

# DC-DC Converter Short Form

## MPDRX301S,302S (Ultra High Speed / Low profile / 13A output POL)

### ■ Features

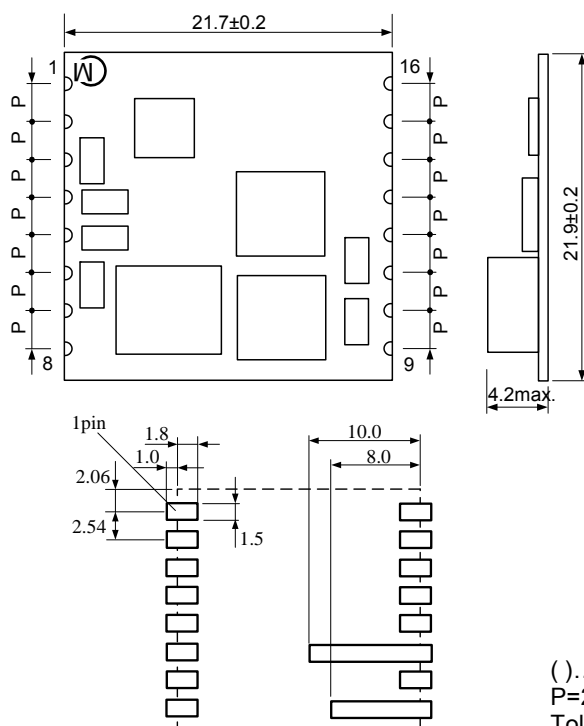
- Wide Input Voltage (5.6-14V)
- Wide Output Voltage  
(0.8-1.65V:MPDRX302S , 1.6-3.63V:MPDRX301S)
- MAX 13A Output Current
- Very High Speed Response
- Short Circuit Protection Available
- On/Off Control Function Available
- Two Power Good Signal Output Terminals
- Variable Start-up Speed (by external capacitor)



### ■ GENERAL SPECIFICATIONS (Ta=-40 °C to +85°C)

Item	Symbol	Condition	MIN.	TYP.	MAX.	UNIT
Input Voltage	Vin		5.6	9.6	14	V
Output Voltage	Vout	Vin=9.6V MPDRX302S	0.8		1.65	V
		Vin=9.6V MPDRX301S	1.6		3.63	
Output Current	Iout		0		13	A
Ripple Voltage	Vrip	Vin=9.6V, Vo=1.2V, Io=13A. -302S		15		mVpp
		Vin=9.6V, Vo=3.3V, Io=13A. -301S		20		
Efficiency	EFF	Vin=9.6V, Vo=1.2V, Io=13A. -302S		82		%
		Vin=9.6V, Vo=3.3V, Io=13A. -301S		90		

### ■ DIMENSIONS PIN DESCRIPTIONS



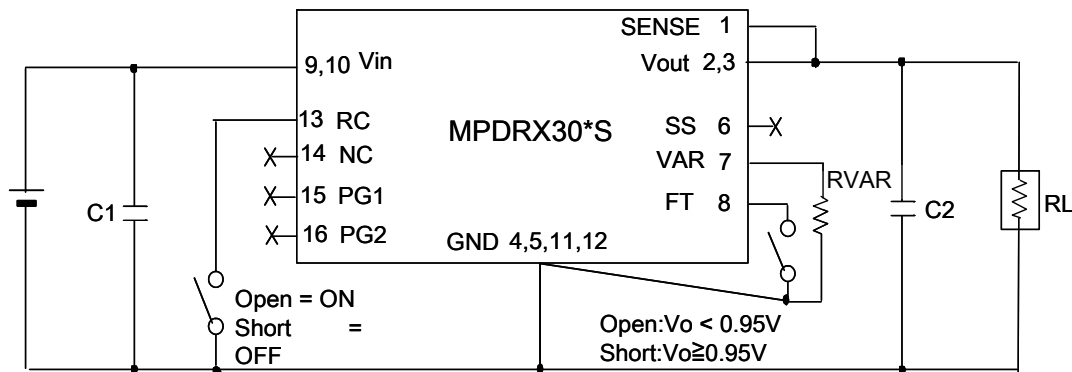
Pin No.	Symbol	Function
1	SENSE	Output Voltage sense
2,3	Vout	Output
4,5,11,1	GND	GND
8	FT	Output Trim
7	VAR	Vout Adjustment
9,10	Vin	Input
6	SS	Soft Start
14	N.C.	Non Connection
15	POW-GOOD1	Power Good
16	POW-GOOD2	Power Good
13	RC	Remote ON/OFF

