ELM88xxxxA CMOS 300mA LDO Voltage regulator

■General description

ELM88xxxxA is high current and low dropout(LOD) CMOS fixed voltage regulator. There are 2 types of CE selection for ELM88 series: non-chip enable function and "H"active. Thermal shutdown protective function and short circuit current limiter are included in the IC. The standard output voltages are 1.2V, 1.8.V, 2.5V, 3.0V, 3.3V, 5.0V; ELM88 series can also be designed as semi-customed IC within the range of 0.8V～5.0V by 0.1V step.

■Features

- Output voltage range : 0.8V～5.0V (by 0.1V)
- Output current : 300mA
- Stand by current consumption : Typ. 0.1μA
- Input stability : Typ. 0.02%/V (Iout=40mA)
- Load stability : Typ. 5mV (1mA≦Iout≦100mA)
- Accuracy of output voltage : ±2.0% (Vout＞1.5V)
  ±30mV (Vout≦1.5V)
- Input-output voltage difference : Typ. 350mV (Vout=3.0V, Iout=300mA)
- Short circuit current limiter : Typ. 40mA (Vout=0V)
- Thermal shutdown protection : Typ. 165℃
- Chip enable pin : "H"active (ELM88xx3xA)
- Package : SOT-89, SOT-89-5,
  SOT-23, SOT-25,
  SC-70(SOT-323), SC-70-5

■Application

- Battery operated devices
- Camera and Video recorders
- Reference voltage source
- Portable electronics

■Maximum absolute ratings

Parameter	Symbol	Limit	Unit
Input voltage	Vin	Vss-0.3～7.0	V
CE Input voltage	Vce	Vss-0.3～Vin+0.3	V
Output voltage	Vout	Vss-0.3～Vin+0.3	V
Output current	Iout	600	mA
Power dissipation	Pd	300 (SOT-89) 500 (SOT-89-5) 200 (SOT-23) 300 (SOT-25) 150 (SC-70)(SOT-323) 150 (SC-70-5)	mW
Operationg Temperature	Top	-40～+85	℃
Storage Temperature	Tstg	-55～+125	℃

■Selection guide

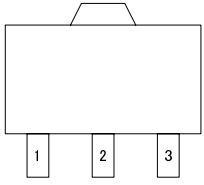
ELM88xxxxA-x

Symbol		
a,b	Output voltage	e.g. : 12: Vout=1.2V 18: Vout=1.8V 25: Vout=2.5V 30: Vout=3.0V 33: Vout=3.3V 50: Vout=5.0V
c	CE selection	1 : No CE 3 : CE="H"active
d	Package	A : SOT-89, SOT-89-5 B : SOT-23, SOT-25 C : SC-70(SOT-323), SC-70-5
e	Product version	A
f	Taping direction	S : Refer to PKG file N : Refer to PKG file

ELM88 x x x x A - x
↑ ↑ ↑ ↑ ↑ ↑
a b c d e f

■Pin configuration

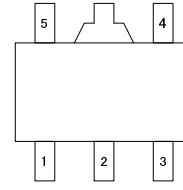
SOT-89 (TOP VIEW)



ELM88xx1AA

Pin No.	Pin name
1	VSS
2	VIN
3	VOUT

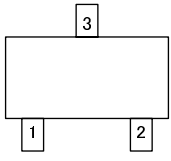
SOT-89-5 (TOP VIEW)



ELM88xx3AA

Pin No.	Pin name
1	VSS
2	VIN
3	VOUT
4	NC
5	CE

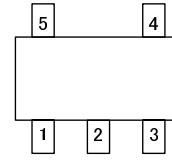
SOT-23 (TOP VIEW)



ELM88xx1BA

Pin No.	Pin name
1	VSS
2	VOUT
3	VIN

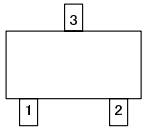
SOT-25 (TOP VIEW)



ELM88xx3BA

Pin No.	Pin name
1	VSS
2	VIN
3	VOUT
4	NC
5	CE

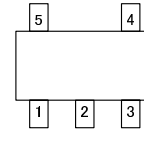
SC-70 (TOP VIEW)



ELM88xx1CA

Pin No.	Pin name
1	VSS
2	VOUT
3	VIN

SC-70-5 (TOP VIEW)

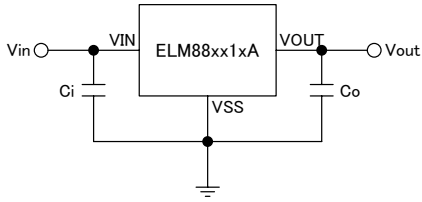


ELM88xx3CA

Pin No.	Pin name
1	VSS
2	VIN
3	VOUT
4	NC
5	CE

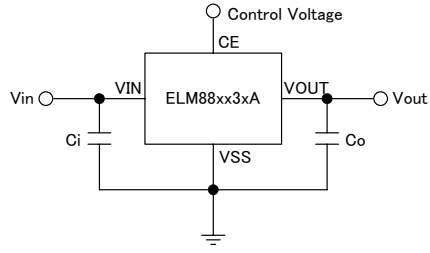
■Standard circuit

ELM88xx1xA



＊ Ci=1μF, Co=1μF or greater

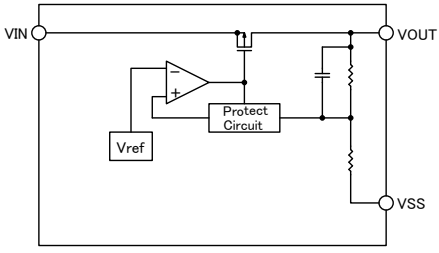
ELM88xx3xA



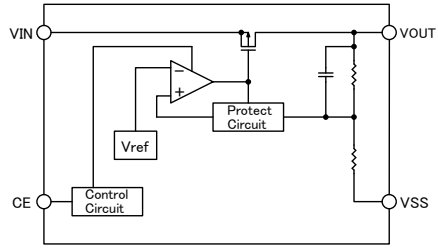
＊ Ci=1μF, Co=1μF or greater

■Block diagram

ELM88xx1xA



ELM88xx3xA



■Electrical characteristics (ELM88xx1xA)

Vout=1.2V (ELM88121xA), No CE pin　　Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=2.2V, Iout=40mA	1.170	1.200	1.230	V
Output current	Iout	Vin=2.2V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 2.0V≦Vin≦6.0V		0.05	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=2.2V		5	20	mV
Input−Output voltage differential	Vdif	Iout=100mA		380	620	mV
Current consumption	Iss	Vin=2.2V, No-load		15	50	μA
Input voltage	Vin		1.4		6.0	V
Output voltage temperature coefficient	ΔVout/ΔTop	−40℃≦Top≦+85℃, Iout=40mA, Vin=2.2V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=1.8V (ELM88181xA), No CE pin

Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=2.8V, Iout=40mA	1.764	1.800	1.836	V
Output current	Iout	Vin=2.8V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 2.3V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=2.8V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		145	230	mV
Current consumption	Iss	Vin=2.8V, No-load		15	50	μA
Input voltage	Vin		1.4		6.0	V
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃, Iout=40mA, Vin=2.8V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=2.5V (ELM88251xA), No CE pin

Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=3.5V, Iout=40mA	2.450	2.500	2.550	V
Output current	Iout	Vin=3.5V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 3.0V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=3.5V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		120	190	mV
Current consumption	Iss	Vin=3.5V, No-load		15	50	μA
Input voltage	Vin		1.4		6.0	V
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃, Iout=40mA, Vin=3.5V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=3.0V (ELM88301xA), No CE pin Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=4.0V, Iout=40mA	2.940	3.000	3.060	V
Output current	Iout	Vin=4.0V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 3.5V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=4.0V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		110	175	mV
Current consumption	Iss	Vin=4.0V, No-load		15	50	μA
Input voltage	Vin		1.4		6.0	V
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃, Iout=40mA, Vin=4.0V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=3.3V (ELM88331xA), No CE pin Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=4.3V, Iout=40mA	3.234	3.300	3.366	V
Output current	Iout	Vin=4.3V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 3.8V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=4.3V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		110	175	mV
Current consumption	Iss	Vin=4.3V, No-load		15	50	μA
Input voltage	Vin		1.4		6.0	V
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃, Iout=40mA, Vin=4.3V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=5.0V (ELM88501xA), No CE pin Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=6.0V, Iout=40mA	4.900	5.000	5.100	V
Output current	Iout	Vin=6.0V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 5.5V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=6.0V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		100	160	mV
Current consumption	Iss	Vin=6.0V, No-load		15	50	μA
Input voltage	Vin		1.4		6.0	V
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃, Iout=40mA, Vin=6.0V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

■Electrical characteristics (ELM88xx3xA)

Vout=1.2V (ELM88123xA), CE="H"active Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=2.2V, Iout=40mA	1.170	1.200	1.230	V
Output current	Iout	Vin=2.2V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 2.0V≦Vin≦6.0V		0.05	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=2.2V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		380	620	mV
Current consumption	Iss	Vin=2.2V, No-load		15	50	μA
Stand-by current consumption	Istandby	Vin=2.2V, Vce=0			0.5	μA
Input voltage	Vin		1.4		6.0	V
CE input voltage High	Vceh	Vin=6.0V	1.8		Vin	V
CE input voltage Low	Vcel	Vin=1.4V	0.0		0.2	V
CE input current High	Iceh	Vce=Vin=6.0V	-0.2	0.0	0.2	μA
CE input current Low	Icel	Vce=Vss, Vin=6.0V	-0.2	0.0	0.2	
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃ Iout=40mA, Vin=2.2V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=1.8V (ELM88183xA), CE="H"active Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=2.8V, Iout=40mA	1.764	1.800	1.836	V
Output current	Iout	Vin=2.8V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 2.3V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=2.8V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		145	230	mV
Current consumption	Iss	Vin=2.8V, No-load		15	50	μA
Stand-by current consumption	Istandby	Vin=2.8V, Vce=0			0.5	μA
Input voltage	Vin		1.4		6.0	V
CE input voltage High	Vceh	Vin=6.0V	1.8		Vin	V
CE input voltage Low	Vcel	Vin=1.4V	0.0		0.2	V
CE input current High	Iceh	Vce=Vin=6.0V	-0.2	0.0	0.2	μA
CE input current Low	Icel	Vce=Vss, Vin=6.0V	-0.2	0.0	0.2	
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃ Iout=40mA, Vin=2.8V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=2.5V (ELM88253xA), CE="H"active Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=3.5V, Iout=40mA	2.450	2.500	2.550	V
Output current	Iout	Vin=3.5V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 3.0V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=3.5V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		120	190	mV
Current consumption	Iss	Vin=3.5V, No-load		15	50	μA
Stand-by current consumption	Istandby	Vin=3.5V, Vce=0			0.5	μA
Input voltage	Vin		1.4		6.0	V
CE input voltage High	Vceh	Vin=6.0V	1.8		Vin	V
CE input voltage Low	Vcel	Vin=1.4V	0.0		0.2	V
CE input current High	Iceh	Vce=Vin=6.0V	-0.2	0.0	0.2	μA
CE input current Low	Icel	Vce=Vss, Vin=6.0V	-0.2	0.0	0.2	
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃ Iout=40mA, Vin=3.5V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=3.0V (ELM88303xA), CE="H"active Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=4.0V, Iout=40mA	2.940	3.000	3.060	V
Output current	Iout	Vin=4.0V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 3.5V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=4.0V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		110	175	mV
Current consumption	Iss	Vin=4.0V, No-load		15	50	μA
Stand-by current consumption	Istandby	Vin=4.0V, Vce=0			0.5	μA
Input voltage	Vin		1.4		6.0	V
CE input voltage High	Vceh	Vin=6.0V	1.8		Vin	V
CE input voltage Low	Vcel	Vin=1.4V	0.0		0.2	V
CE input current High	Iceh	Vce=Vin=6.0V	-0.2	0.0	0.2	μA
CE input current Low	Icel	Vce=Vss, Vin=6.0V	-0.2	0.0	0.2	
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃, Iout=40mA, Vin=4.0V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

Vout=3.3V (ELM88333xA), CE="H"active Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=4.3V, Iout=40mA	3.234	3.300	3.366	V
Output current	Iout	Vin=4.3V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 3.8V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA, Vin=4.3V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		110	175	mV
Current consumption	Iss	Vin=4.3V, No-load		15	50	μA
Stand-by current consumption	Istandby	Vin=4.3V, Vce=0			0.5	μA
Input voltage	Vin		1.4		6.0	V
CE input voltage High	Vceh	Vin=6.0V	1.8		Vin	V
CE input voltage Low	Vcel	Vin=1.4V	0.0		0.2	V
CE input current High	Iceh	Vce=Vin=6.0V	-0.2	0.0	0.2	μA
CE input current Low	Icel	Vce=Vss, Vin=6.0V	-0.2	0.0	0.2	
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃, Iout=40mA, Vin=4.3V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

