RICOH

RP114x SERIES

300mA LDO REGULATOR

NO. EA-236-160824

OUTLINE

The RP114x Series are CMOS-based voltage regulator ICs with high output voltage accuracy, low supply current, low dropout, and high ripple rejection. Each of these voltage regulator ICs consists of a voltage reference unit, an error amplifier, resistors for setting output voltage, a short current limit circuit, a chip enable circuit, and so on.

RP114x features a minimum input voltage from 1.4V and the output voltage, which can be set from 0.8V to 3.6V (in 0.1V step). The output voltage of these ICs is internally fixed.

These ICs perform with low dropout voltage due to built-in transistor with low ON resistance. Low supply current and a chip enable function prolong the battery life of each system. The ripple rejection, line transient response and load transient response of the RP114x Series are excellent, thus these ICs are very suitable for the power supply for hand-held communication equipment.

Since the packages for these ICs are DFN(PLP)1010-4, SC-88A, SOT-23-5, therefore high density mounting of the ICs on boards is possible.

FEATURES

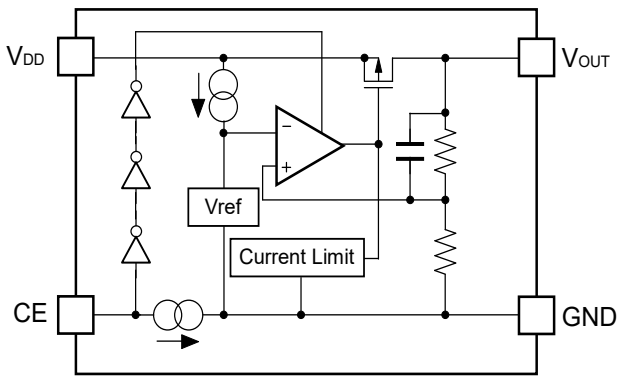
- Supply Current ..... Typ. 50μA
- Standby Current ..... Typ. 0.1μA
- Input Voltage Range ..... 1.4V to 5.25V
- Output Voltage Range ..... 0.8V to 3.6V (0.1V steps)
  (For other voltages, please refer to *Mark Specification Table*).
- Output Voltage Accuracy ..... ±1.0% (V_{SET}>2.0V, T_{opt}=25°C)
- Temperature-Drift Coefficient of Output Voltage ..... Typ. ±80ppm/°C
- Dropout Voltage ..... Typ. 0.25V (I_{OUT}=300mA, V_{SET}=2.8V)
- Ripple Rejection ..... Typ. 75dB (f=1kHz)
- Line Regulation ..... Typ. 0.02%/V
- Packages ..... DFN(PLP)1010-4, SC-88A, SOT-23-5
- Built-in Fold Back Protection Circuit ..... Typ. 60mA (Current at short mode)
- Ceramic capacitors are recommended to be used with this IC .... 1.0μF or more

APPLICATIONS

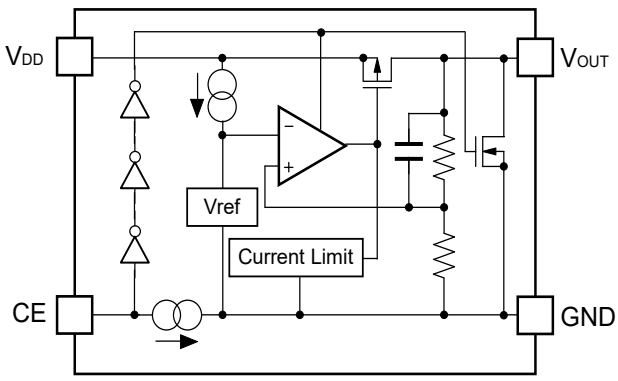
- Power source for portable communication equipment.
- Power source for electrical appliances such as cameras, VCRs and camcorders.
- Power source for battery-powered equipment.

BLOCK DIAGRAMS

RP114xxxxB



RP114xxxxD



SELECTION GUIDE

The set output voltage, the auto discharge function, and the package type for the ICs are user-selectable options.

Product Name	Package	Quantity per Reel	Pb Free	Halogen Free
RP114Kxx1∗(y)-TR	DFN(PLP)1010-4	10,000 pcs	Yes	Yes
RP114Qxx2∗(y)-TR-FE	SC-88A	3,000 pcs	Yes	Yes
RP114Nxx1∗(y)-TR-FE	SOT-23-5	3,000 pcs	Yes	Yes

xx: Specify the set output voltage within the range of 0.8 V (08) to 3.6 V (36) in 0.1 V step.

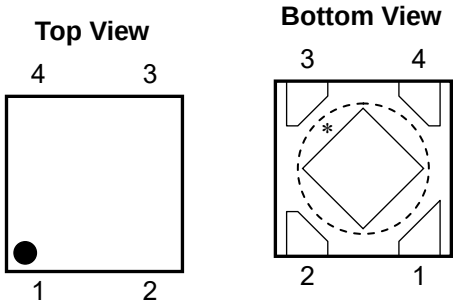
(y): If the output voltage includes the 3rd digit, indicate the digit of 0.01V.
(1.05 V, 1.15 V, 1.25 V, 1.35 V, 1.75 V, 1.85 V, 2.85 V, 3.45 V)
Ex. If the output voltage is 1.25V, RP114K121∗5-TR
If the output voltage is 1.85V, RP114K181∗5-TR

∗: Specify a combination of the CE pin polarity and the auto-discharge function.
(B) “H” Active, without Auto-Discharge function
(D) “H” Active, with Auto-Discharge function

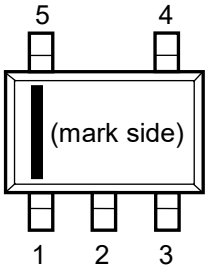
Auto-Discharge function quickly lowers the output voltage to 0V by releasing the electrical charge in the external capacitor when the chip enable signal is switched from the active mode to the standby mode.

PIN DESCRIPTIONS

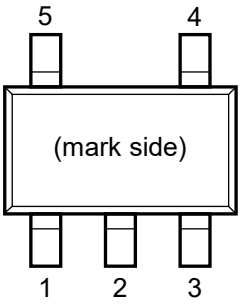
● **DFN(PLP)1010-4**



● **SC-88A**



● **SOT-23-5**



● **DFN(PLP)1010-4**

Pin No	Symbol	Pin Description
1	V_{OUT}	Output Pin
2	GND	Ground Pin
3	CE	Chip Enable Pin ("H" Active)
4	V_{DD}	Input Pin

∗) Tab is GND level. (They are connected to the reverse side of this IC.)
The tab is better to be connected to the GND, but leaving it open is also acceptable.

● **SC-88A**

Pin No	Symbol	Pin Description
1	CE	Chip Enable Pin ("H" Active)
2	NC	No Connection
3	GND	Ground Pin
4	V_{OUT}	Output Pin
5	V_{DD}	Input Pin

● **SOT-23-5**

Pin No	Symbol	Pin Description
1	V_{DD}	Input Pin
2	GND	Ground Pin
3	CE	Chip Enable Pin ("H" Active)
4	NC	No Connection
5	V_{OUT}	Output Pin

ABSOLUTE MAXIMUM RATINGS

Symbol	Item	Rating	Unit
V_{IN}	Input Voltage	6.0	V
V_{CE}	Input Voltage (CE Pin)	6.0	V
V_{OUT}	Output Voltage	−0.3 to V_{IN}+0.3	V
I_{OUT}	Output Current	400	mA
P_D	Power Dissipation (DFN(PLP)1010-4)*	400	mW
	Power Dissipation (SC-88A)*	380	
	Power Dissipation (SOT-23-5)*	420	
Topt	Operating Temperature Range	−40 to 85	°C
Tstg	Storage Temperature Range	−55 to 125	°C

∗) For Power Dissipation, please refer to *PACKAGE INFORMATION*.

ABSOLUTE MAXIMUM RATINGS

Electronic and mechanical stress momentarily exceeded absolute maximum ratings may cause the permanent damages and may degrade the life time and safety for both device and system using the device in the field. The functional operation at or over these absolute maximum ratings is not assured.

RECOMMENDED OPERATING CONDITIONS (ELECTRICAL CHARACTERISTICS)

All of electronic equipment should be designed that the mounted semiconductor devices operate within the recommended operating conditions. The semiconductor devices cannot operate normally over the recommended operating conditions, even if when they are used over such conditions by momentary electronic noise or surge. And the semiconductor devices may receive serious damage when they continue to operate over the recommended operating conditions.

ELECTRICAL CHARACTERISTICS

- **RP114x**

V_{IN}=V_{SET}+1.0V (V_{SET} > 1.5V), V_{IN}=2.5V (V_{SET} ≤ 1.5V), I_{OUT}=1mA, C_{IN}=C_{OUT}=1.0µF, unless otherwise noted.
V_{SET} is Set Output Voltage.

The specifications in [ ] are guaranteed by design engineering at -40ºC ≤ Ta ≤ 85ºC.

RP114xxxxB/D (Ta=25°C)

Symbol	Item	Conditions		Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	Ta=25°C	V_{SET} > 2.0V	×0.99		×1.01	V
			V_{SET} ≤ 2.0V	-20		+20	mV
		-40°C ≤ Ta ≤ 85°C	V_{SET} > 2.0V	[×0.97]		[×1.03]	V
			V_{SET} ≤ 2.0V	[-60]		[+60]	mV
I_{OUT}	Output Current			[300]			mA
ΔV_{OUT} /ΔI_{OUT}	Load Regulation	1mA ≤ I_{OUT} ≤ 300mA			15	[40]	mV
V_{DIF}	Dropout Voltage	Please refer to *Dropout Voltage* shown on the next page.					
I_{SS}	Supply Current	I_{OUT} = 0mA			50	[75]	µA
Istandby	Standby Current	V_{CE}= 0V			0.1	1.0	µA
ΔV_{OUT} /ΔV_{IN}	Line Regulation	V_{SET}+0.5V ≤ V_{IN} ≤ 5.25V (V_{IN} ≥ 1.4V)			0.02	[0.10]	%/V
RR	Ripple Rejection	f=1kHz Ripple 0.2Vp-p V_{IN}=V_{SET} +1V I_{OUT}=30mA (When V_{SET} ≤ 2.0V, V_{IN}=3.0V)			75		dB
V_{IN}	Input Voltage*2			[1.4]		[5.25]	V
ΔV_{OUT} /ΔTa	Output Voltage Temperature Coefficient	-40°C ≤ Ta ≤ 85°C			±80		ppm /°C
I_{SC}	Short Current Limit	V_{out}=0V			60		mA
I_{PD}	CE Pull-down Current				0.3	[0.6]	µA
V_{CEH}	CE Input Voltage “H”			[1.0]			V
V_{CEL}	CE Input Voltage “L”					[0.4]	V
en	Output Noise	BW=10Hz to 100kHz I_{OUT}=30mA			75		µVrms
R_{LOW}	LOW Output Nch On Resistance (D version only)	V_{IN}=4.0V V_{CE}=0V			50		Ω

All test items listed under *Electrical Characteristics* are done under the pulse load condition (Tj≈Ta=25ºC) except for Output Noise, Ripple Rejection, and Output Voltage Temperature Coefficient.

