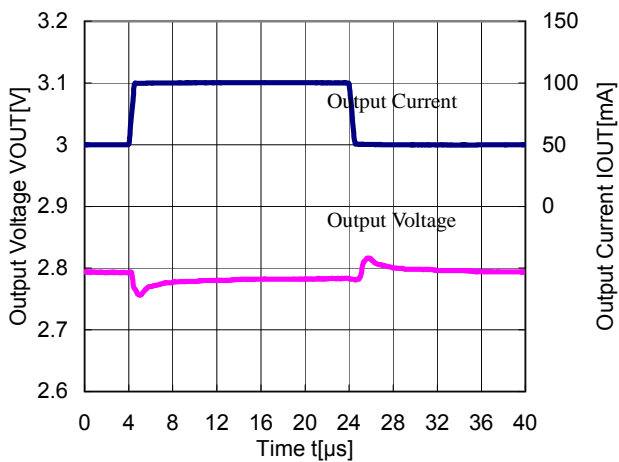
VOUT=1.5V(ECO=L) VIN=2.5V, COUT=Ceramic 1.0μF



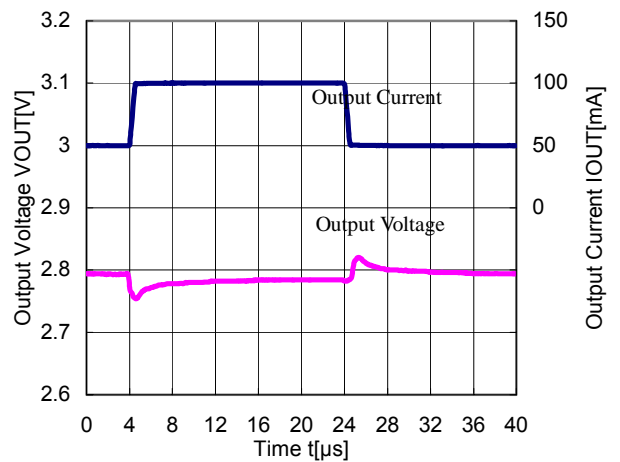
VOUT=1.5V(ECO=L) VIN=2.5V, COUT=Ceramic 2.2μF



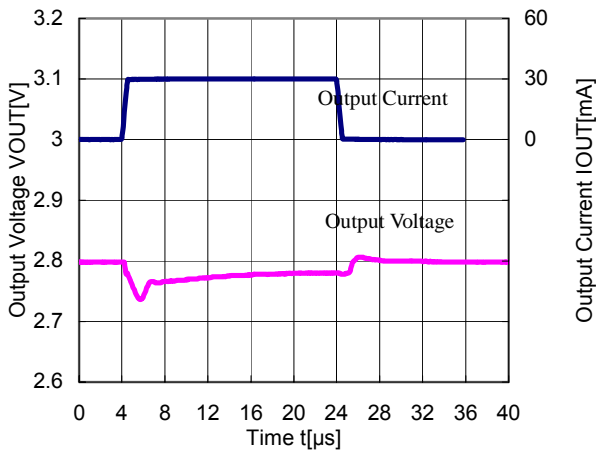
VOUT=2.8V(ECO=H) VIN=3.8V, COUT=Ceramic 1.0μF



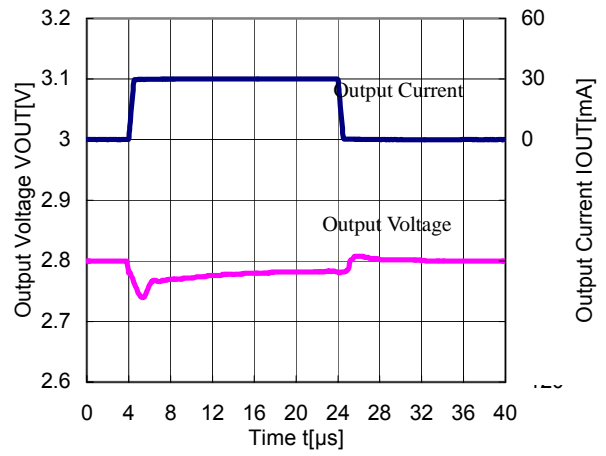
VOUT=2.8V(ECO=H) VIN=3.8V, COUT=Ceramic 2.2μF



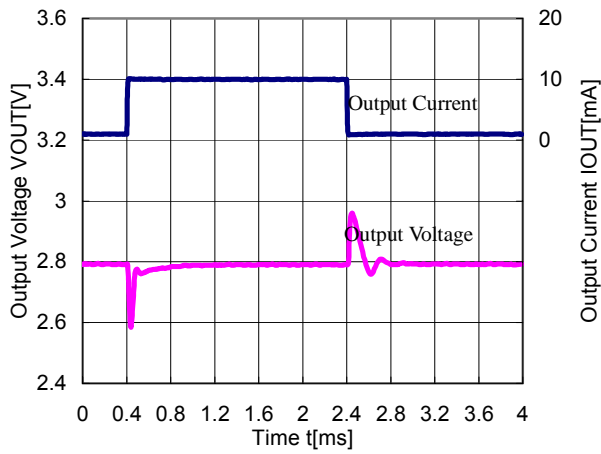
VOUT=2.8V(ECO=H) VIN=3.8V, COU=Ceramic 1.0μF



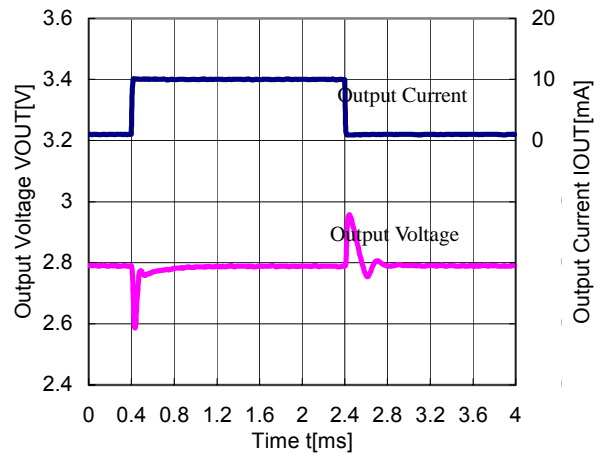
VOUT=2.8V(ECO=H) VIN=3.8V, COU=Ceramic 2.2μF