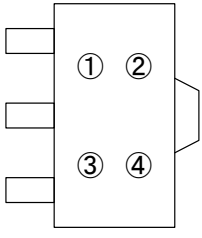
Vout=5.0V (ELM88503xA), CE="H"active　　Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Vin=6.0V, Iout=40mA	4.900	5.000	5.100	V
Output current	Iout	Vin=6.0V	300			mA
Input stability	ΔVout/ΔVin	Iout=40mA, 5.5V≦Vin≦6.0V		0.02	0.20	%/V
Load stability	ΔVout/ΔIout	1mA≦Iout≦100mA,Vin=6.0V		5	20	mV
Input-Output voltage differential	Vdif	Iout=100mA		100	160	mV
Current consumption	Iss	Vin=6.0V, No-load		15	50	μA
Stand-by current consumption	Istandby	Vin=6.0V, Vce=0			0.5	μA
Input voltage	Vin		1.4		6.0	V
CE input voltage High	Vceh	Vin=6.0V	1.8		Vin	V
CE input voltage Low	Vcel	Vin=1.4V	0.0		0.2	V
CE input current High	Iceh	Vce=Vin=6.0V	-0.2	0.0	0.2	μA
CE input current Low	Icel	Vce=Vss, Vin=6.0V	-0.2	0.0	0.2	
Output voltage temperature coefficient	ΔVout/ΔTop	-40℃≦Top≦+85℃, Iout=40mA, Vin=6.0V		±100		ppm/℃
Short circuit current	Ilim	Vout=0V		40		mA
Ripple rejection ratio	RR	f=1kHz, Iout=40mA		60		dB
Thermal shutdown temparature	Tsd			165		℃
Output noise	Vno	BW=10Hz～100kHz		30		μVrms

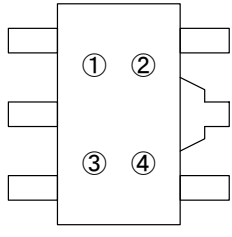
■Marking

- SOT-89, SOT-23　package　: ELM88xx1xA
- SOT-89-5, SOT-25 package : ELM88xx3xA (with CE)
- SC-70 package　: ELM88xx1CA
- SC-70-5 package : ELM88xx3CA (with CE)

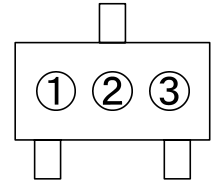
SOT-89



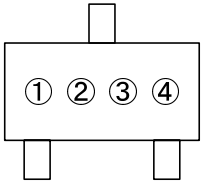
SOP-89-5



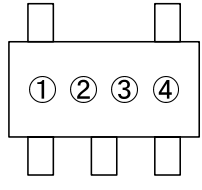
SC-70



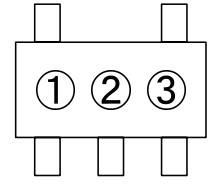
SOT-23



SOT-25



SC-70-5

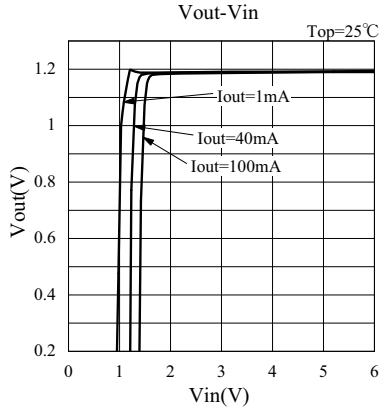


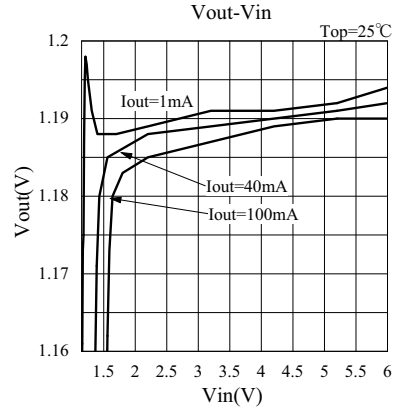
No. ①～④ :
Assembly lot No.
A～Z (I, O, X excepted) and 0～9

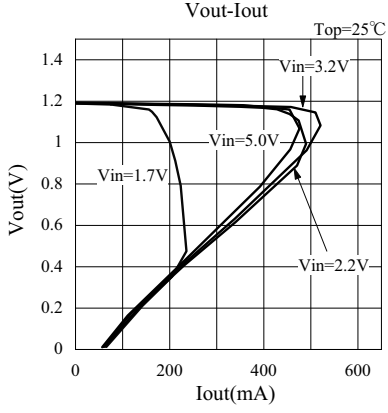
No. ①～③ :
Assembly lot No.
A～Z (I ,O, X excepted) and 0～9

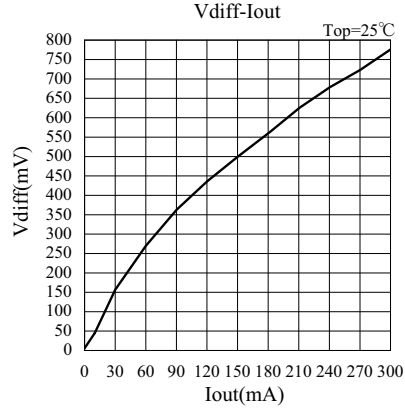
■Typical characteristics

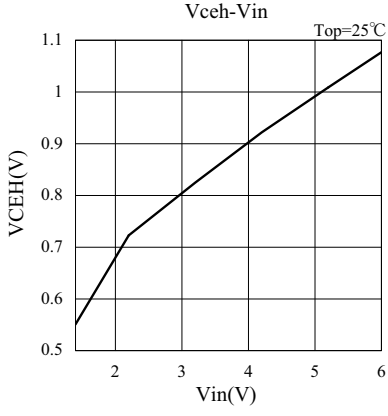
・1.2V Vout unit (ELM8812xxA)