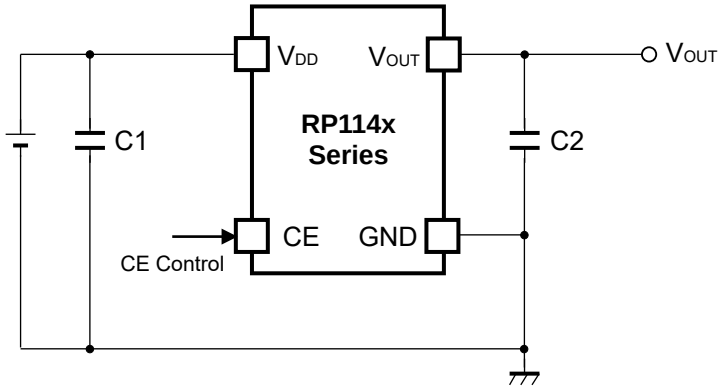
*2 The maximum input voltage listed under *Electrical Characteristics* is 5.25V. If, for any reason the input voltage exceeds 5.25V, it has to be no more than 5.5V with 500hrs of the total operating time.

The specifications in [ ] are guaranteed by design engineering at -40ºC ≤ Ta ≤ 85ºC.

Dropout Voltage by Set Output Voltage (Ta=25°C)

Set Output Voltage V_{SET} (V)	Dropout Voltage V_{DIF} (V)		
	Condition	Typ.	Max.
V_{SET}=0.8	I_{OUT}=300mA	0.560	[0.720]
V_{SET}=0.9		0.510	[0.650]
1.0 ≤ V_{SET} < 1.2		0.460	[0.590]
1.2 ≤ V_{SET} < 1.4		0.390	[0.500]
1.4 ≤ V_{SET} < 1.7		0.350	[0.440]
1.7 ≤ V_{SET} < 2.1		0.300	[0.390]
2.1 ≤ V_{SET} < 2.5		0.260	[0.340]
2.5 ≤ V_{SET} < 3.0		0.250	[0.300]
3.0 ≤ V_{SET} ≤ 3.6		0.220	[0.290]

TYPICAL APPLICATIONS



(External Components)
C2 Ceramic 1.0μF MURATA: GRM155B31A105KE15

TECHNICAL NOTES

When using these ICs, consider the following points:

Phase Compensation

In these ICs, phase compensation is made for securing stable operation even if the load current is varied. For this purpose, use a capacitor C2 with 1.0μF or more and good ESR (Equivalent Series Resistance).

(Note: If additional ceramic capacitors are connected with parallel to the output pin with an output capacitor for phase compensation, the operation might be unstable. Because of this, test these ICs with as same external components as ones to be used on the PCB.)

PCB Layout

Make V_{DD} and GND lines sufficient. If their impedance is high, noise pickup or unstable operation may result. Connect a capacitor C1 with a capacitance value as much as 1.0μF or more between V_{DD} and GND pin, and as close as possible to the pins.

Set external components, especially the output capacitor C2, as close as possible to the ICs, and make wiring as short as possible.

PACKAGE INFORMATION

Power Dissipation (DFN(PLP)1010-4)

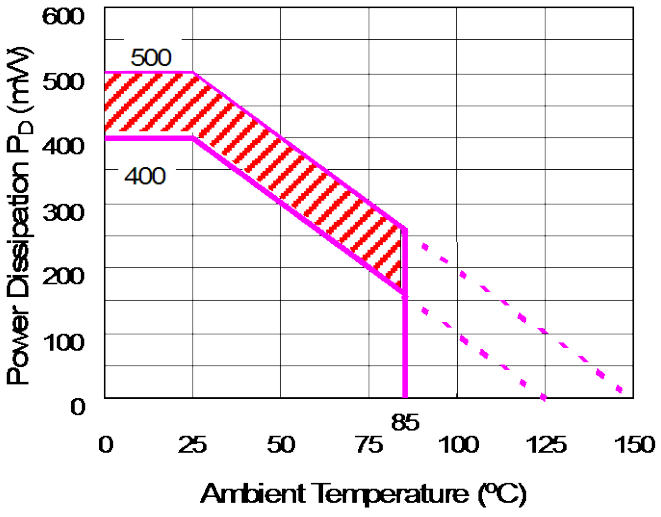
Power Dissipation (P_D) depends on conditions of mounting on board. This specification is based on the Measurement Conditions below.

Measurement Conditions

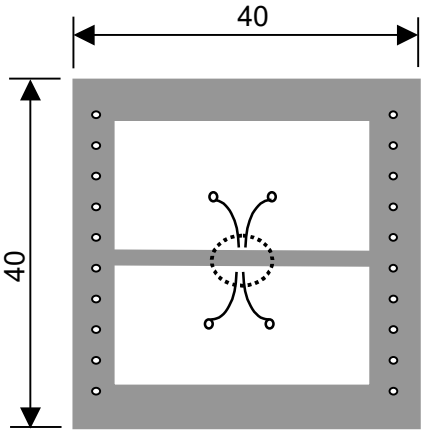
	Standard Land Pattern
Environment	Mounting on Board (Wind Velocity=0m/s)
Board Material	Glass Cloth Epoxy Plastic (Double-sided)
Board Dimensions	40mm x 40mm x 1.6mm
Copper Ratio	Top-side: Approx. 50%, Back-side: Approx. 50%
Through-hole	ϕ 0.54mm x 24pcs

Measurement Result (Ta=25°C)

	Standard Land Pattern
Power Dissipation	400mW (Tjmax=125°C) 500mW (Tjmax=150°C)
Thermal Resistance	θja=(125-25°C)/0.4W=250 °C/W
	θjc=67 °C/W



Power Dissipation



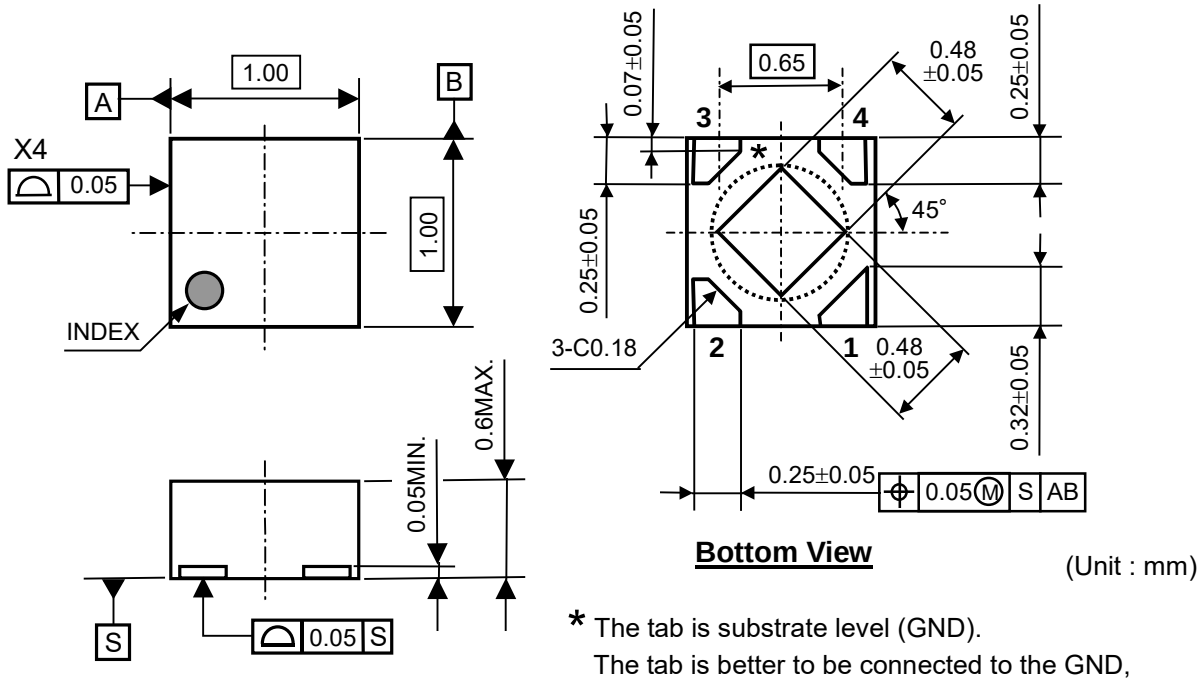
Measurement Board Pattern

IC Mount Area (Unit: mm)

Note: The above graph shows the power dissipation of the package based on Tjmax=125°C and Tjmax=150°C. Operating the IC within the shaded area in the graph might have an influence on its lifetime.
Operating time must be within the time limit described in the table below.

Operating Time	**Estimated Years (Operating 4 hrs/ day)**
13,000 hours	9 Years

Package Dimensions (DFN(PLP)1010-4)



Bottom View

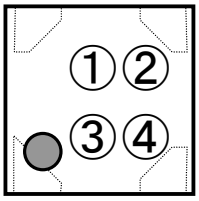
(Unit : mm)

* The tab is substrate level (GND).
The tab is better to be connected to the GND,
but leaving it open is also acceptable.

Mark Specification (DFN(PLP)1010-4)

①②: Product Code ·····**Please refer to *RP114K Mark Specification Table*.**

③④: Lot Number·····Alphanumeric Serial Number



Mark Specification Table (DFN(PLP)1010-4)

RP114Kxx1B

Product Name	①②	V_{SET}
RP114K081B	**L 0**	0.8V
RP114K091B	**L 1**	0.9V
RP114K101B	**L 2**	1.0V
RP114K111B	**L 3**	1.1V
RP114K121B	**L 4**	1.2V
RP114K131B	**L 5**	1.3V
RP114K141B	**L 6**	1.4V
RP114K151B	**L 7**	1.5V
RP114K161B	**L 8**	1.6V
RP114K171B	**L 9**	1.7V
RP114K181B	**M 0**	1.8V
RP114K191B	**M 1**	1.9V
RP114K201B	**M 2**	2.0V
RP114K211B	**M 3**	2.1V
RP114K221B	**M 4**	2.2V
RP114K231B	**M 5**	2.3V
RP114K241B	**M 6**	2.4V
RP114K251B	**M 7**	2.5V
RP114K261B	**M 8**	2.6V
RP114K271B	**M 9**	2.7V
RP114K281B	**N 0**	2.8V
RP114K291B	**N 1**	2.9V
RP114K301B	**N 2**	3.0V
RP114K311B	**N 3**	3.1V
RP114K321B	**N 4**	3.2V
RP114K331B	**N 5**	3.3V
RP114K341B	**N 6**	3.4V
RP114K351B	**N 7**	3.5V
RP114K361B	**N 8**	3.6V
RP114K121B5	**N 9**	1.25V
RP114K181B5	**P 0**	1.85V
RP114K281B5	**P 1**	2.85V
RP114K341B5	**P 2**	3.45V
RP114K101B5	**P 3**	1.05V
RP114K171B5	**P 4**	1.75V
RP114K111B5	**P 5**	1.15V
RP114K131B5	**P 6**	1.35V