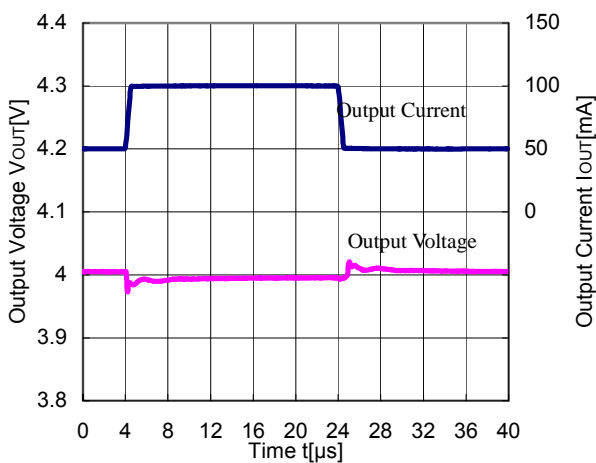
VOUT=2.8V(ECO=L) VIN=3.8V, COU=Ceramic 1.0μF



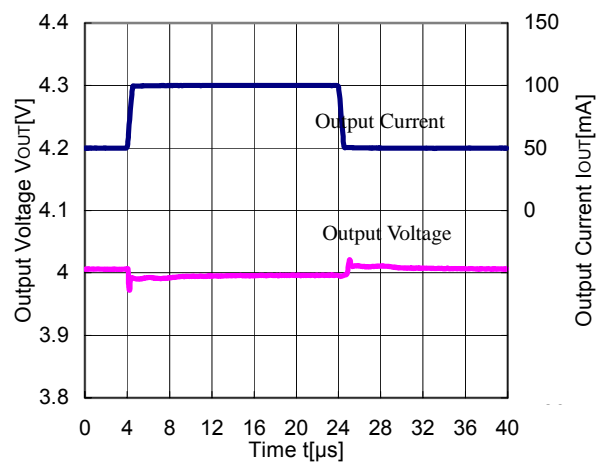
VOUT=2.8V(ECO=L) VIN=3.8V, COU=Ceramic 2.2μF



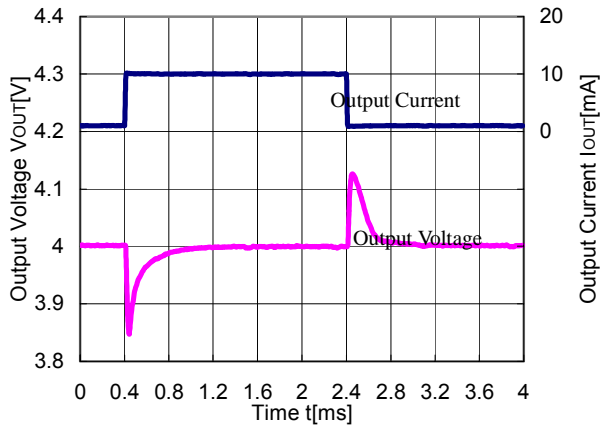
VOUT=4.0V(ECO=H) VIN=5.0V, COU=Ceramic 1.0μF



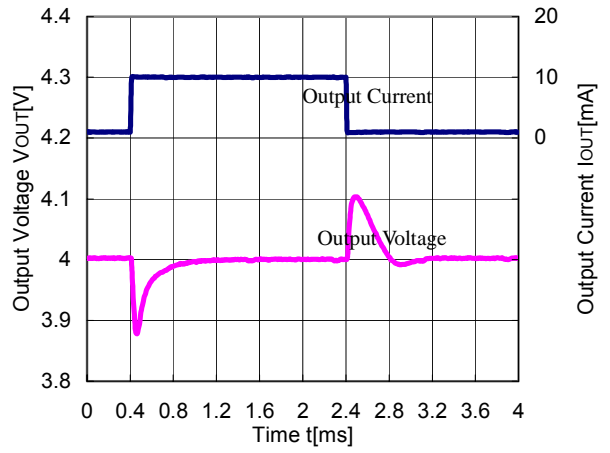
VOUT=4.0V(ECO=H) VIN=5.0V, COU=Ceramic 2.2μF



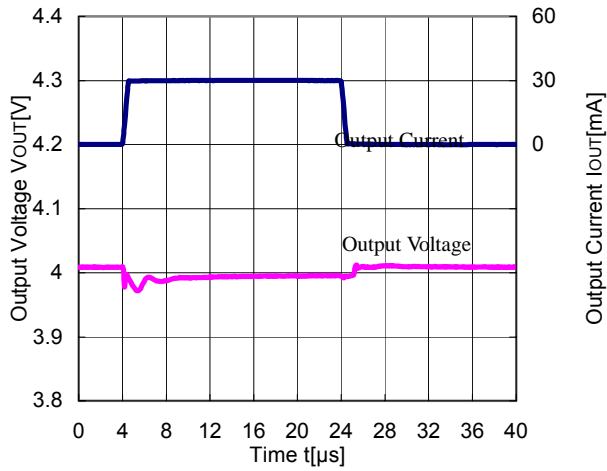
$V_{OUT}=4.0V$ (ECO=L) $V_{IN}=5.0V$, C_{OUT} =Ceramic $1.0\mu F$



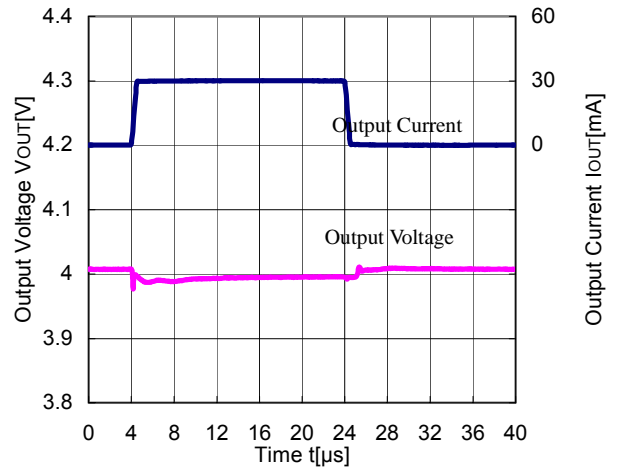
$V_{OUT}=4.0V$ (ECO=L) $V_{IN}=5.0V$, C_{OUT} =Ceramic $2.2\mu F$



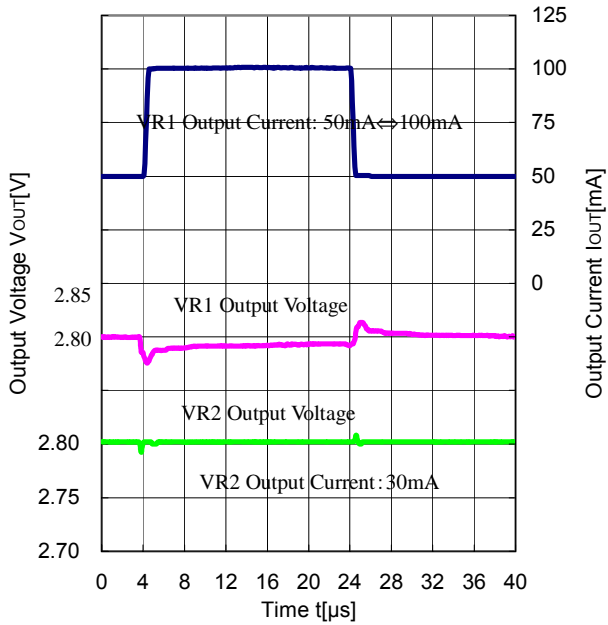
$V_{OUT}=4.0V$ (ECO=H) $V_{IN}=5.0V$, C_{OUT} =Ceramic $1.0\mu F$