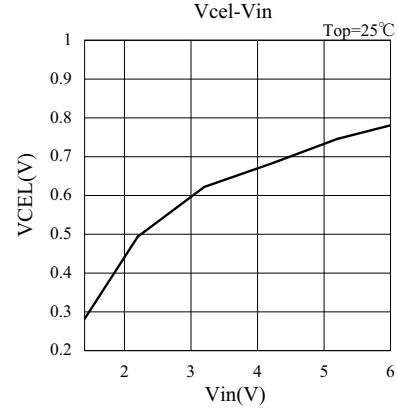


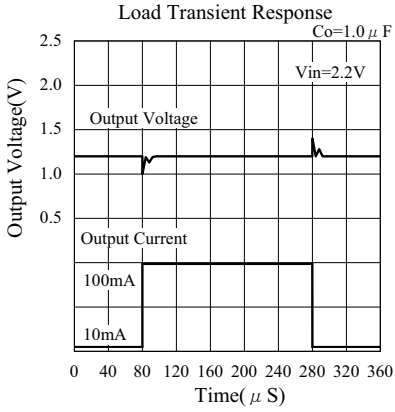


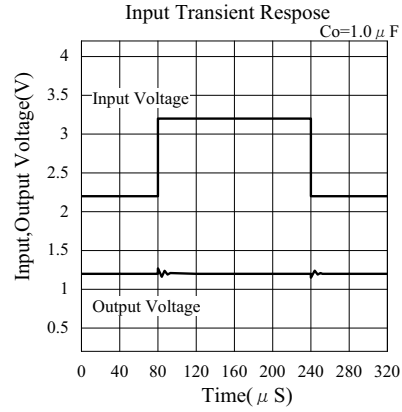


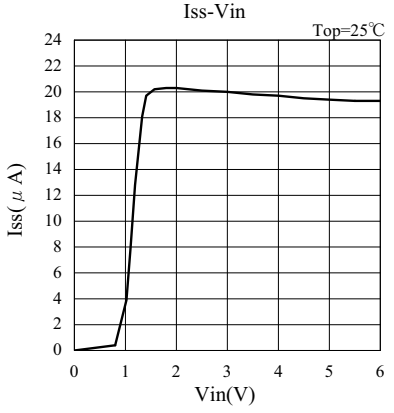


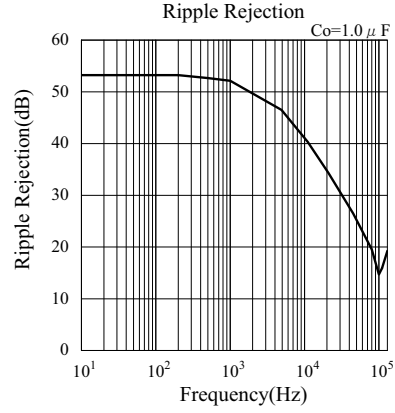




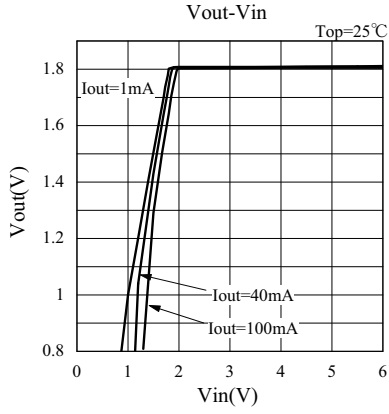

Load Transient Response
Co=1.0μF
Vin=2.2V
Output Voltage
Output Current
100mA
10mA
Output Voltage(V)
2.5
2.0
1.5
1.0
0.5
0 40 80 120 160 200 240 280 320 360
Time(μS)

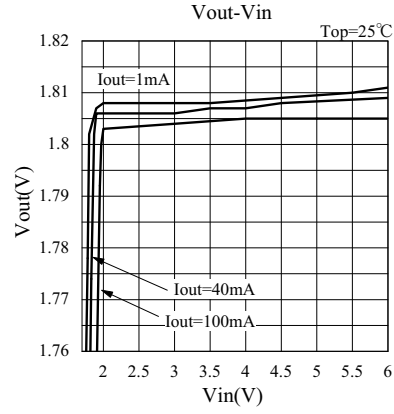

Input Transient Respose
Co=1.0μF
Input Voltage
Output Voltage
Input,Output Voltage(V)
4
3.5
3
2.5
2
1.5
1
0.5
0 40 80 120 160 200 240 280 320
Time(μS)

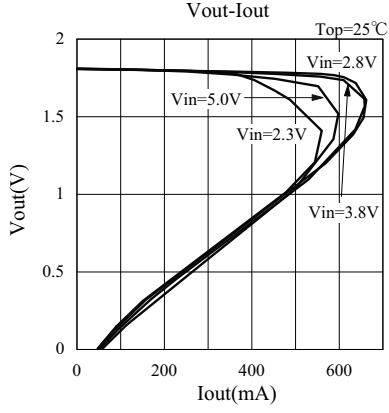

Iss-Vin
Top=25℃
Iss(μA)
24
22
20
18
16
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6
Vin(V)

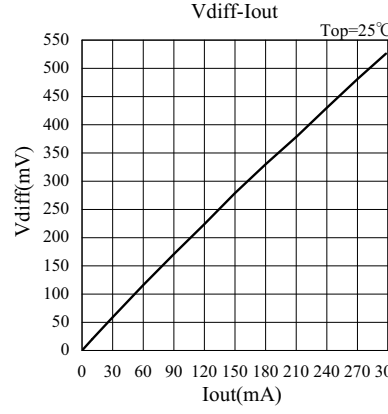

Ripple Rejection
Co=1.0μF
Ripple Rejection(dB)
60
50
40
30
20
10
0
10^1 10^2 10^3 10^4 10^5
Frequency(Hz)

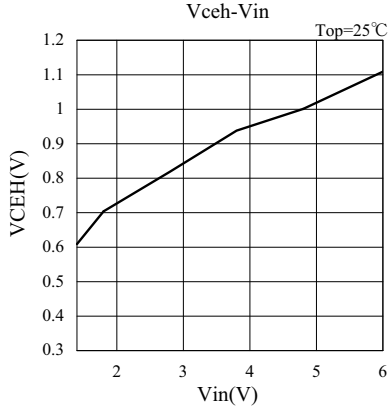
・1.8V Vout unit (ELM8818xxA)