RP114Kxx1D

Product Name	①②	V_{SET}
RP114K081D	**Q 0**	0.8V
RP114K091D	**Q 1**	0.9V
RP114K101D	**Q 2**	1.0V
RP114K111D	**Q 3**	1.1V
RP114K121D	**Q 4**	1.2V
RP114K131D	**Q 5**	1.3V
RP114K141D	**Q 6**	1.4V
RP114K151D	**Q 7**	1.5V
RP114K161D	**Q 8**	1.6V
RP114K171D	**Q 9**	1.7V
RP114K181D	**R 0**	1.8V
RP114K191D	**R 1**	1.9V
RP114K201D	**R 2**	2.0V
RP114K211D	**R 3**	2.1V
RP114K221D	**R 4**	2.2V
RP114K231D	**R 5**	2.3V
RP114K241D	**R 6**	2.4V
RP114K251D	**R 7**	2.5V
RP114K261D	**R 8**	2.6V
RP114K271D	**R 9**	2.7V
RP114K281D	**S 0**	2.8V
RP114K291D	**S 1**	2.9V
RP114K301D	**S 2**	3.0V
RP114K311D	**S 3**	3.1V
RP114K321D	**S 4**	3.2V
RP114K331D	**S 5**	3.3V
RP114K341D	**S 6**	3.4V
RP114K351D	**S 7**	3.5V
RP114K361D	**S 8**	3.6V
RP114K121D5	**S 9**	1.25V
RP114K181D5	**T 0**	1.85V
RP114K281D5	**T 1**	2.85V
RP114K341D5	**T 2**	3.45V
RP114K101D5	**T 3**	1.05V
RP114K171D5	**T 4**	1.75V
RP114K111D5	**T 5**	1.15V
RP114K131D5	**T 6**	1.35V

Power Dissipation (SC-88A)

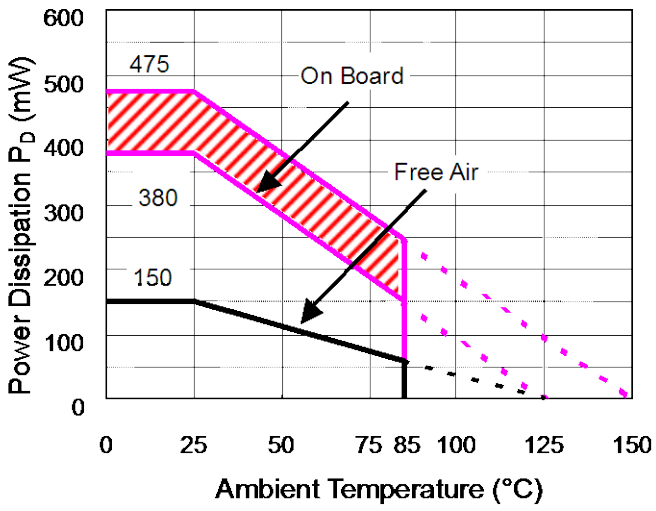
Power Dissipation (P_D) depends on conditions of mounting on board. This specification is based on the Measurement Conditions below.

Measurement Conditions

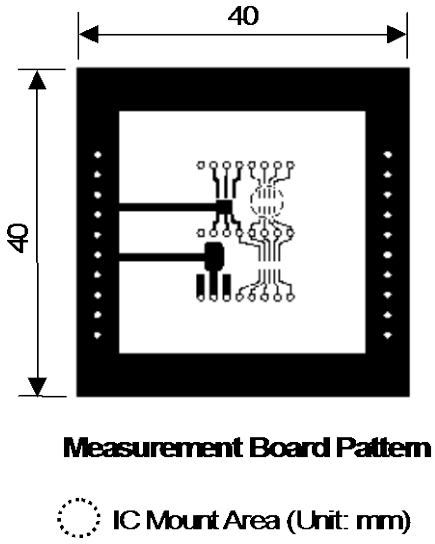
	Standard Land Pattern
Environment	Mounting on Board (Wind Velocity=0m/s)
Board Material	Glass Cloth Epoxy Plastic (Double-sided)
Board Dimensions	40mm × 40mm × 1.6mm
Copper Ratio	Top-side: Approx. 50%, Back-side: Approx. 50%
Through-hole	ϕ0.5mm × 44pcs

Measurement Result (Ta=25°C, Tjmax=125°C)

	Standard Land Pattern	Free Air
Power Dissipation	380mW	150mW
Thermal Resistance	θja=(125-25°C)/0.38W=263°C/W	θja=(125-25°C)/0.15W=667°C/W
	θjc=75°C/W	-



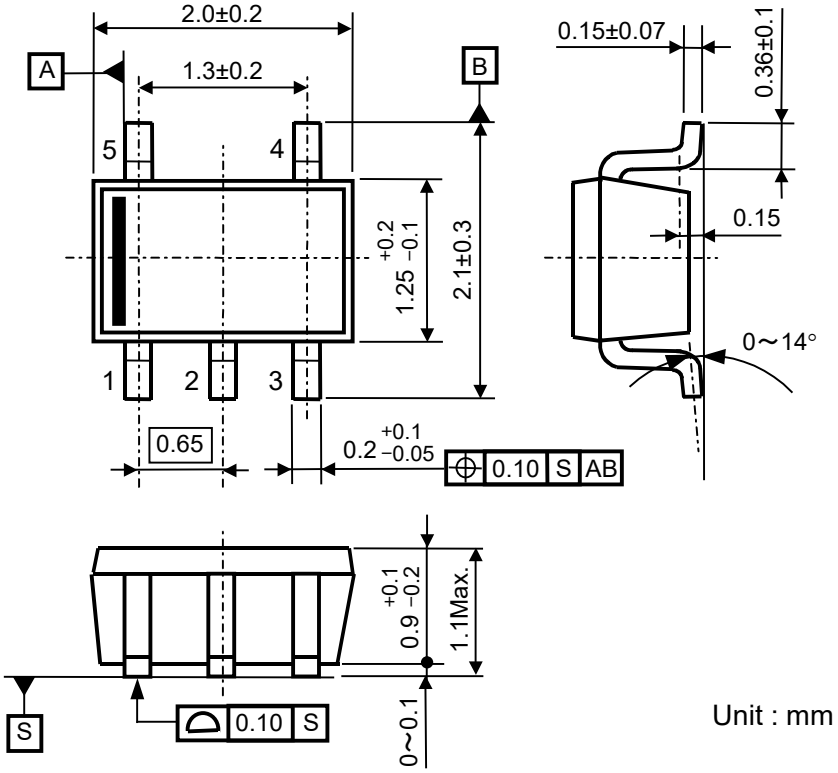
Power Dissipation



Note: The above graph shows the power dissipation of the package based on Tjmax=125ºC and Tjmax=150ºC.
Operating the IC within the shaded area in the graph might have an influence on its lifetime.
Operating time must be within the time limit described in the table below.

Operating Time	Estimated Years (Operating 4 hrs/ day)
13,000 hours	9 Years

Package Dimensions (SC-88A)

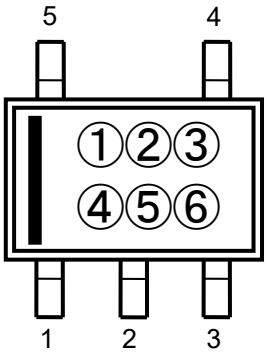


Unit : mm

Mark Specification (SC-88A)

①②③④: Product Code ·· **Please refer to *RP114Q Mark Specification Table*.**

⑤⑥: Lot Number ···· Alphanumeric Serial Number



Mark Specification Table (SC-88A)

RP114Qxx2B

Product Name	①②③④	V_{SET}
RP114Q082B	**A G 0 8**	0.8V
RP114Q092B	**A G 0 9**	0.9V
RP114Q102B	**A G 1 0**	1.0V
RP114Q112B	**A G 1 1**	1.1V
RP114Q122B	**A G 1 2**	1.2V
RP114Q132B	**A G 1 3**	1.3V
RP114Q142B	**A G 1 4**	1.4V
RP114Q152B	**A G 1 5**	1.5V
RP114Q162B	**A G 1 6**	1.6V
RP114Q172B	**A G 1 7**	1.7V
RP114Q182B	**A G 1 8**	1.8V
RP114Q192B	**A G 1 9**	1.9V
RP114Q202B	**A G 2 0**	2.0V
RP114Q212B	**A G 2 1**	2.1V
RP114Q222B	**A G 2 2**	2.2V
RP114Q232B	**A G 2 3**	2.3V
RP114Q242B	**A G 2 4**	2.4V
RP114Q252B	**A G 2 5**	2.5V
RP114Q262B	**A G 2 6**	2.6V
RP114Q272B	**A G 2 7**	2.7V
RP114Q282B	**A G 2 8**	2.8V
RP114Q292B	**A G 2 9**	2.9V
RP114Q302B	**A G 3 0**	3.0V
RP114Q312B	**A G 3 1**	3.1V
RP114Q322B	**A G 3 2**	3.2V
RP114Q332B	**A G 3 3**	3.3V
RP114Q342B	**A G 3 4**	3.4V
RP114Q352B	**A G 3 5**	3.5V
RP114Q362B	**A G 3 6**	3.6V
RP114Q122B5	**A G 3 7**	1.25V
RP114Q182B5	**A G 3 8**	1.85V
RP114Q282B5	**A G 3 9**	2.85V
RP114Q342B5	**A G 4 0**	3.45V
RP114Q102B5	**A G 4 1**	1.05V

RP114Qxx2D

Product Name	①②③④	V_{SET}
RP114Q082D	**A H 0 8**	0.8V
RP114Q092D	**A H 0 9**	0.9V
RP114Q102D	**A H 1 0**	1.0V
RP114Q112D	**A H 1 1**	1.1V
RP114Q122D	**A H 1 2**	1.2V
RP114Q132D	**A H 1 3**	1.3V
RP114Q142D	**A H 1 4**	1.4V
RP114Q152D	**A H 1 5**	1.5V
RP114Q162D	**A H 1 6**	1.6V
RP114Q172D	**A H 1 7**	1.7V
RP114Q182D	**A H 1 8**	1.8V
RP114Q192D	**A H 1 9**	1.9V
RP114Q202D	**A H 2 0**	2.0V
RP114Q212D	**A H 2 1**	2.1V
RP114Q222D	**A H 2 2**	2.2V
RP114Q232D	**A H 2 3**	2.3V
RP114Q242D	**A H 2 4**	2.4V
RP114Q252D	**A H 2 5**	2.5V
RP114Q262D	**A H 2 6**	2.6V
RP114Q272D	**A H 2 7**	2.7V
RP114Q282D	**A H 2 8**	2.8V
RP114Q292D	**A H 2 9**	2.9V
RP114Q302D	**A H 3 0**	3.0V
RP114Q312D	**A H 3 1**	3.1V
RP114Q322D	**A H 3 2**	3.2V
RP114Q332D	**A H 3 3**	3.3V
RP114Q342D	**A H 3 4**	3.4V
RP114Q352D	**A H 3 5**	3.5V
RP114Q362D	**A H 3 6**	3.6V
RP114Q122D5	**A H 3 7**	1.25V
RP114Q182D5	**A H 3 8**	1.85V
RP114Q282D5	**A H 3 9**	2.85V
RP114Q342D5	**A H 4 0**	3.45V
RP114Q102D5	**A H 4 1**	1.05V

Power Dissipation (SOT-23-5)

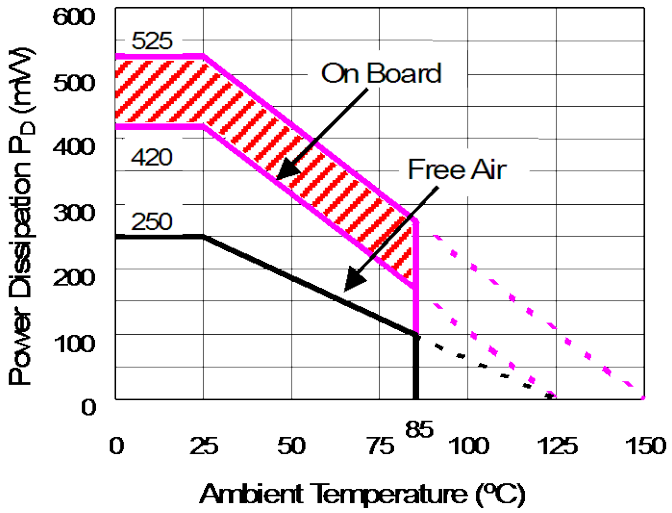
Power Dissipation (P_D) depends on conditions of mounting on board. This specification is based on the Measurement Conditions below. (Power Dissipation (SOT-23-5) is substitution of SOT-23-6.)