( )...reference value  
P=2.54 ±0.2mm  
Tolerance is not accumulated.

#### ⚠ Note:

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## ■ TEST CIRCUIT

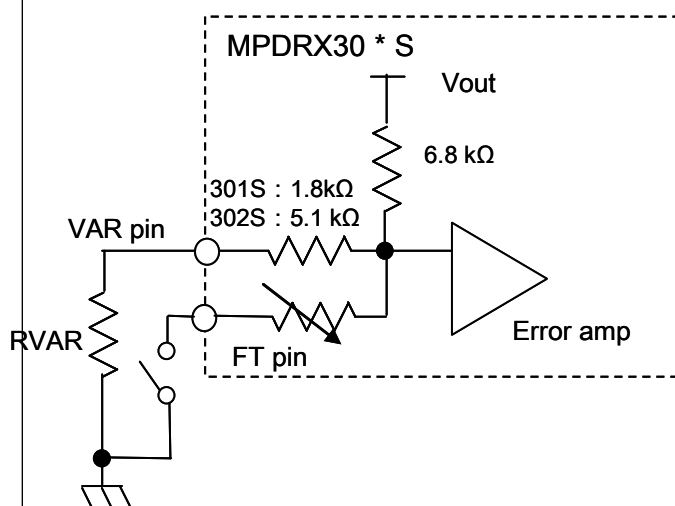


C1 : 10µF / 25V×2 ( Ceramic Capacitor )

C2 : 100µF / 6.3V ( Ceramic Capacitor )

※Please make sure to place C1 and C2 nearby input and output terminal of DC-DC converter.

## ■ OUTPUT VOLTAGE ADJUSTMENT



①MPDRX301S (FT-pin : SHORT to GND)

$$RVAR = \frac{5440}{V_{oadj}[V] \times 1.002 - 1.5[V]} - 1800 \quad [\Omega]$$

②MPDRX302S

(a)  $0.8 \leq V_{out} < 0.95V$  (FT-pin : OPEN)

$$RVAR = \frac{5440}{V_{oadj}[V] \times 1.002 - 0.8[V]} - 5100 \quad [\Omega]$$

(b)  $0.95 \leq V_{out} \leq 1.65V$  (FT-pin : SHORT to GND)

$$RVAR = \frac{5440}{V_{oadj}[V] \times 1.002 - 0.95[V]} - 5100 \quad [\Omega]$$

①MPDRX301S

Voadj [V]	Calculated RVAR[Ω]	FT pin (8pin)
3.63	745	Short to GND
3.3	1211	Short to GND
2.5	3613	Short to GND
1.8	16118	Short to GND
1.6	50913	Short to GND