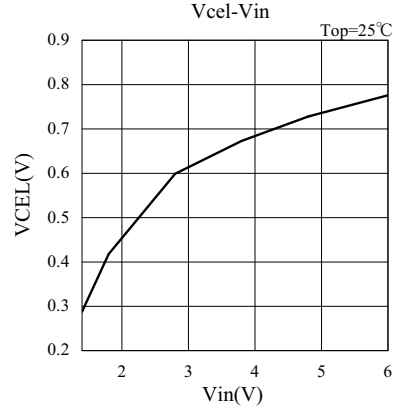


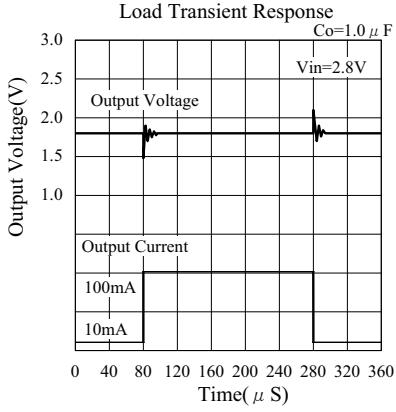


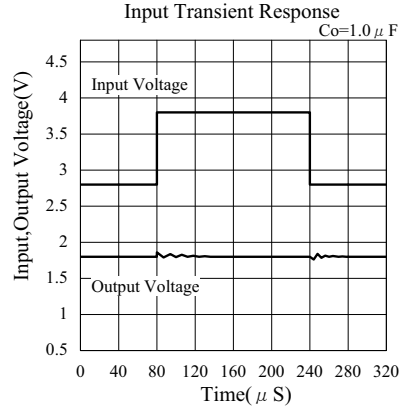


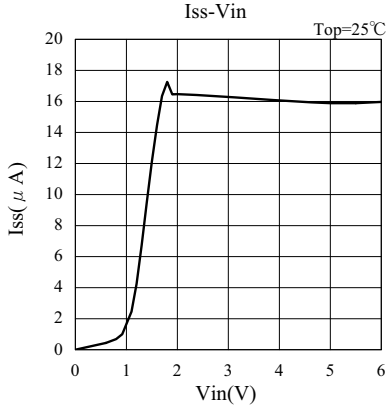


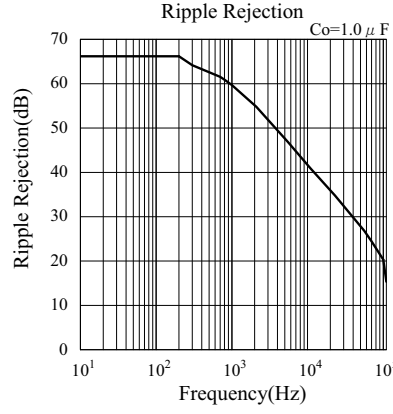




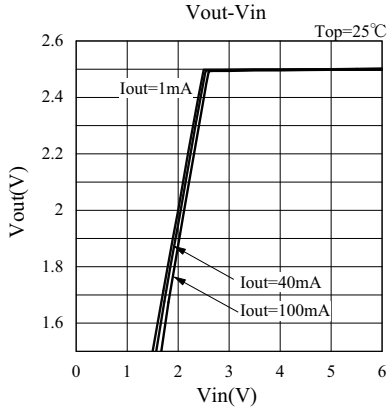

Load Transient Response
Co=1.0 μ F
Vin=2.8V
Output Voltage
Output Current
100mA
10mA
Output Voltage(V)
3.0
2.5
2.0
1.5
1.0
0 40 80 120 160 200 240 280 320 360
Time(μ S)

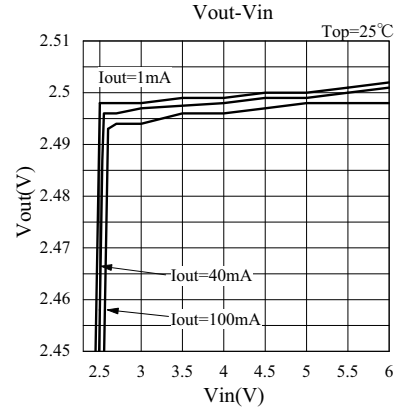

Input Transient Response
Co=1.0 μ F
Input Voltage
Output Voltage
Input,Output Voltage(V)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0 40 80 120 160 200 240 280 320
Time(μ S)

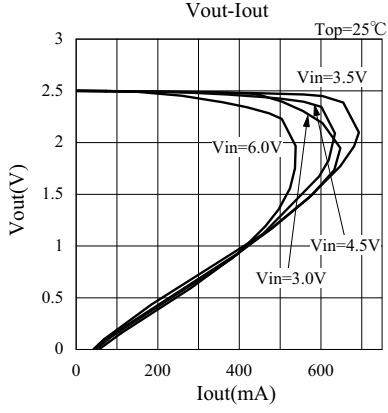

Iss-Vin
Top=25℃
Iss(μ A)
20
18
16
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6
Vin(V)

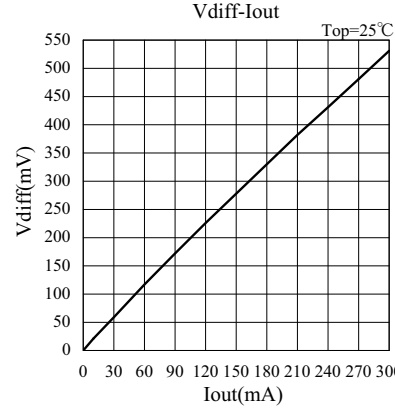

Ripple Rejection
Co=1.0 μ F
Ripple Rejection(dB)
70
60
50
40
30
20
10
0
10^1 10^2 10^3 10^4 10^5
Frequency(Hz)

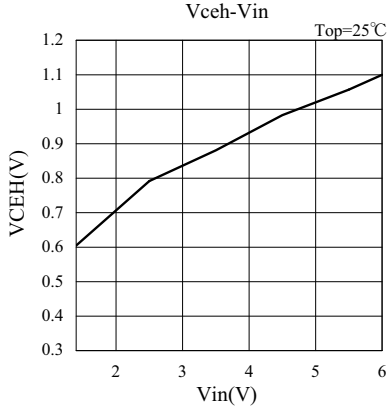
・2.5V Vout unit (ELM8825xxA)