Measurement Conditions

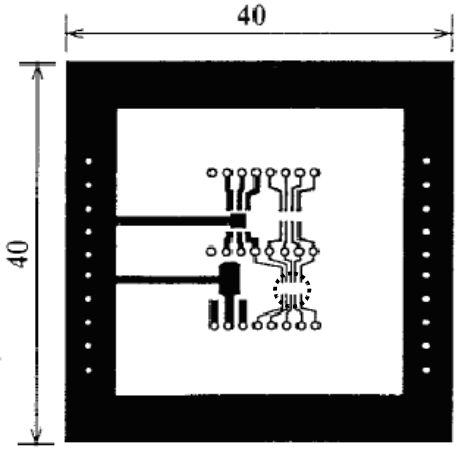
	Standard Land Pattern
Environment	Mounting on Board (Wind Velocity=0m/s)
Board Material	Glass Cloth Epoxy Plastic (Double-sided)
Board Dimensions	40mm x 40mm x 1.6mm
Copper Ratio	Top-side: Approx. 50%, Back-side: Approx. 50%
Through-holes	ϕ 0.5mm x 44pcs

Measurement Result (Ta=25°C)

	Standard Land Pattern	Free Air
Power Dissipation	420mW (Tjmax=125°C) 525mW (Tjmax=150°C)	250mW (Tjmax=125°C)
Thermal Resistance	θja=(125-25°C)/0.42W=238°C/W	400°C/W



Power Dissipation



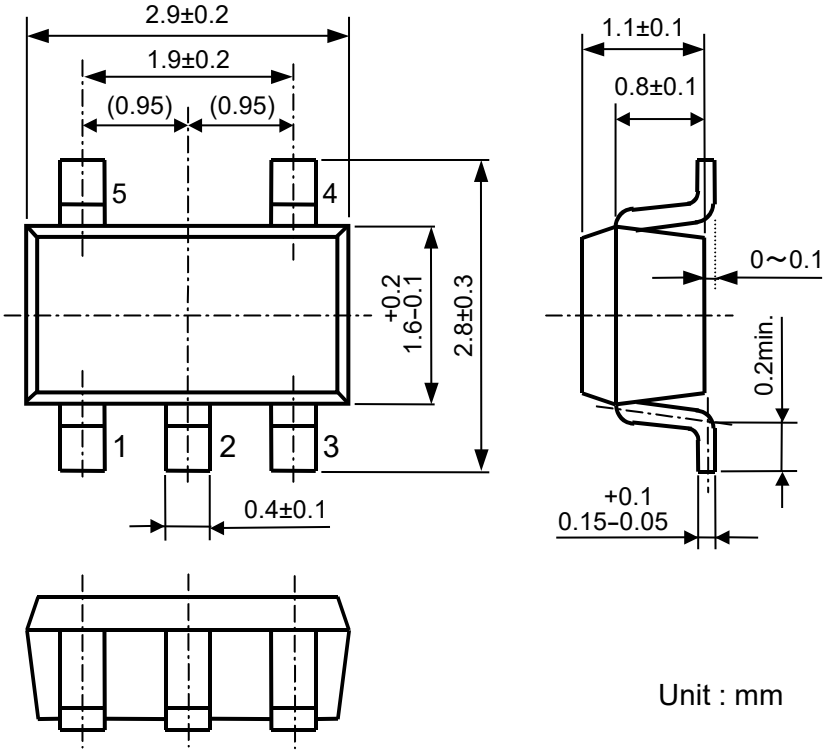
Measurement Board Pattern

IC Mount Area (Unit: mm)

Note: The above graph shows the power dissipation of the package based on Tjmax=125ºC and Tjmax=150ºC.
Operating the IC within the shaded area in the graph might have an influence on its lifetime.
Operating time must be within the time limit described in the table below.

Operating Time	Estimated Years (Operating 4 hrs/ day)
13,000 hours	9 Years

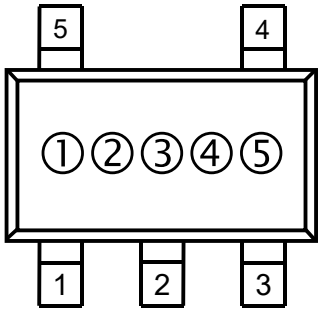
Package Dimensions (SOT-23-5)



Unit : mm

Mark Specification (SOT-23-5)

①②③: Product Code ·····**Please refer to *RP114N Mark Specification Table*.**
④⑤: Lot Number·····Alphanumeric Serial Number



Mark Specification Table (SOT-23-5)

RP114Nxx1B

Product Name	①②③	V_{SET}
RP114N081B	**Q A A**	0.8V
RP114N091B	**Q A B**	0.9V
RP114N101B	**Q A C**	1.0V
RP114N111B	**Q A D**	1.1V
RP114N121B	**Q A E**	1.2V
RP114N131B	**Q A F**	1.3V
RP114N141B	**Q A G**	1.4V
RP114N151B	**Q A H**	1.5V
RP114N161B	**Q A J**	1.6V
RP114N171B	**Q A K**	1.7V
RP114N181B	**Q A L**	1.8V
RP114N191B	**Q A M**	1.9V
RP114N201B	**Q A N**	2.0V
RP114N211B	**Q A P**	2.1V
RP114N221B	**Q A Q**	2.2V
RP114N231B	**Q A R**	2.3V
RP114N241B	**Q A S**	2.4V
RP114N251B	**Q A T**	2.5V
RP114N261B	**Q A U**	2.6V
RP114N271B	**Q A V**	2.7V
RP114N281B	**Q A W**	2.8V
RP114N291B	**Q A X**	2.9V
RP114N301B	**Q A Y**	3.0V
RP114N311B	**Q A Z**	3.1V
RP114N321B	**R A A**	3.2V
RP114N331B	**R A B**	3.3V
RP114N341B	**R A C**	3.4V
RP114N351B	**R A D**	3.5V
RP114N361B	**R A E**	3.6V
RP114N121B5	**R A F**	1.25V
RP114N181B5	**R A G**	1.85V
RP114N281B5	**R A H**	2.85V
RP114N341B5	**R A J**	3.45V
RP114N101B5	**R A K**	1.05V

RP114Nxx1D

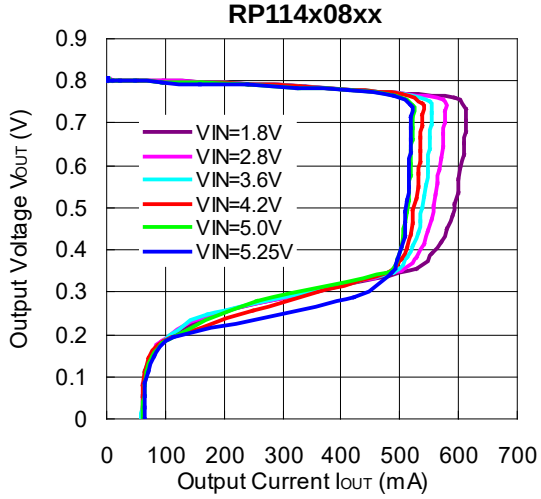
Product Name	①②③	V_{SET}
RP114N081D	**Q B A**	0.8V
RP114N091D	**Q B B**	0.9V
RP114N101D	**Q B C**	1.0V
RP114N111D	**Q B D**	1.1V
RP114N121D	**Q B E**	1.2V
RP114N131D	**Q B F**	1.3V
RP114N141D	**Q B G**	1.4V
RP114N151D	**Q B H**	1.5V
RP114N161D	**Q B J**	1.6V
RP114N171D	**Q B K**	1.7V
RP114N181D	**Q B L**	1.8V
RP114N191D	**Q B M**	1.9V
RP114N201D	**Q B N**	2.0V
RP114N211D	**Q B P**	2.1V
RP114N221D	**Q B Q**	2.2V
RP114N231D	**Q B R**	2.3V
RP114N241D	**Q B S**	2.4V
RP114N251D	**Q B T**	2.5V
RP114N261D	**Q B U**	2.6V
RP114N271D	**Q B V**	2.7V
RP114N281D	**Q B W**	2.8V
RP114N291D	**Q B X**	2.9V
RP114N301D	**Q B Y**	3.0V
RP114N311D	**Q B Z**	3.1V
RP114N321D	**R B A**	3.2V
RP114N331D	**R B B**	3.3V
RP114N341D	**R B C**	3.4V
RP114N351D	**R B D**	3.5V
RP114N361D	**R B E**	3.6V
RP114N121D5	**R B F**	1.25V
RP114N181D5	**R B G**	1.85V
RP114N281D5	**R B H**	2.85V
RP114N341D5	**R B J**	3.45V
RP114N101D5	**R B K**	1.05V

TYPICAL CHARACTERISTICS

Note: Typical Characteristics are intended to be used as reference data; they are not guaranteed.