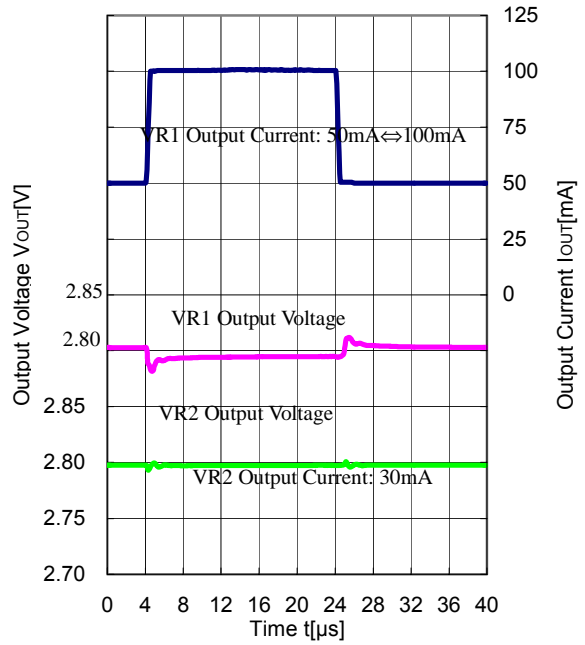
$V_{OUT}=4.0V$ (ECO=H) $V_{IN}=5.0V$, C_{OUT} =Ceramic $2.2\mu F$



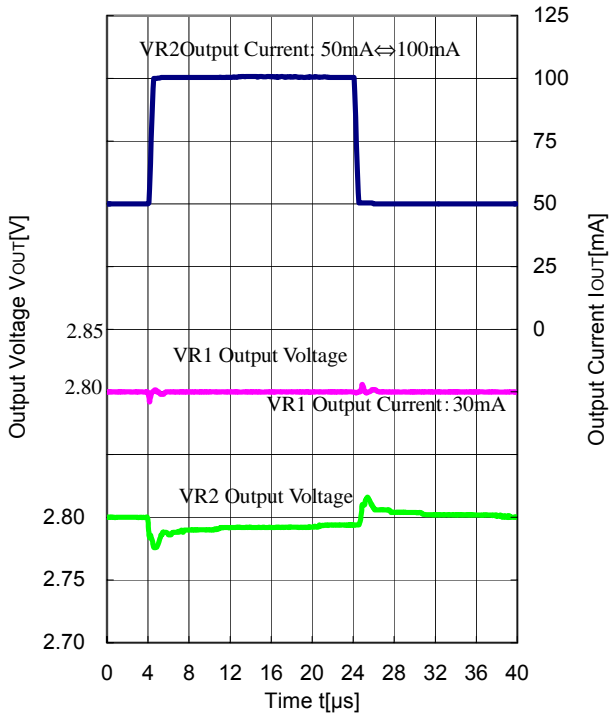
$V_{OUT}=2.8V(ECO=H)$ $V_{IN}=3.8V$, $C_{OUT}=\text{Ceramic } 1.0\mu F$



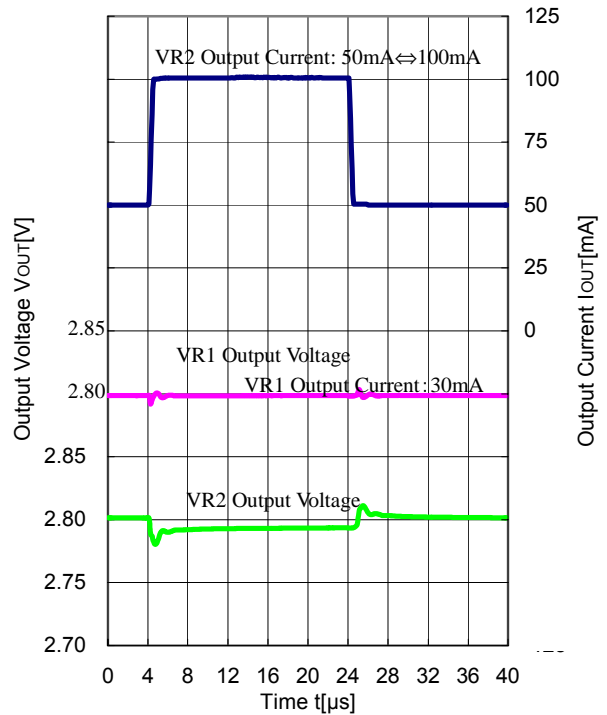
$V_{OUT}=2.8V(ECO=H)$ $V_{IN}=3.8V$, $C_{OUT}=\text{Ceramic } 2.2\mu F$



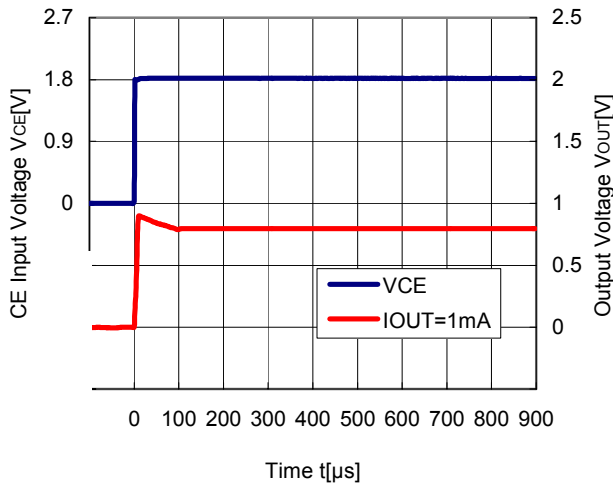
$V_{OUT}=2.8V(ECO=H)$ $V_{IN}=3.8V$, $C_{OUT}=\text{Ceramic } 1.0\mu F$



