

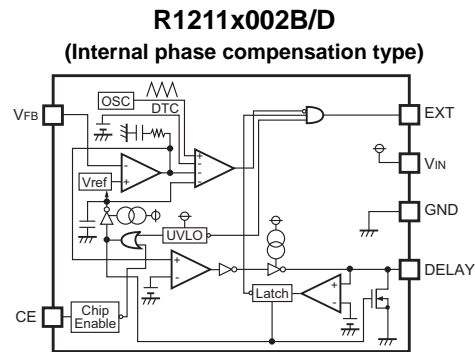
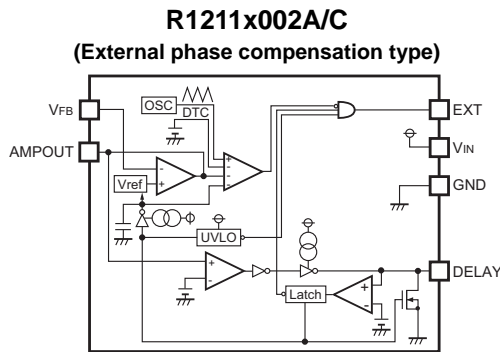
The R1211x Series are low supply current CMOS-based PWM step-up DC/DC controllers. R1211x does not include an internal output transistor. By simply using a power MOS, an inductor, a diode, resistors, and capacitors as external components, a high-efficiency step-up DC/DC converter can be easily configured. R1211x is available in two versions: B/D versions with an internal phase compensation and A/C versions with adjustable phase compensation with an external capacitor and resistor. The oscillator frequency can be selected from 300kHz or 700kHz. The soft start function built into the controller is set to Typ. 10.5ms for 300kHz and to Typ. 9ms for 700kHz. The latch type protection circuit embedded into the device latches the external driver in the "OFF" state when the oscillator maximum duty cycle continues for a predetermined period of time setting by an external capacitor.

\*) These products are suitable for automotive applications. For details, please refer to our "ELECTRONIC DEVICE PRODUCT CATALOG FOR AUTOMOTIVE" or contact us.

### FEATURES

- Supply Current ( $I_{DD1}$ ) ..... Typ. 600 $\mu$ A (700kHz, No switching),  
Typ. 300 $\mu$ A (300kHz, same as above)
- Standby Current ( $I_{standby}$ ) ..... Typ. 0 $\mu$ A (CE="L", only B/D Versions)
- Input Voltage Range ( $V_{IN}$ ) ..... 2.5V to 6.0V (Absolute maximum rating : 6.5V)
- Output Voltage Range ..... Externally adjustable (Feedback voltage : 1.0V)
- Feedback Voltage Accuracy .....  $\pm 15$ mV
- Temp. coeff. of Feedback Voltage .....  $\pm 150$ ppm/ $^{\circ}$ C
- Oscillator Frequency ( $f_{osc}$ ) ..... 300kHz (C/D Versions)  
700kHz (A/B Versions)
- Oscillator Maximum Duty Cycle (Maxduty) · Min. 82%, Typ. 90%
- UVLO Detect Voltage ( $V_{UVLO}$ ) ..... 2.2V
- Soft Start Time ( $t_{start}$ ) ..... Typ. 10.5ms (300kHz)  
Typ. 9ms (700kHz)
- Packages ..... SON-6, SOT-23-6W

### BLOCK DIAGRAMS

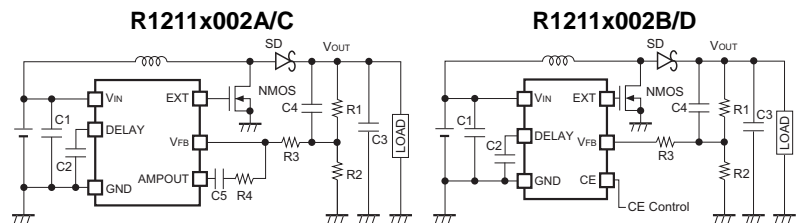


### SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	SON-6	3,000 pcs	R1211D002\$-TR-FE
H/F	SOT-23-6W	3,000 pcs	R1211N002\$-TR-FE

\$ : Select from (A) oscillator frequency of 700kHz, external phase compensation,  
(B) oscillator frequency of 700kHz, internal phase compensation with standby function,  
(C) oscillator frequency of 300kHz, external phase compensation or (D) oscillator frequency of 300kHz, internal phase compensation with standby function.

### TYPICAL APPLICATIONS



NMOS : IRF7601, L : 10 $\mu$ H (002A), 22 $\mu$ H (002C),  
SD : CRS10I30A, C1 : 4.7 $\mu$ F, C2 : 0.22 $\mu$ F, C3 : 10 $\mu$ F,  
C4 : 680pF, C5 : 2200pF,  
R3 : 30k $\Omega$ , R4 : 30k $\Omega$

NMOS : IRF7601, L : 10 $\mu$ H (002B),  
22 $\mu$ H (002D), SD : CRS10I30A, C1 : 4.7 $\mu$ F,  
C2 : 0.22 $\mu$ F, C3 : 10 $\mu$ F, C4 : 680pF, R3 : 30k $\Omega$

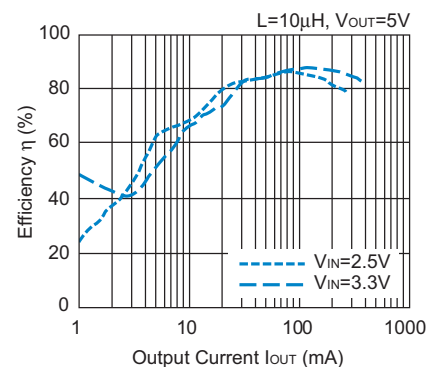
### PACKAGES

SON-6		SOT-23-6W	
Top View	Bottom View		
1 DELAY	1 DELAY	1 DELAY	
2 GND	2 AMPOUT or CE	2 AMPOUT or CE	
3 EXT	3 VFB	3 VFB	
4 V <sub>IN</sub>	4 V <sub>IN</sub>	4 V <sub>IN</sub>	
5 VFB	5 GND	5 GND	
6 AMPOUT or CE	6 EXT	6 EXT	

\*) The tab suspension leads on back side are substrate level (GND).

### TYPICAL CHARACTERISTIC

R1211x002A Efficiency vs. Output Current



### APPLICATIONS

- Power source for hand-held equipment
- Power source for LCD and CCD
- Power source for automotive application



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