1) Output Voltage vs. Output Current (C1=1.0µF, C2=1.0µF, Topt=25°C)

RP114x08xx



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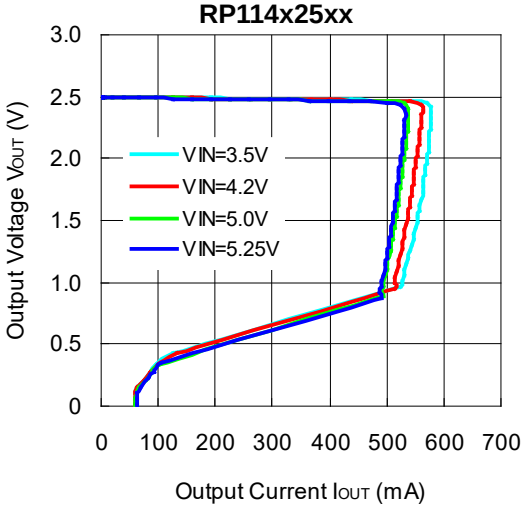

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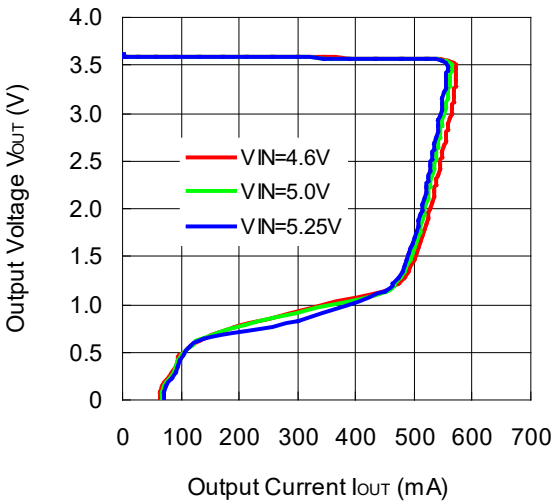
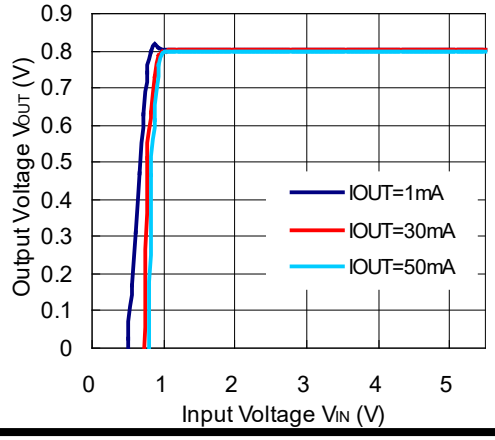


2) Output Voltage vs. Input Voltage (C1=1.0µF, C2=1.0µF, Topt=25°C)

RP114x08xx



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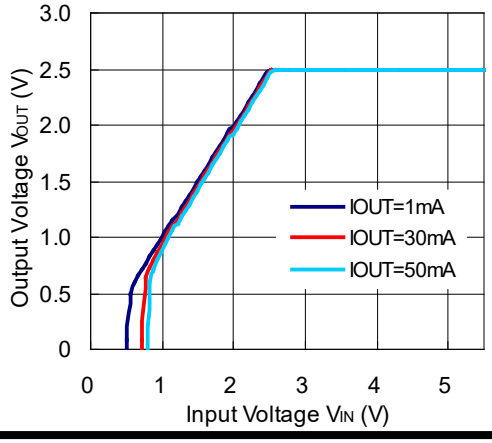

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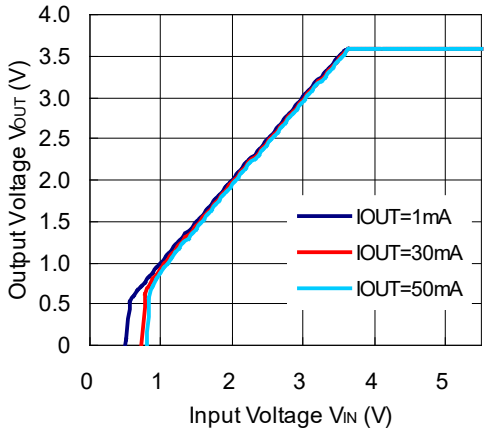
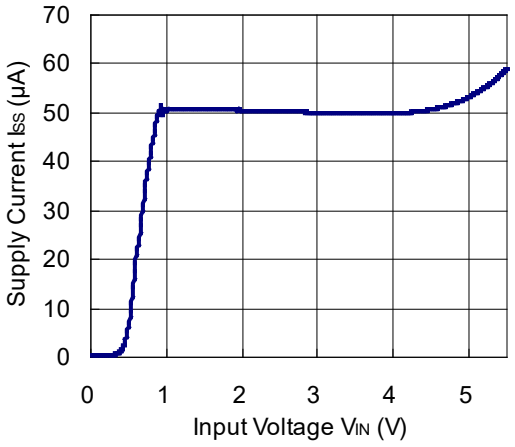


3) Supply Current vs. Input Voltage (C1=1.0µF, C2=1.0µF, Topt=25°C)

RP114x08xx



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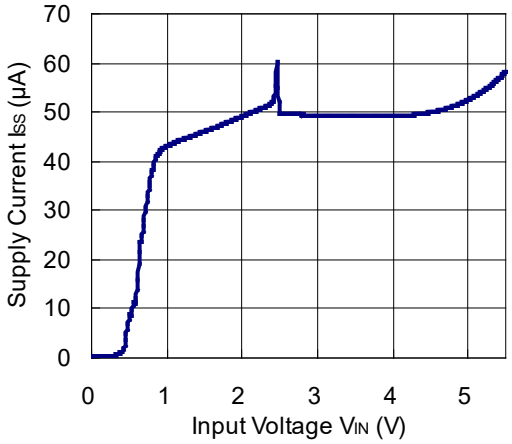

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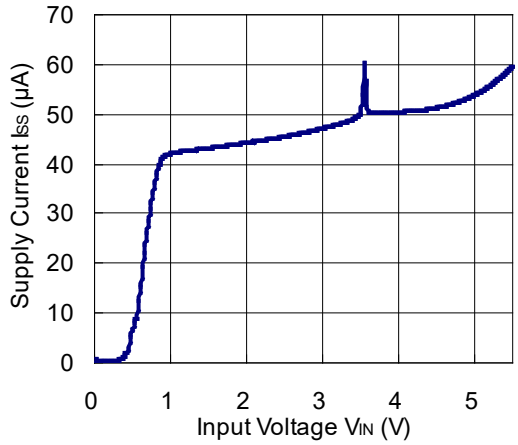
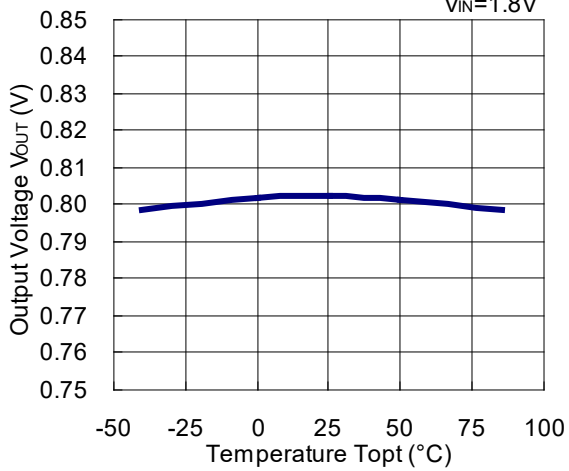


4) Output Voltage vs. Temperature (C1=1.0µF, C2=1.0µF, I_{OUT}=1mA)

RP114x08xx



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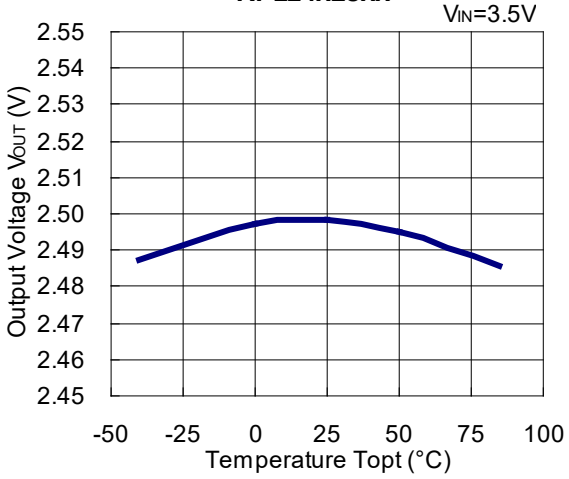

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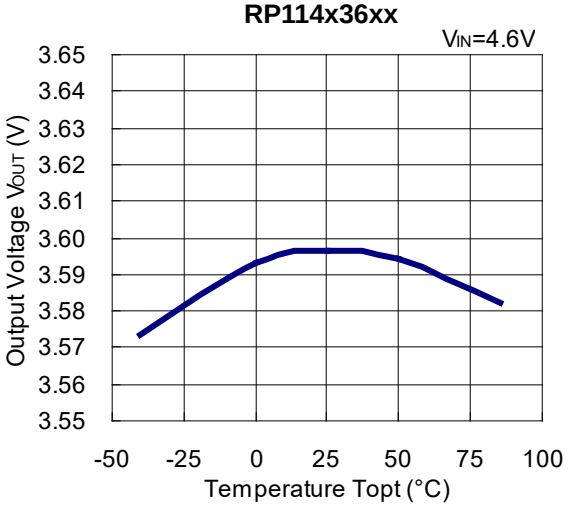
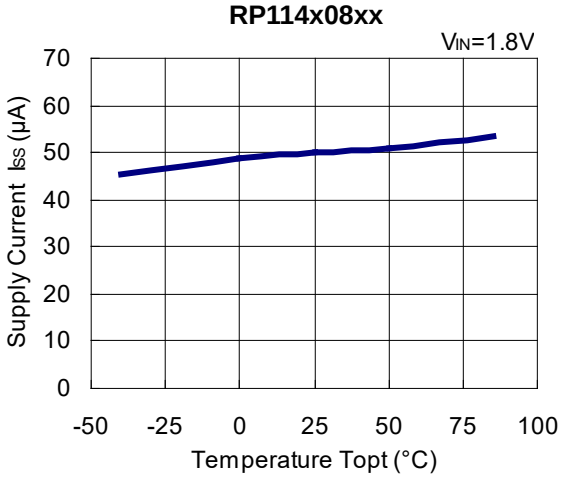


5) Supply Current vs. Temperature (C1=1.0µF, C2=1.0µF, I_{OUT}=0mA)

RP114x08xx



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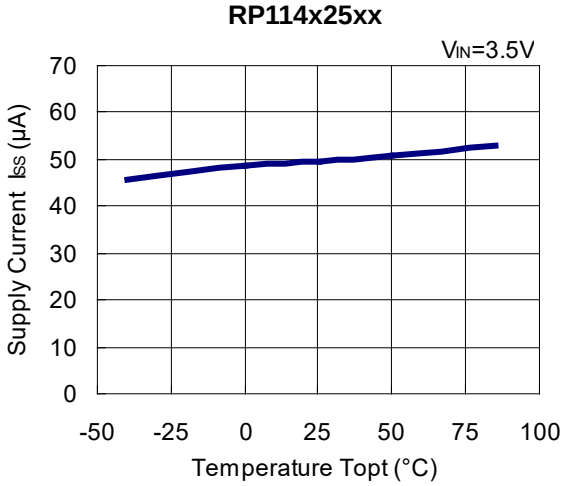

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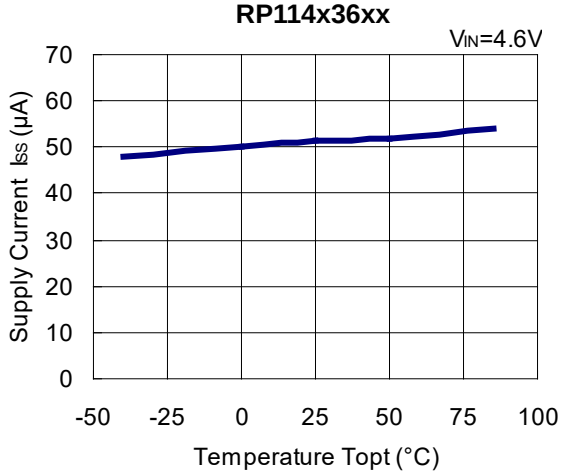
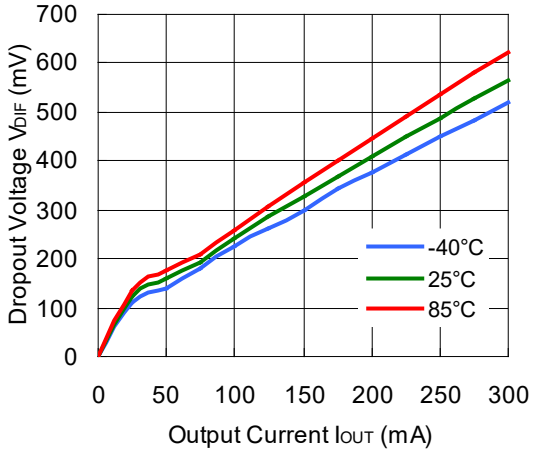