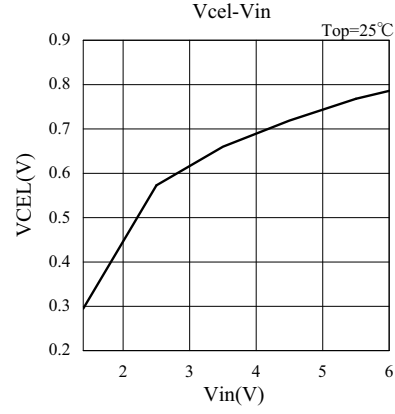


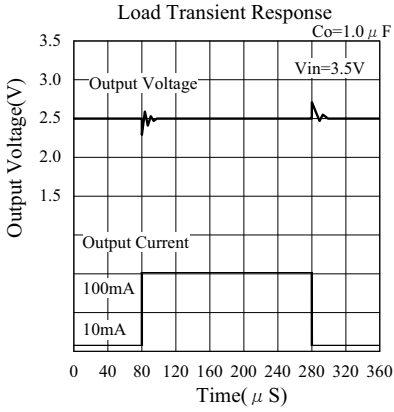


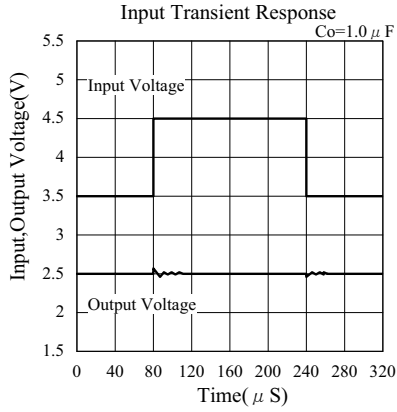


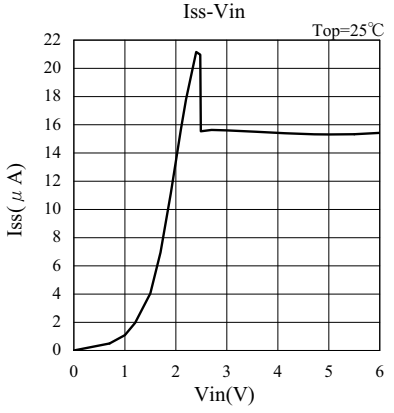


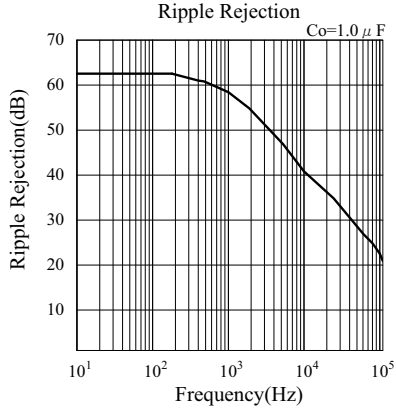




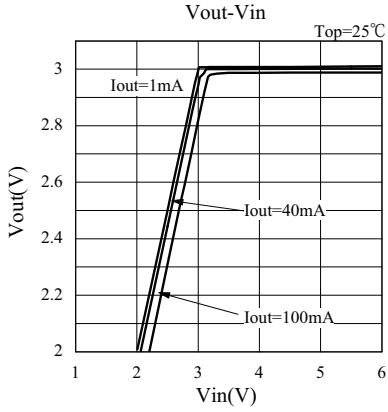

Load Transient Response
Co=1.0 μ F
Vin=3.5V
Output Voltage
Output Current
100mA
10mA
Output Voltage(V)
3.5
3.0
2.5
2.0
1.5
0 40 80 120 160 200 240 280 320 360
Time(μ S)

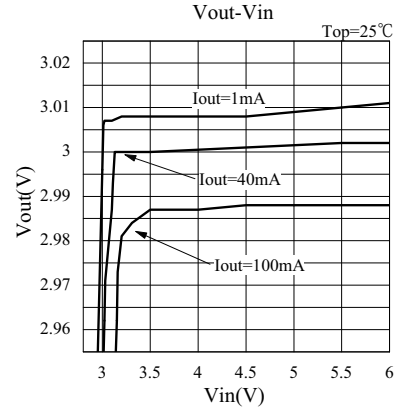

Input Transient Response
Co=1.0 μ F
Input Voltage
Output Voltage
Input,Output Voltage(V)
5.5
5
4.5
4
3.5
3
2.5
2
1.5
0 40 80 120 160 200 240 280 320
Time(μ S)

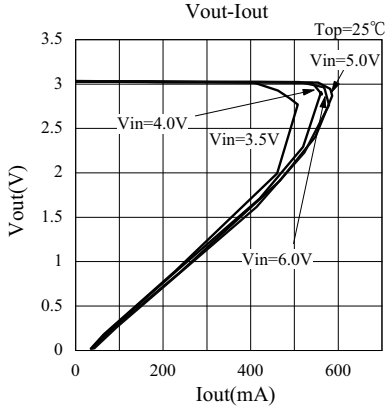

Iss-Vin
Top=25℃
Iss(μ A)
22
20
18
16
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6
Vin(V)

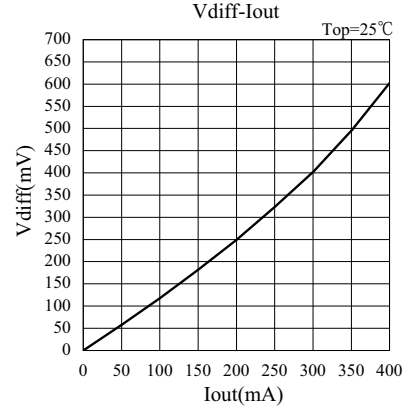

Ripple Rejection
Co=1.0 μ F
Ripple Rejection(dB)
70
60
50
40
30
20
10
10^1 10^2 10^3 10^4 10^5
Frequency(Hz)

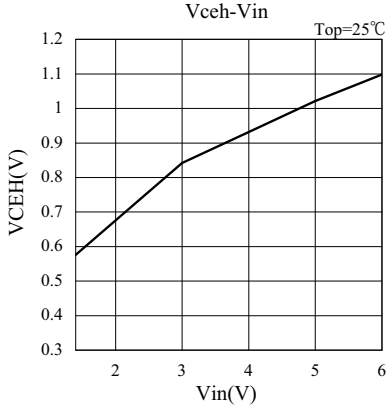
・3.0V Vout unit (ELM8830xxA)