②MPDRX302S

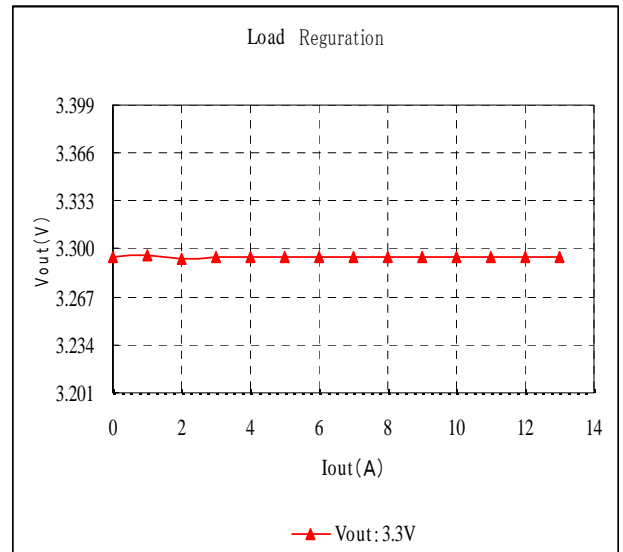
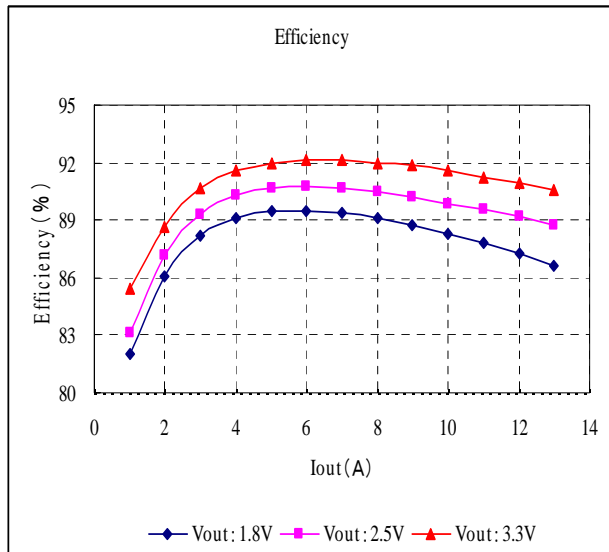
Voadj [V]	Calculated RVAR[Ω]	FT pin (8pin)
1.65	2635	Short to GND
1.5	4737	Short to GND
1.2	16453	Short to GND
1.0	99515	Short to GND
0.95	2858058	Short to GND
0.9	48338	Open
0.8	3394900	Open

### ⚠ Note:

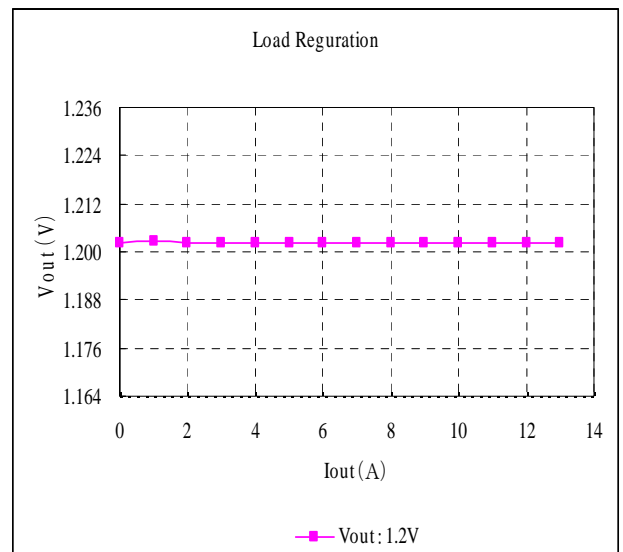
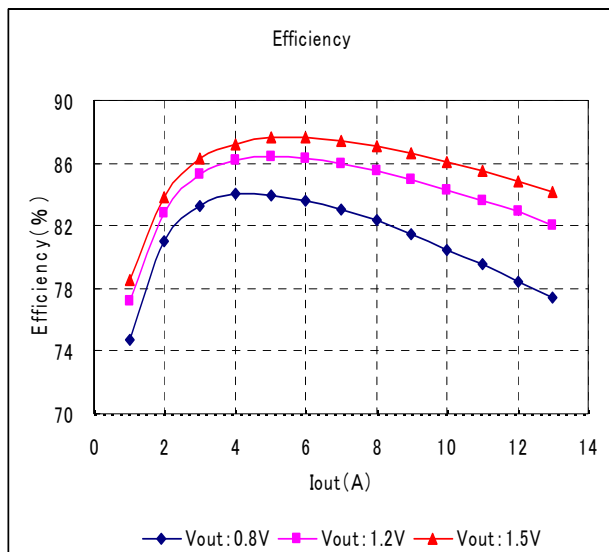
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## ■ EFFICIENCY AND REGULATION CHARACTERISTICS