6) Dropout Voltage vs. Output Current (C1=1.0µF, C2=1.0µF)

RP114x08xx



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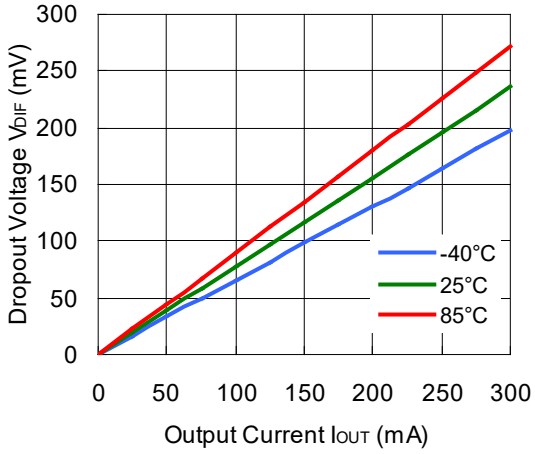

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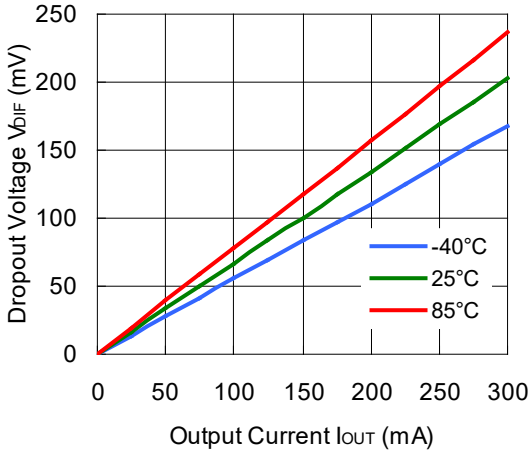
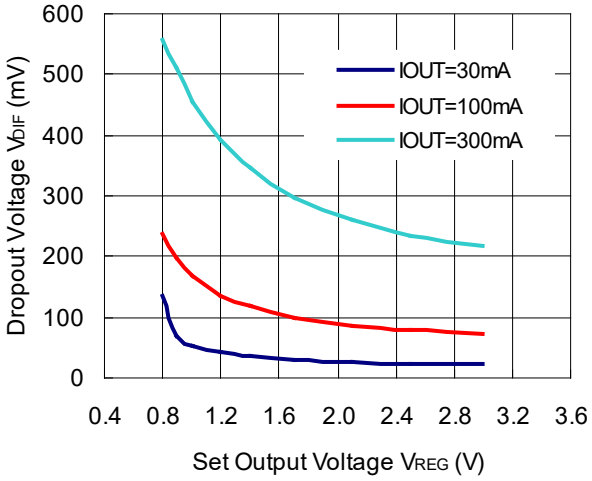
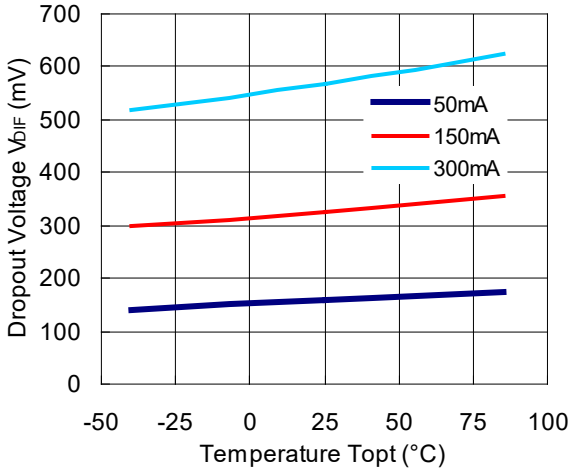


7) Dropout Voltage vs. Set Output Voltage (C1=1.0μF, C2=1.0μF, Topt=25°C)

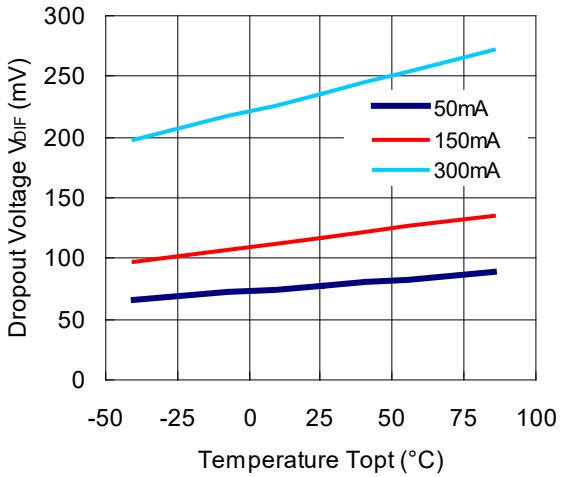


8) Dropout Voltage vs. Temperature (C1=none, C2=1.0μF)

RP114x08xx



RP114x25xx



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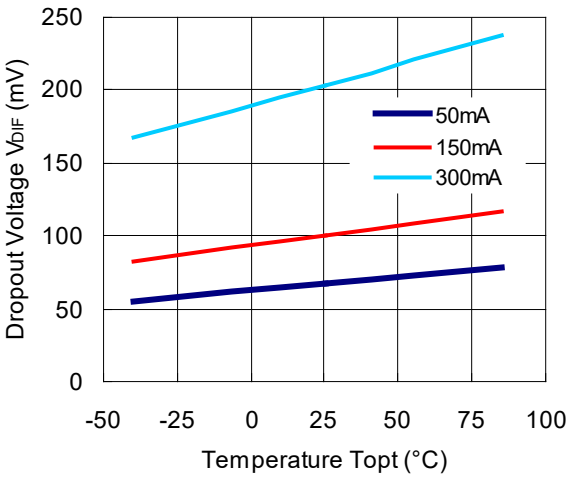
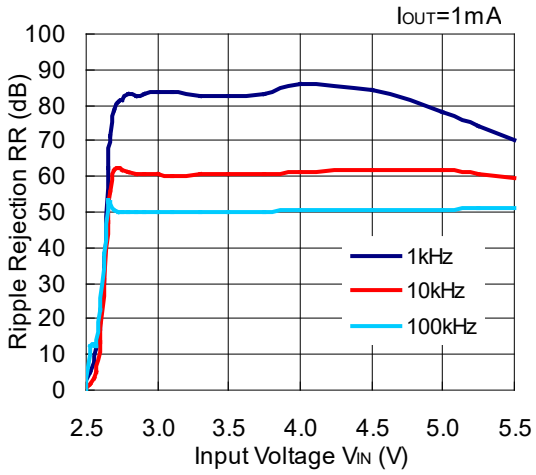
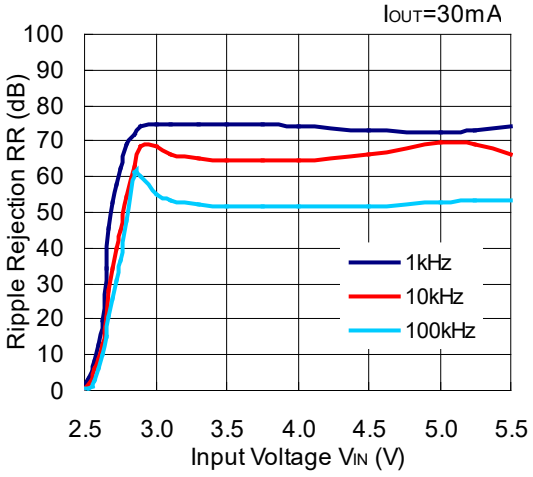


9) Ripple Rejection vs. Input Voltage (C1=none, C2=1.0µF, Ripple=0.2Vp-p, Topt=25°C)

RP114x25xx

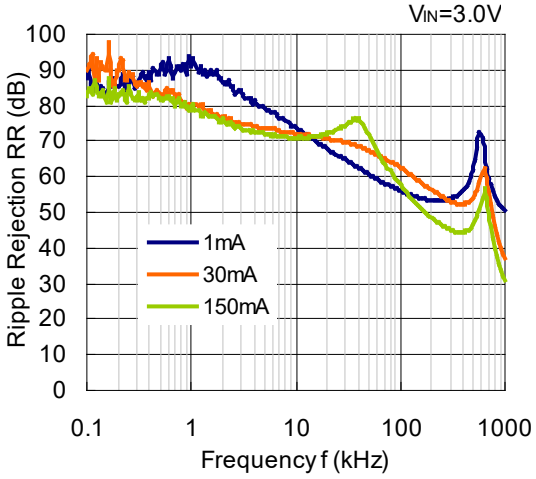


RP114x25xx

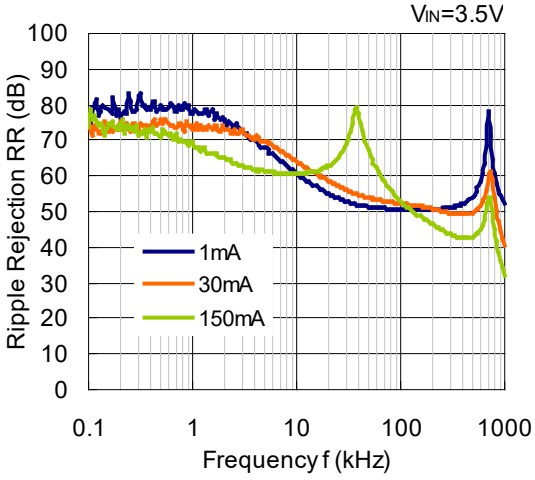


10) Ripple Rejection vs. Frequency (C1=none, C2=1.0µF, Topt=25°C)