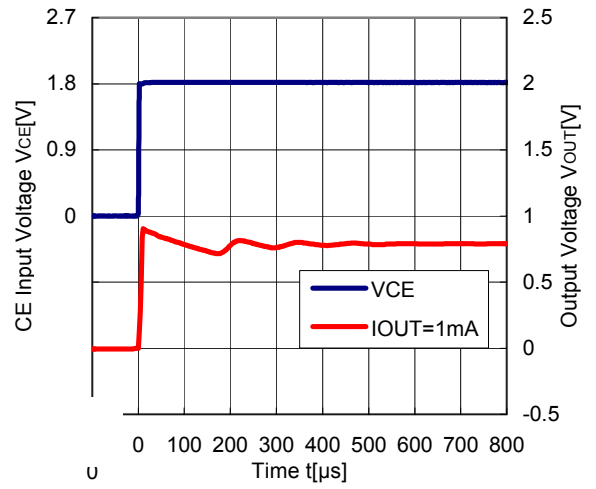
$V_{OUT}=2.8V(ECO=H)$ $V_{IN}=3.8V$, $C_{OUT}=\text{Ceramic } 2.2\mu F$



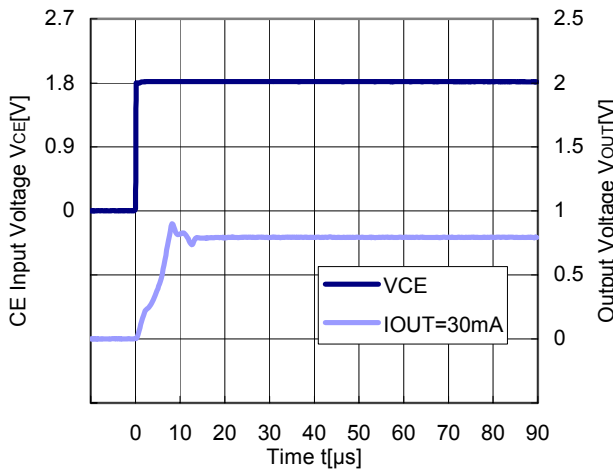
13) Turn on speed by CE pin control (C_{IN}=1.0μF)
 V_{OUT}=0.8V(ECO=H) V_{IN}=1.8V, C_{OUT}=Ceramic 1.0μF



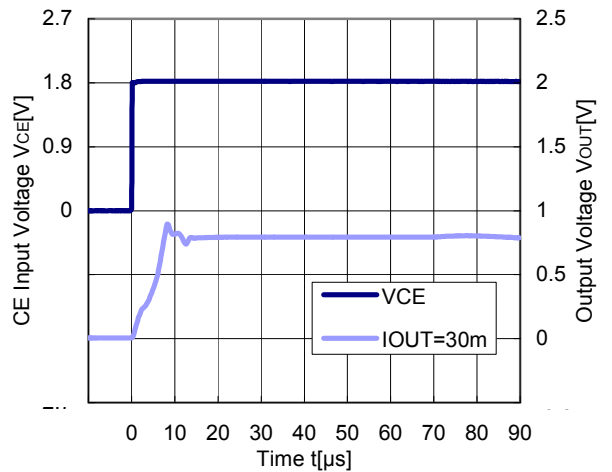
V_{OUT}=0.8V(ECO=L) V_{IN}=1.8V, C_{OUT}=Ceramic 1.0μF



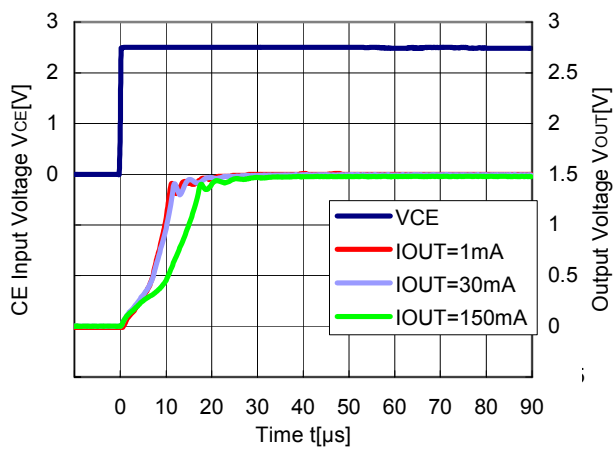
V_{OUT}=0.8V(ECO=H) V_{IN}=1.8V, C_{OUT}=Ceramic 1.0μF



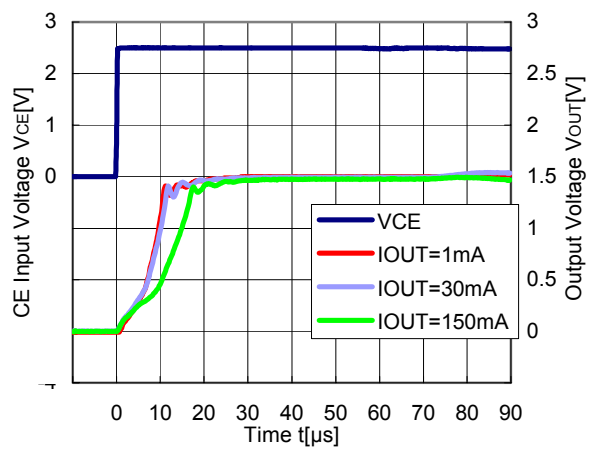
V_{OUT}=0.8V(ECO=L) V_{IN}=1.8V, C_{OUT}=Ceramic 1.0μF



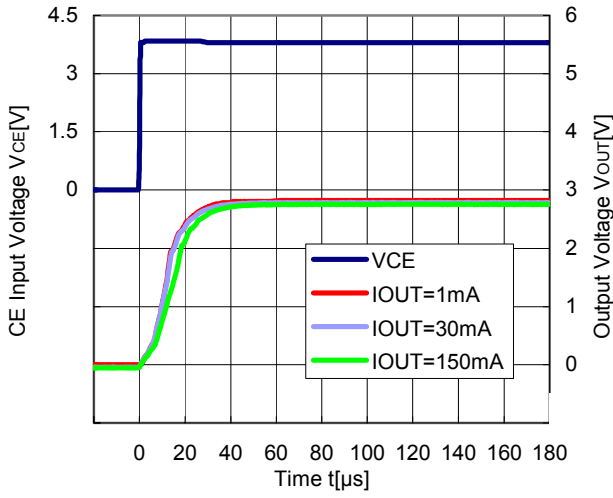
V_{OUT}=1.5V(ECO=H) V_{IN}=2.5V, C_{OUT}=Ceramic 1.0μF