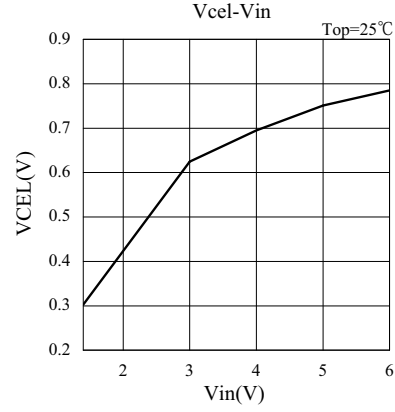




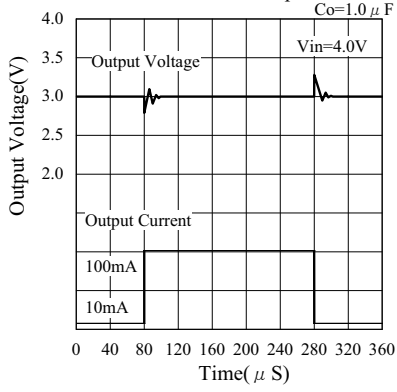




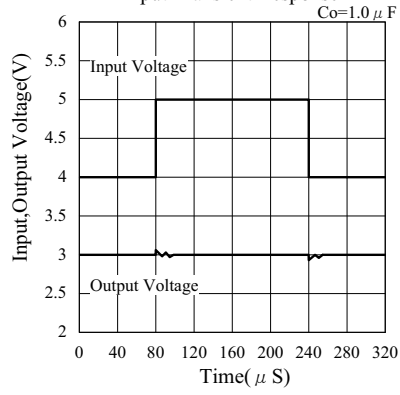




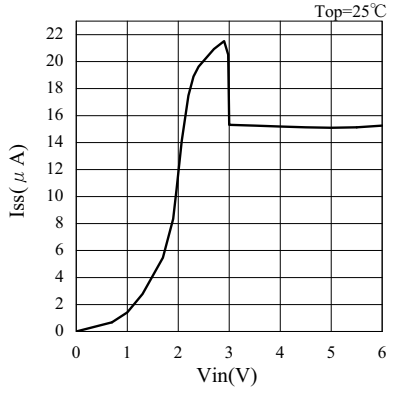
Load Transient Response



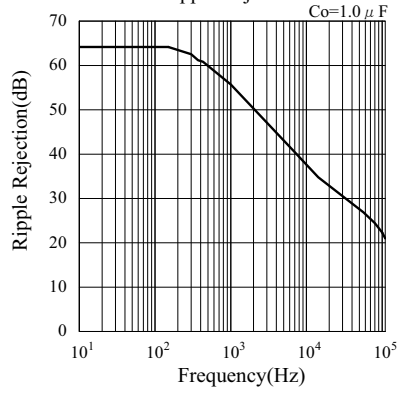
Input Transient Response



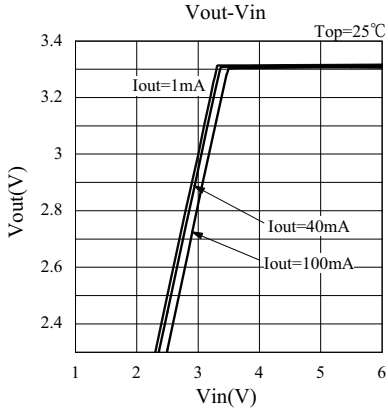
Iss-Vin

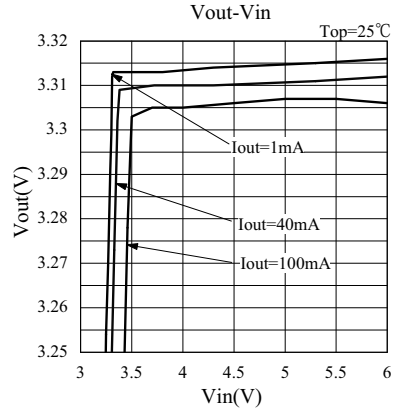


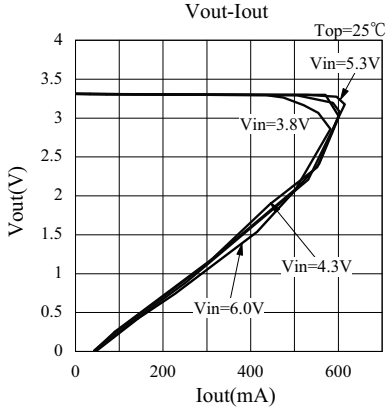
Ripple Rejection

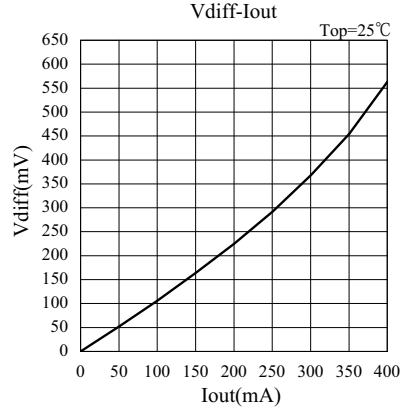


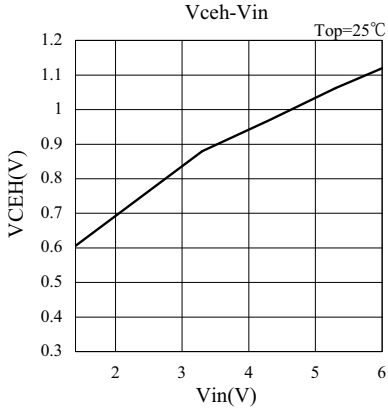
・3.3V Vout unit (ELM8833xxA)

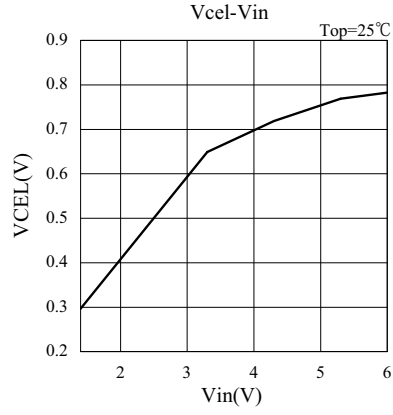


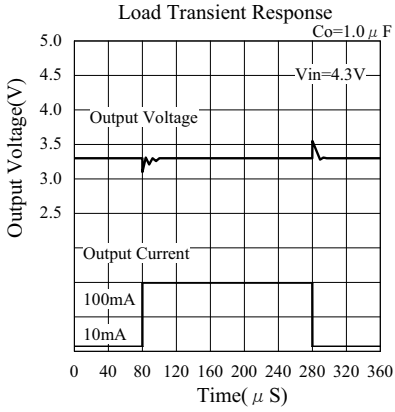


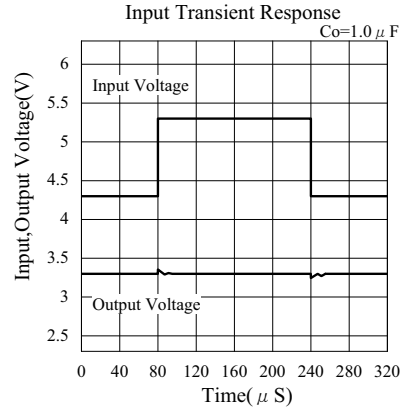


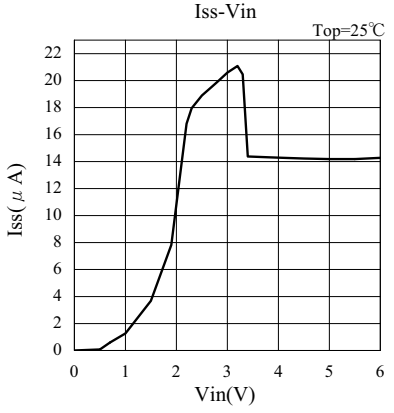


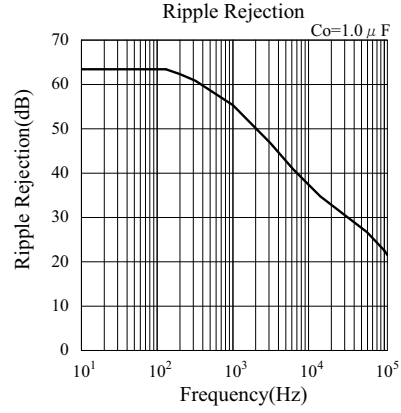




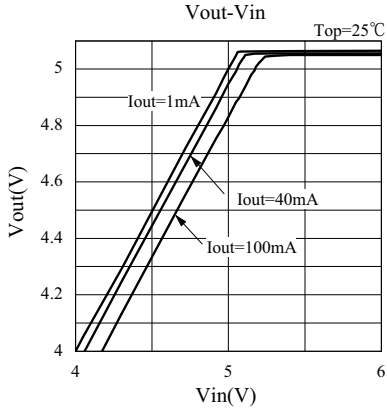

Load Transient Response
Co=1.0μF
Vin=4.3V
Output Voltage
Output Current
100mA
10mA
Output Voltage(V)
Time(μS)
5.0
4.5
4.0
3.5
3.0
2.5
0 40 80 120 160 200 240 280 320 360