RP114x08xx



RP114x25xx



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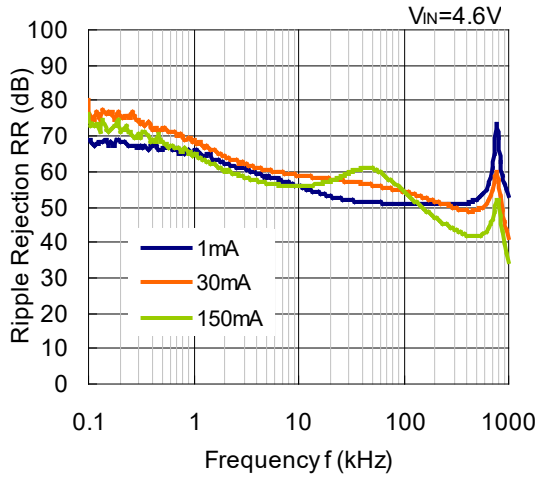
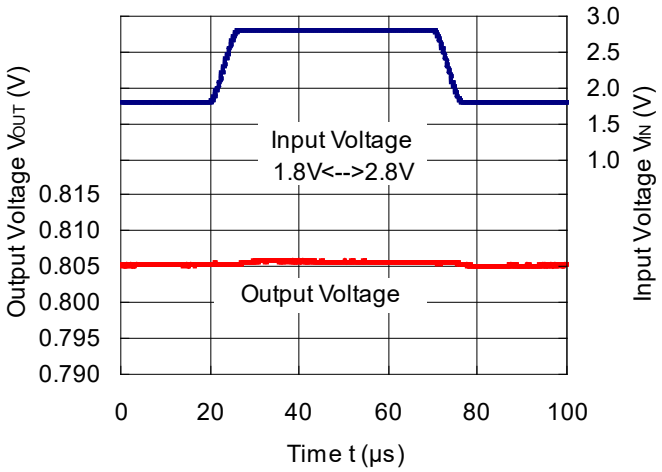
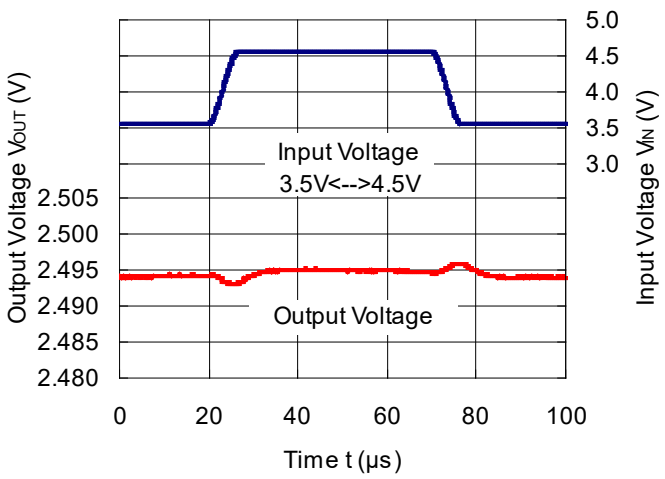


11) Input Transient Response (I_{OUT}=30mA, tr=tf=5µs, Topt=25°C)

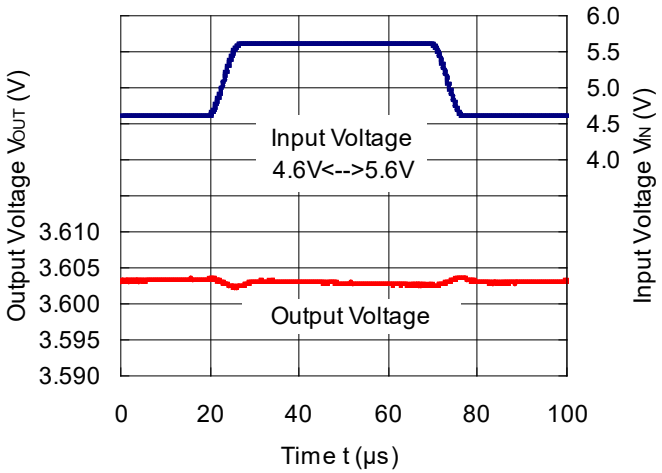
RP114x08xx



RP114x25xx

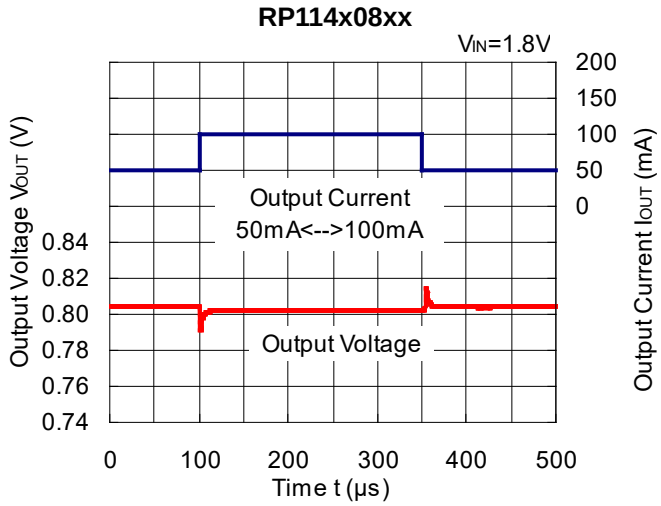


RP114x36xx

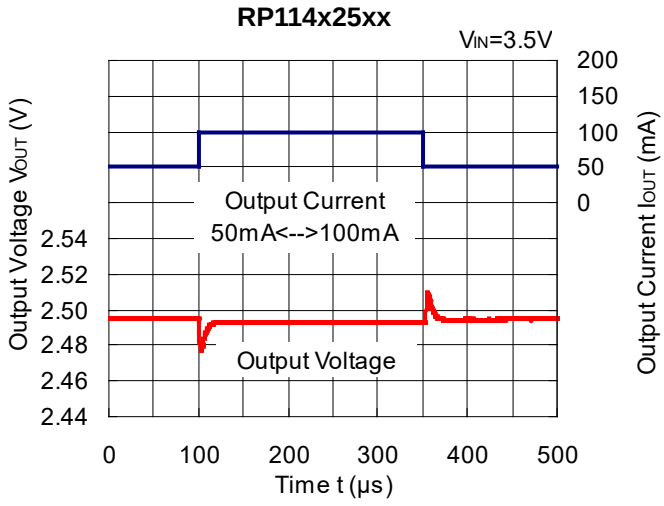


12) Load Transient Response (C1=1.0µF, C2=1.0µF, tr=tf=0.5µs, Topt=25°C)

RP114x08xx



RP114x25xx



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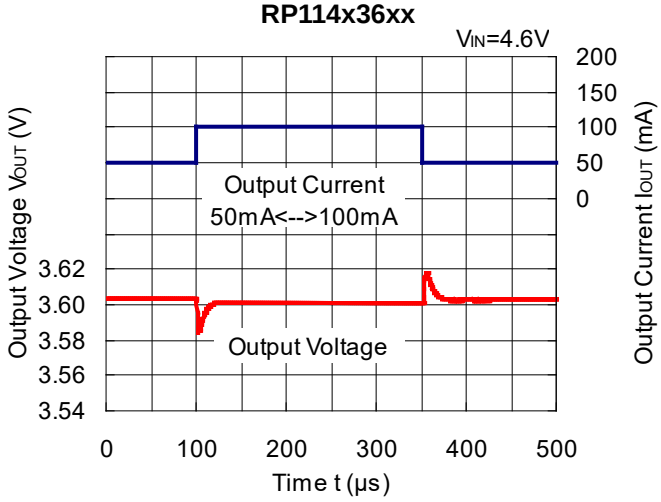

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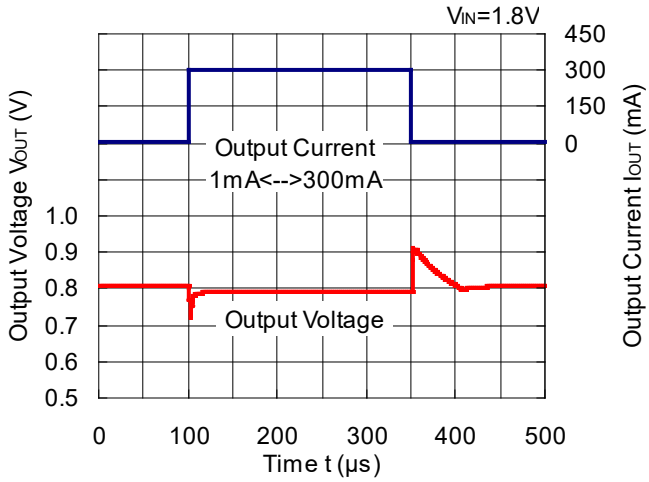

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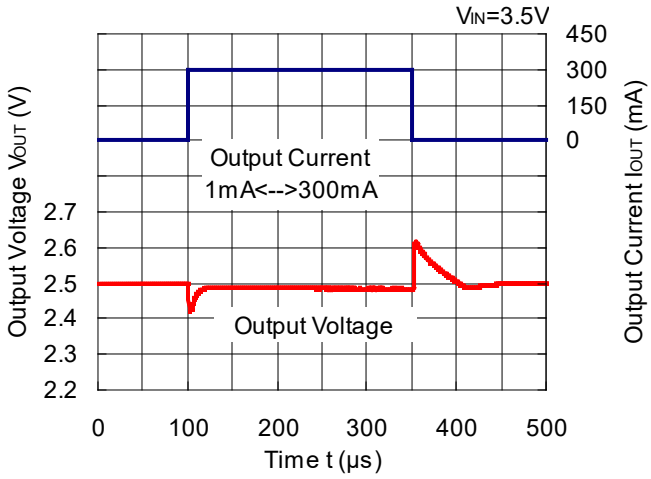

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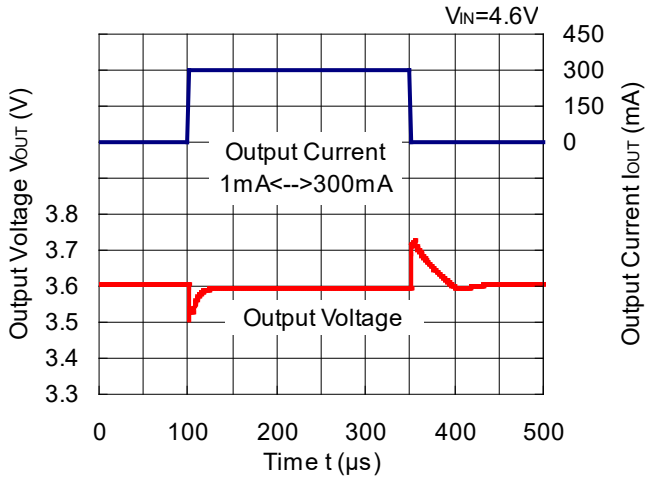
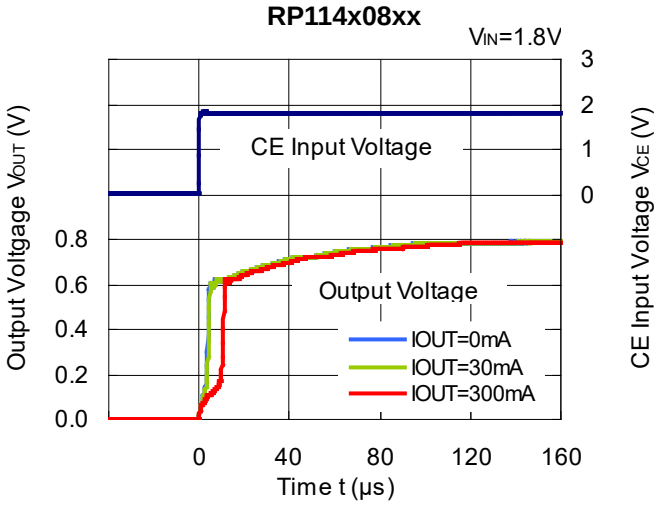
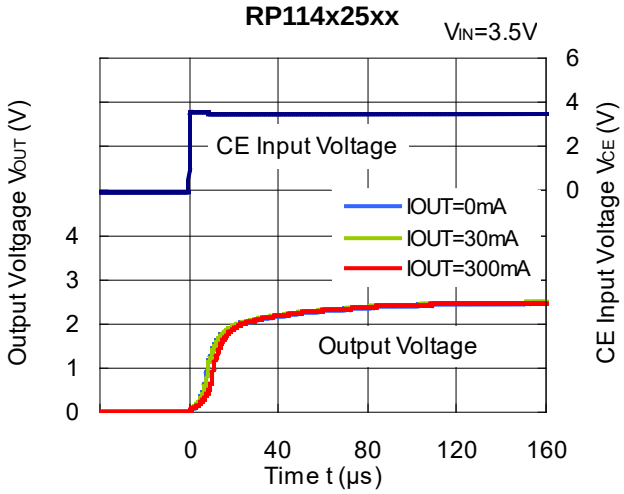