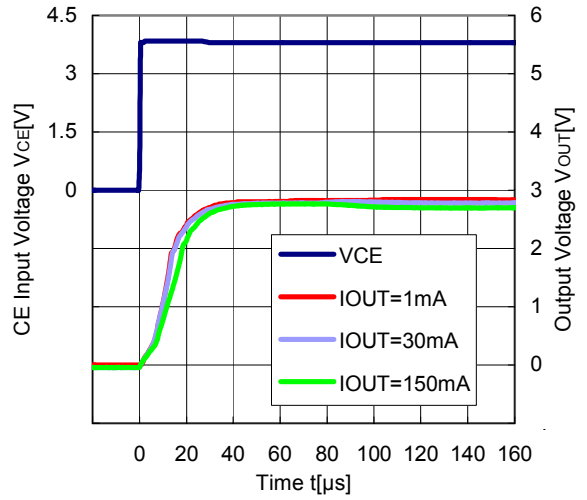
V_{OUT}=1.5V(ECO=L) V_{IN}=2.5V, C_{OUT}=Ceramic 1.0μF



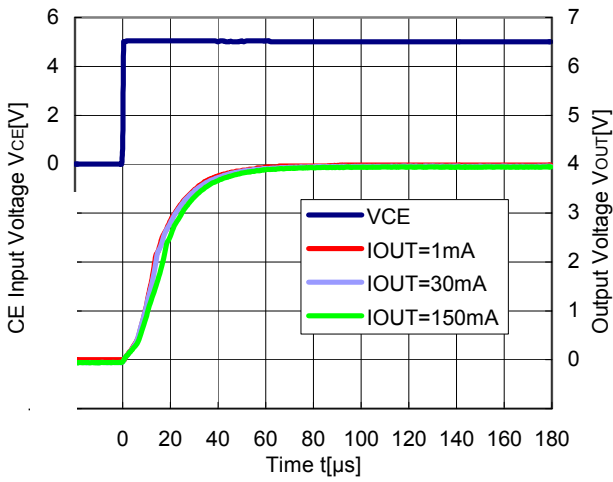
V_{OUT}=2.8V(ECO=H) VIN=3.8V, C_{OUT}=Ceramic 1.0μF



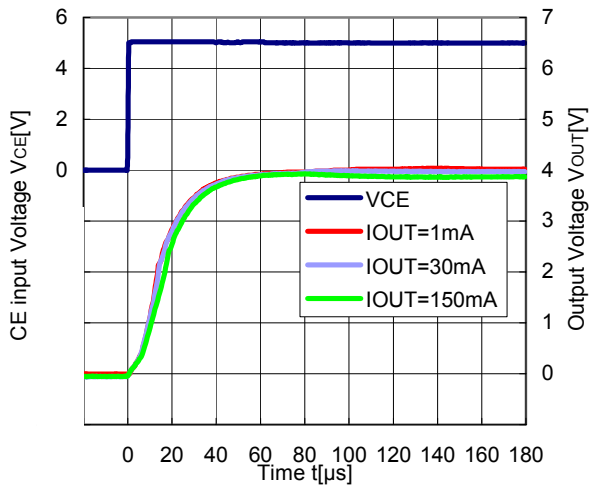
V_{OUT}=2.8V(ECO=L) VIN=3.8V, C_{OUT}=Ceramic 1.0μF



V_{OUT}=4.0V(ECO=H) VIN=5.0V, C_{OUT}=Ceramic 1.0μF

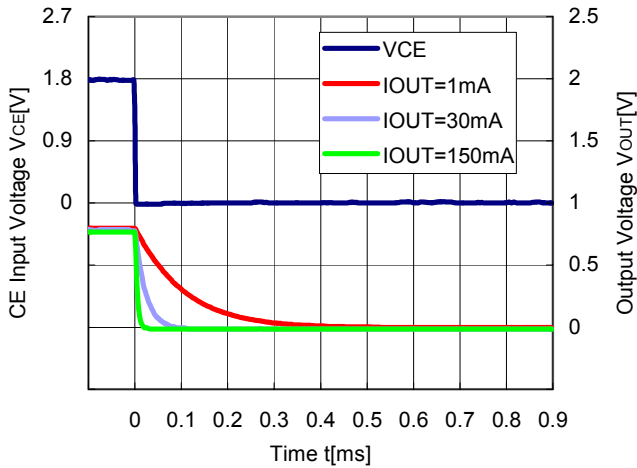


V_{OUT}=4.0V(ECO=L) VIN=5.0V, C_{OUT}=Ceramic 1.0μF

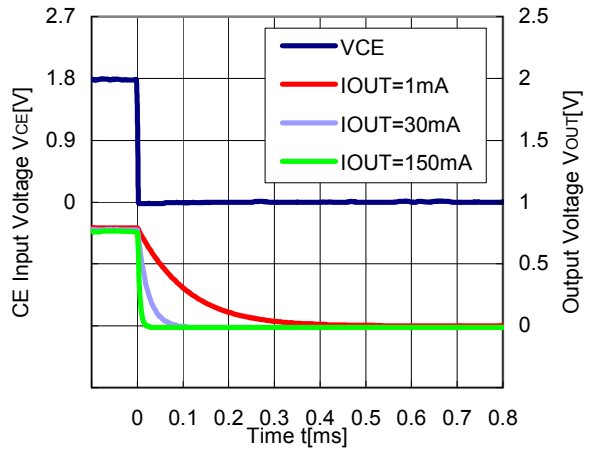


14) Turn off speed by CE pin control (C_{IN}=1.0μF)

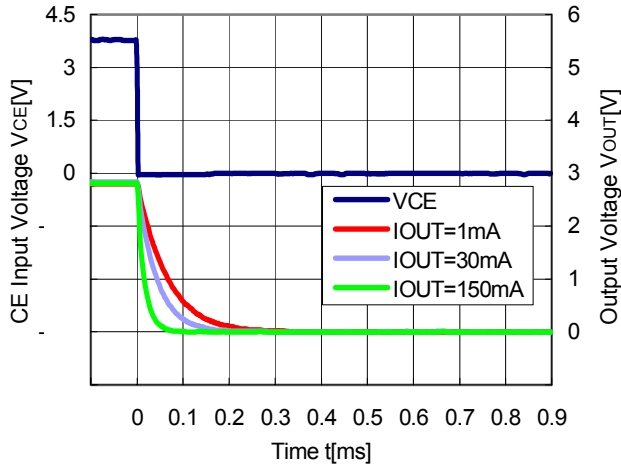
V_{OUT}=0.8V(ECO=H) VIN=1.8V, C_{OUT}=Ceramic 1.0μF



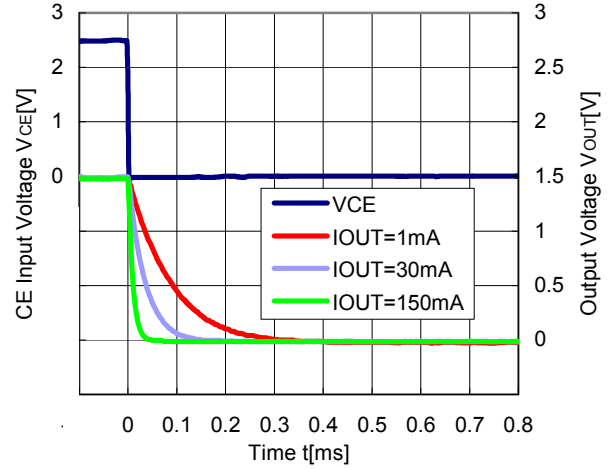
V_{OUT}=0.8V(ECO=L) VIN=1.8V, C_{OUT}=Ceramic 1.0μF