### ① MPDRX301S



### ② MPDRX302S



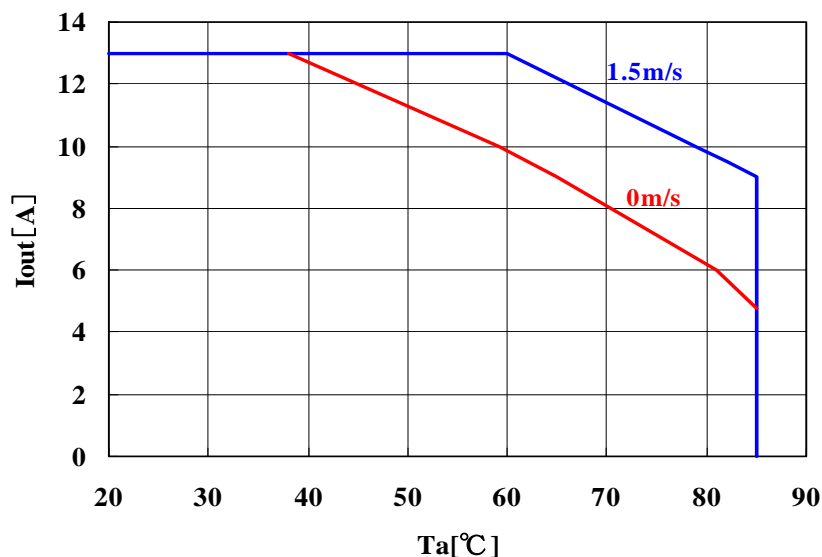
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## ■ THERMAL DERATING

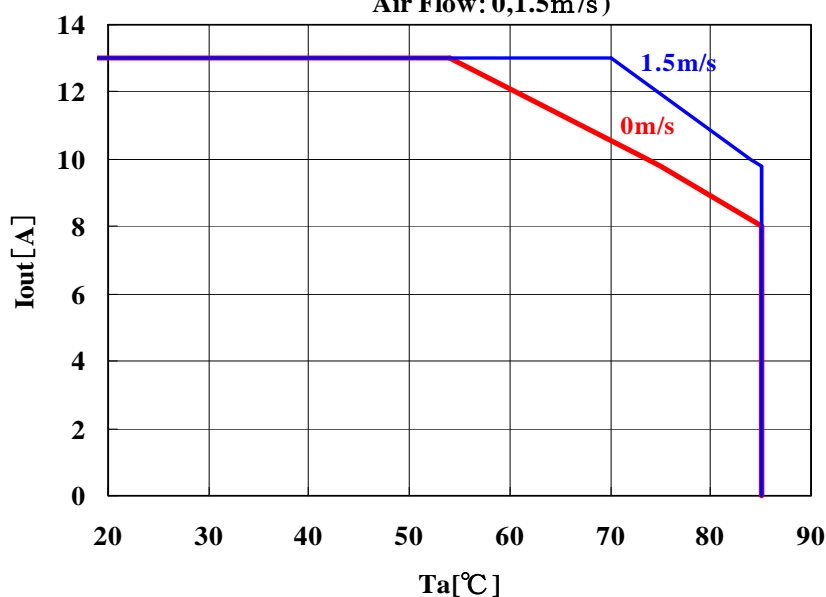
### ① MPDRX301S

**MPDRX301S**  
( $V_{in}=6.2\sim 12V$ ,  $V_{out}=1.6\sim 3.63V$ ,  
Air Flow: 0, 1.5m/s)



### ② MPDRX302S

**MPDRX302S**  
( $V_{in}=6.2\sim 12V$ ,  $V_{out}=0.8\sim 1.65V$ ,  
Air Flow: 0, 1.5m/s)



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