13) Turn On Speed with CE pin (C1=1.0µF, C2=1.0µF, Topt=25°C)

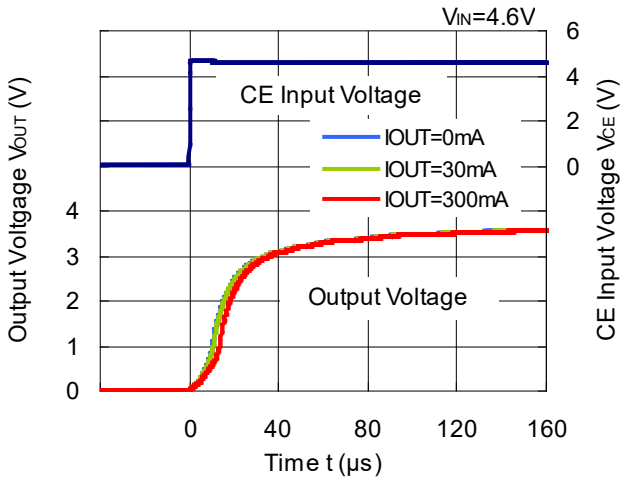
RP114x08xx



RP114x25xx

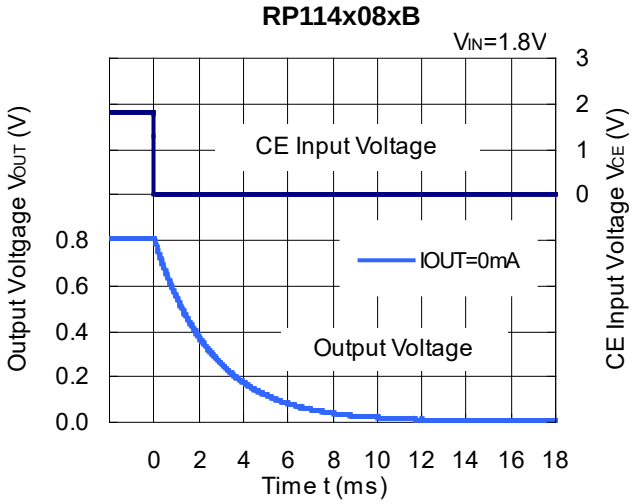


RP114x36xx

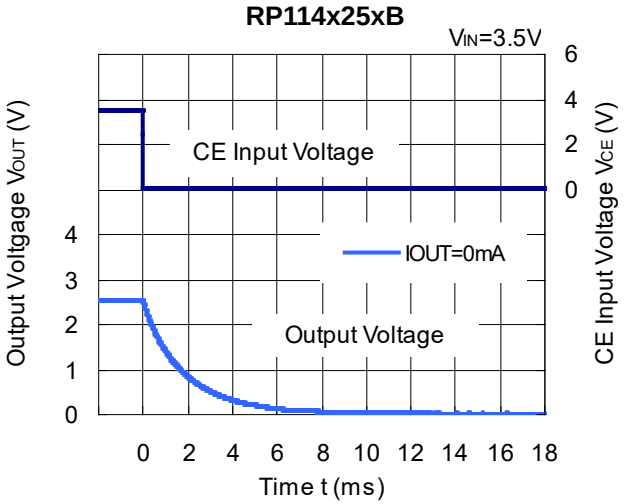


14) Turn Off Speed with CE pin (B version) (C1=1.0µF, C2=1.0µF, Topt=25°C)

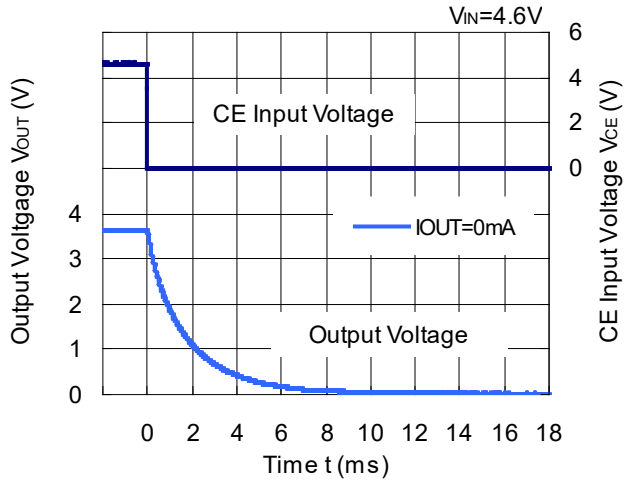
RP114x08xB



RP114x25xB

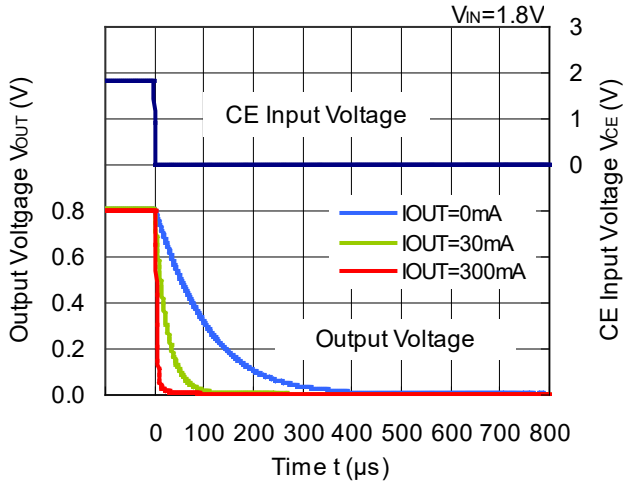


RP114x36xB

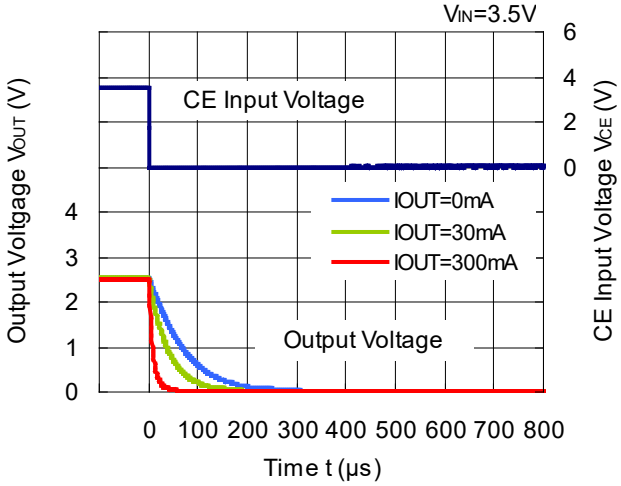


15) Turn Off Speed with CE pin (D version) (C1=1.0µF, C2=1.0µF, Topt=25°C)

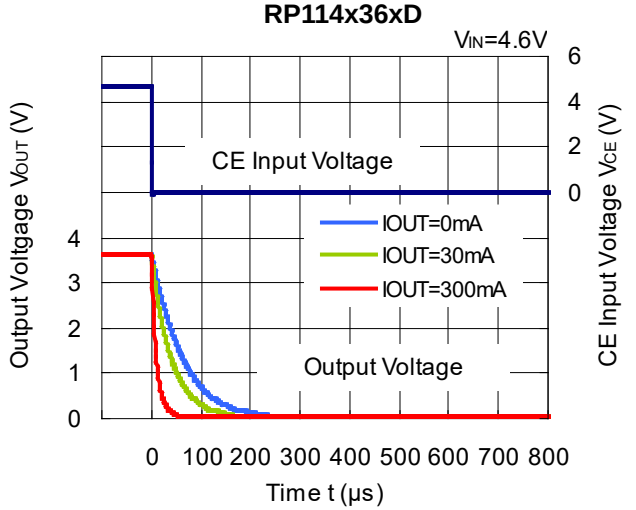
RP114x08xD



RP114x25xD



RP114x36xD



ESR vs. Output Current

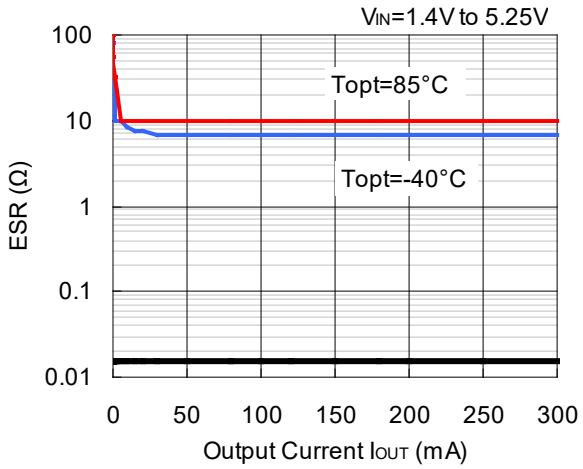
When using these ICs, consider the following points:

The relations between I_{OUT} (Output Current) and ESR of an output capacitor are shown below.
The conditions when the white noise level is under 40μV (Avg.) are marked as the hatched area in the graph.

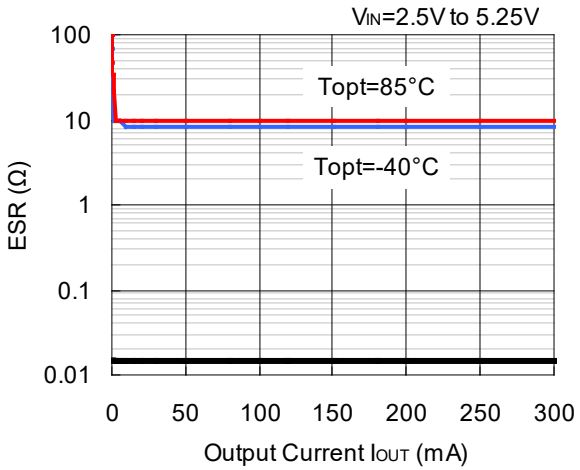
Measurement conditions

Frequency Band: 10Hz to 2MHz
Temperature : –40°C to 85°C
C1, C2 : 1.0μF

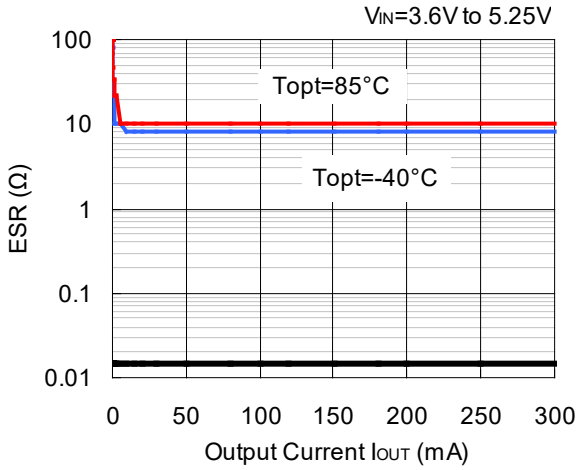
RP114x08xx



RP114x25xx



RP114x36xx



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