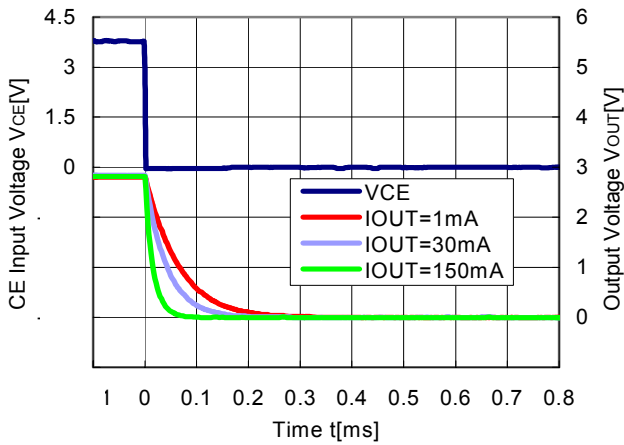
VOUT=1.5V(ECO=H) VIN=2.5V, COUT=Ceramic 1.0μF



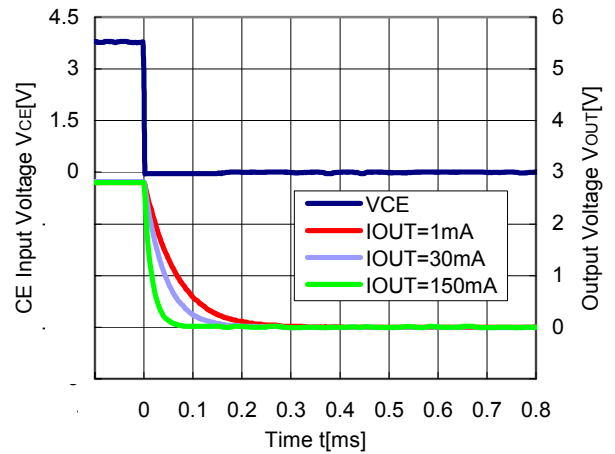
VOUT=1.5V(ECO=L) VIN=2.5V, COUT=Ceramic 1.0μF



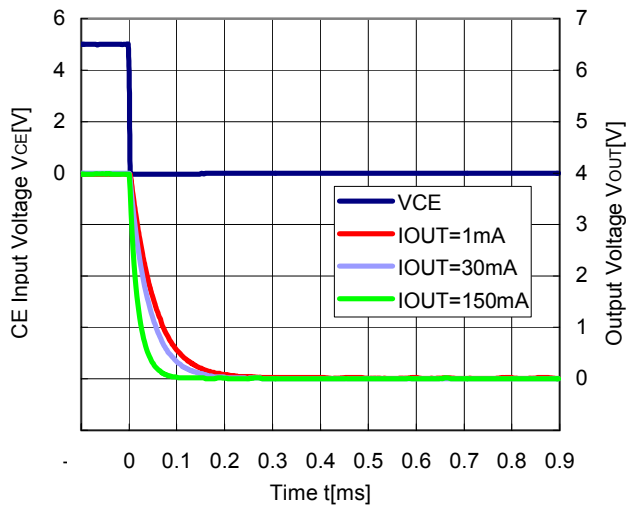
VOUT=2.8V(ECO=H) VIN=3.8V, COUT=Ceramic 1.0μF



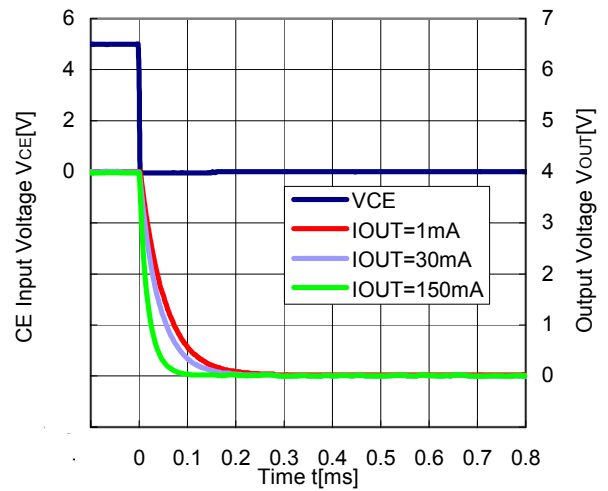
VOUT=2.8V(ECO=L) VIN=3.8V, COUT=Ceramic 1.0μF



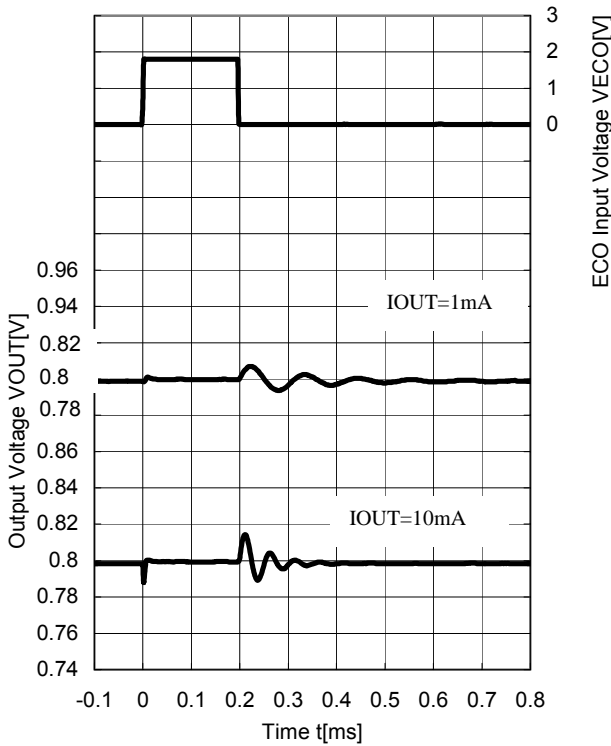
VOUT=4.0V(ECO=H) VIN=5.0V, COUT=Ceramic 1.0μF