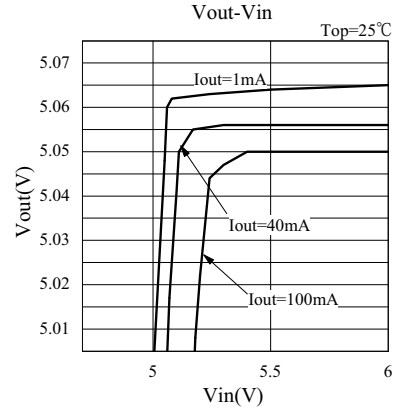

Input Transient Response
Co=1.0μF
Input Voltage
Output Voltage
Input,Output Voltage(V)
Time(μS)
6
5.5
5
4.5
4
3.5
3
2.5
0 40 80 120 160 200 240 280 320

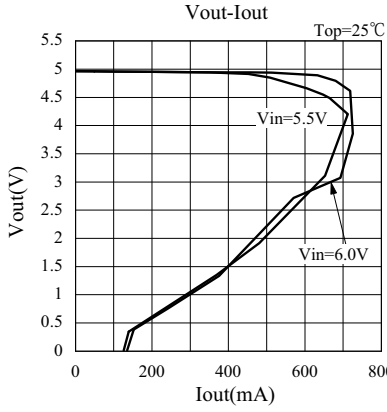

Iss-Vin
Top=25℃
Iss(μA)
Vin(V)
22
20
18
16
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6

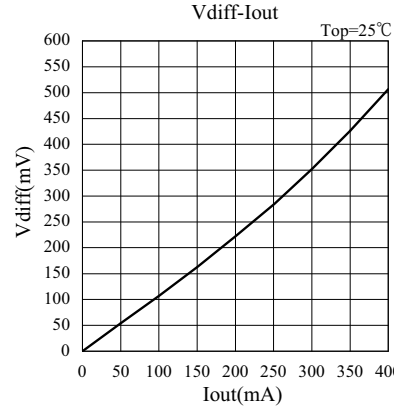

Ripple Rejection
Co=1.0μF
Ripple Rejection(dB)
Frequency(Hz)
70
60
50
40
30
20
10
0
10^1 10^2 10^3 10^4 10^5

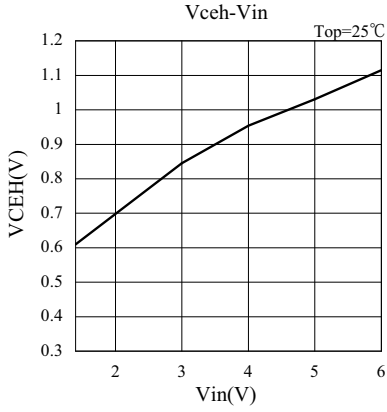
・5.0V Vout unit (ELM8850xxA)

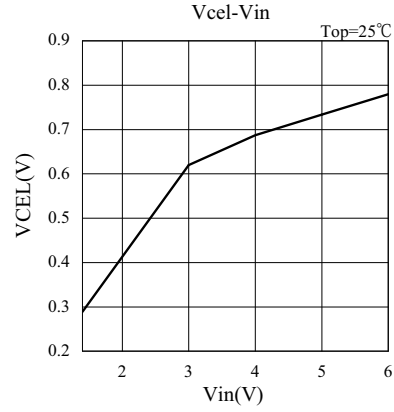


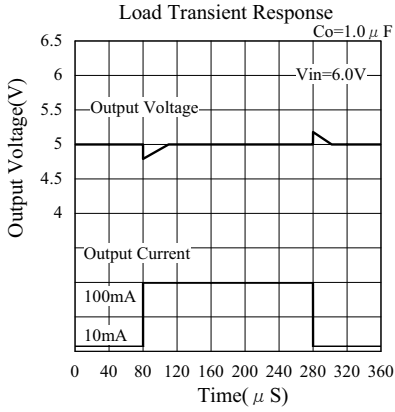


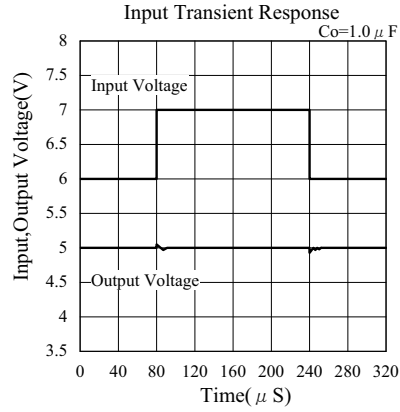


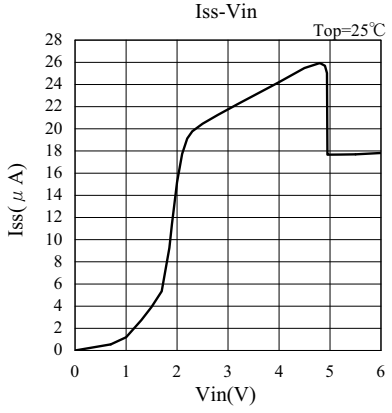


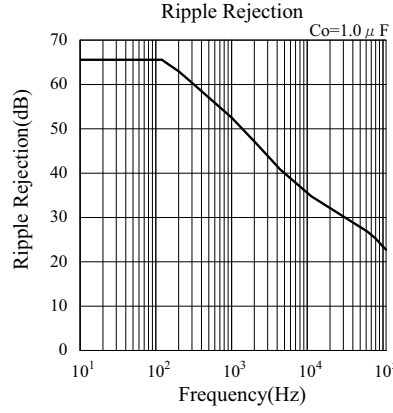





Load Transient Response
Co=1.0 μ F
Vin=6.0V
Output Voltage
Output Current
100mA
10mA
Output Voltage(V)
Time(μ S)
6.5
6
5.5
5
4.5
4
0 40 80 120 160 200 240 280 320 360


Input Transient Response
Co=1.0 μ F
Input Voltage
Output Voltage
Input,Output Voltage(V)
Time(μ S)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
0 40 80 120 160 200 240 280 320


Iss-Vin
Top=25℃
Iss(μ A)
Vin(V)
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6


Ripple Rejection
Co=1.0 μ F
Ripple Rejection(dB)
Frequency(Hz)
70
60
50
40
30
20
10
0
10^1 10^2 10^3 10^4 10^5