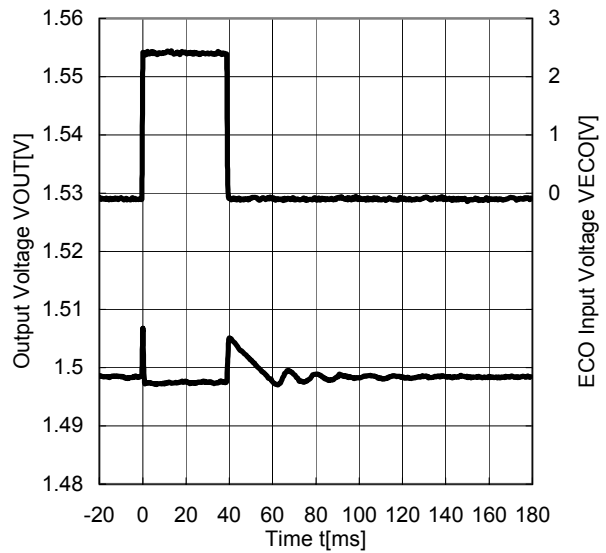
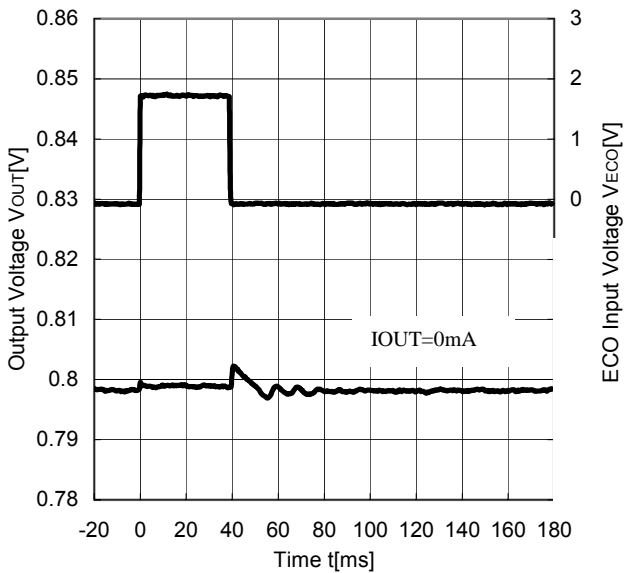
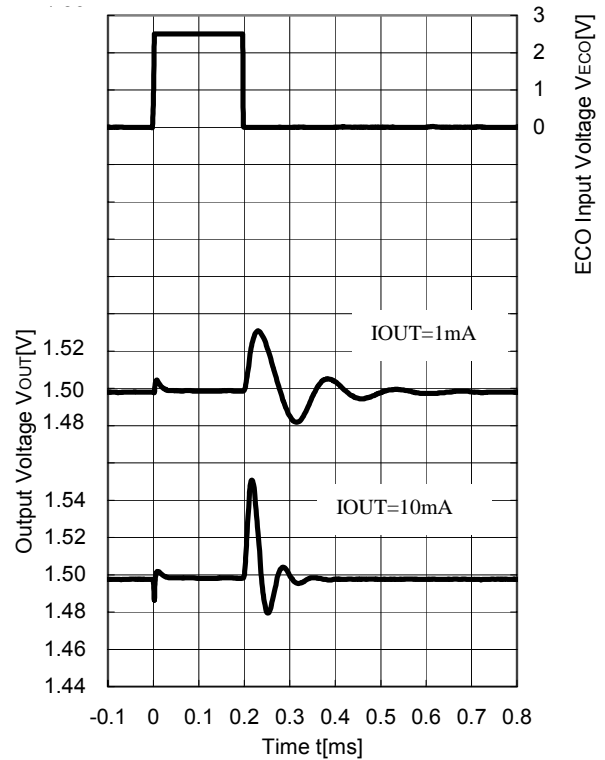
VOUT=4.0V(ECO=L) VIN=5.0V, COUT=Ceramic 1.0μF



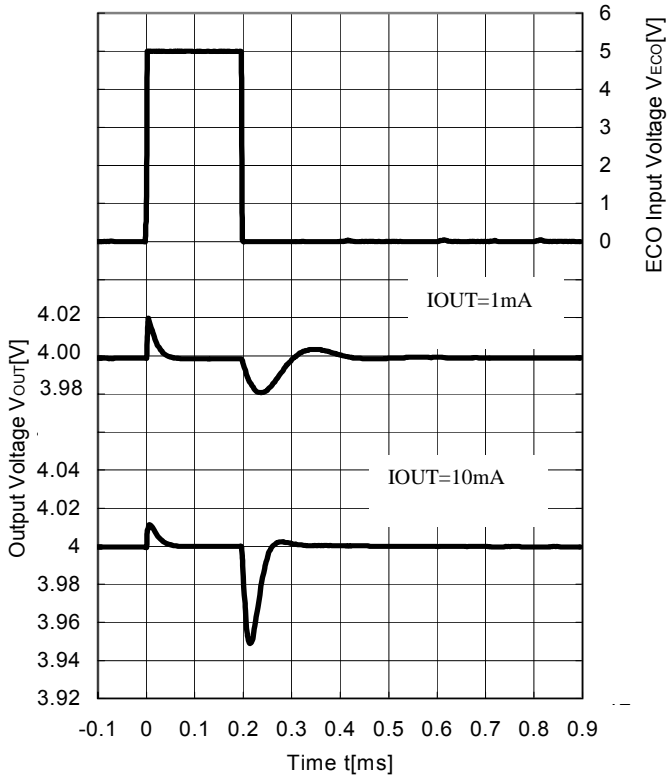
15) Mode Transient Response (C_{IN}=C_{OUT}=Ceramic 1.0μF)
 V_{OUT}=0.8V V_{IN}=1.8V



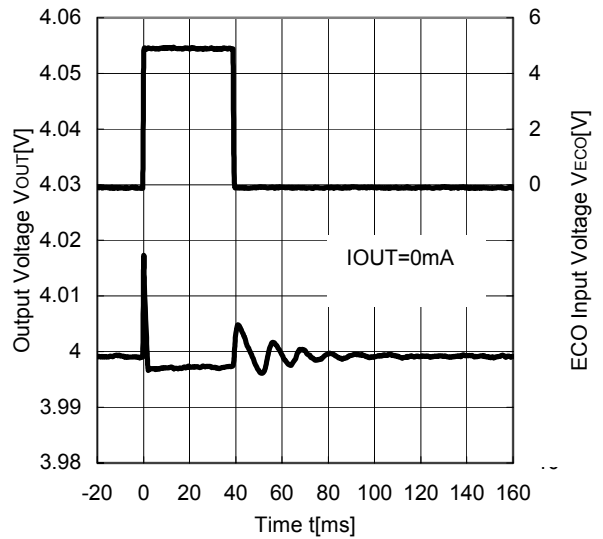
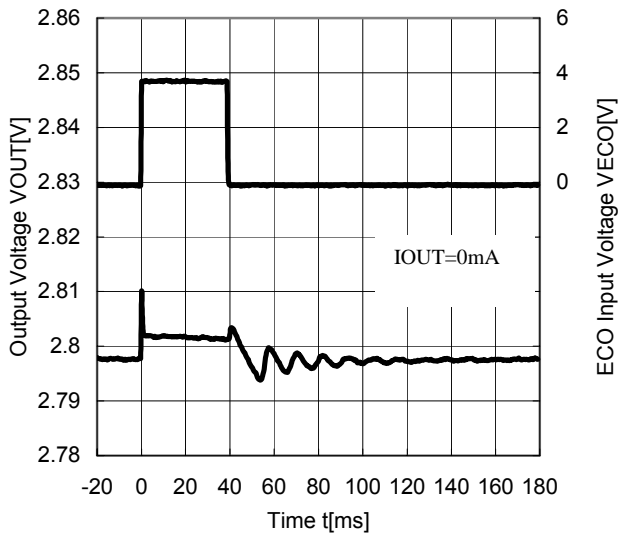
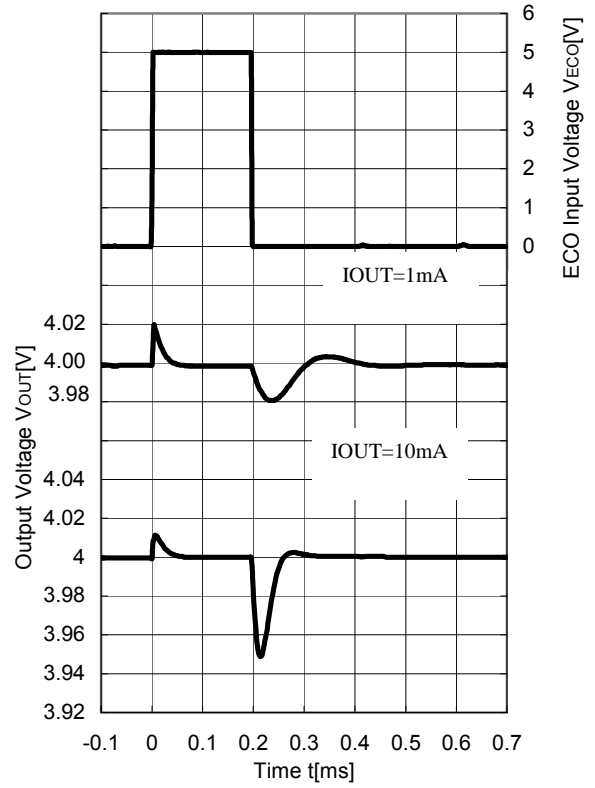
V_{OUT}=1.5V V_{IN}=2.5V



V_{OUT}=2.8V



V_{OUT}=4.0V

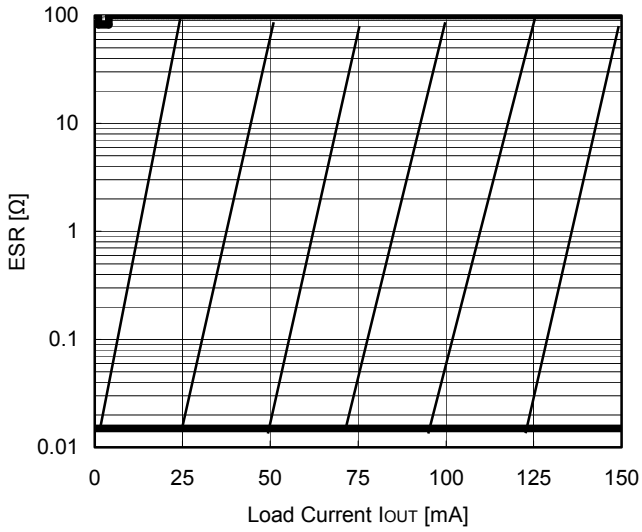


R5328K

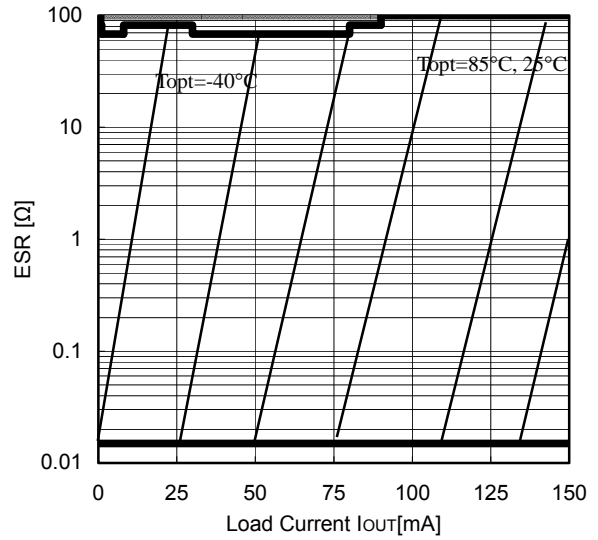
16) ESR vs. Output Current (Hatched area is stable area for the R5328K)

CO_{UT} Capacitor: 1.0μF(Murata, GRM155B31A105KE15)

V_{OUT}=0.8V

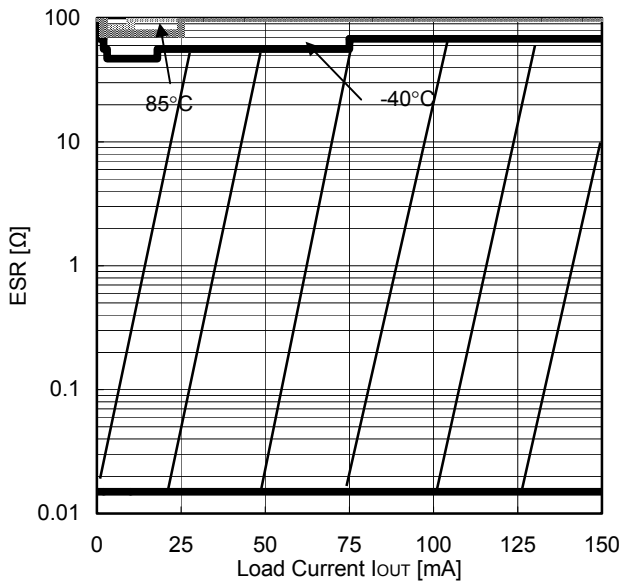


V_{OUT}=1.5V



V_{OUT}=2.8V

V_{IN}=2.9V to 6.0V, C_{IN}=Ceramic 1.0μF



V_{OUT}=4.0V, V_{IN}=4.1V to 6.0V, C_{IN}=Ceramic 1.0μF

