

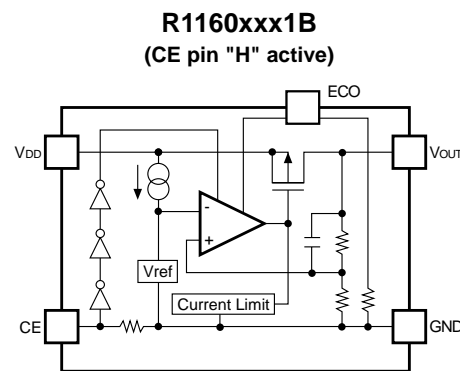
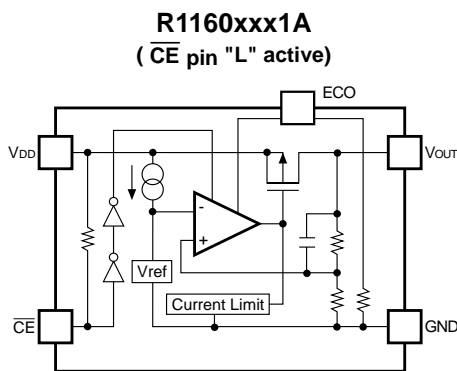
## Low Voltage 200mA LDO with ECO pin

The R1160x Series are CMOS-based LDO regulators with ECO pin featuring 200mA output. By inputting control signals from the ECO pin, the mode of the regulator can be switched to low power mode or fast response mode, thus making both active and sleep modes available for the system. The CE pin can switch the regulator into standby mode. This feature helps to extend the battery life.

### FEATURES

- Supply Current ( $I_{SS1}$ ) ..... Typ. 40 $\mu$ A (Fast mode,  $V_{IN}=\text{SET } V_{OUT}+1\text{V}$ )
- Supply Current ( $I_{SS2}$ ) ..... Typ. 4.5 $\mu$ A (Low power mode, same as above,  $V_{OUT}=2.8\text{V}$ )
- Standby Current ( $I_{standby}$ ) ..... Typ. 0.1 $\mu$ A (Same as above, in standby)
- Dropout Voltage ( $V_{DIF}$ ) ..... Typ. 0.14V (Fast mode,  $I_{OUT}=200\text{mA}$ ,  $V_{OUT}=2.8\text{V}$ )  
Typ. 0.14V (Low power mode,  $I_{OUT}=200\text{mA}$ ,  $V_{OUT}=2.8\text{V}$ )
- Ripple Rejection (RR) ..... Typ. 70dB (Fast mode,  $f=1\text{kHz}$ )
- Input Voltage Range ( $V_{IN}$ ) ..... 1.4V to 6.0V
- Output Voltage Range ( $V_{OUT}$ ) ..... 0.8V to 3.3V (internally fixed)
- Output Voltage Accuracy .....  $\pm 2\%$  (Fast mode)  
 $\pm 3\%$  (Low power mode)
- Temp. coeff. of Output Voltage ..... Typ.  $\pm 100\text{ppm}/^\circ\text{C}$
- Line Regulation ..... Typ. 0.05%/V (Fast mode)
- Fold-back Protection Circuit ..... Current limit Typ. 50mA
- Packages ..... SON-6, SOT-23-5

### BLOCK DIAGRAMS



### SELECTION GUIDES

Package	Quantity per Reel	Part No.
SON-6	3,000 pcs	R1160Dxx1*-TR-F
SOT-23-5	3,000 pcs	R1160Nxx1*-TR-F

- xx : Specify the output voltage within the range 0.8V (08) to 3.3V (33) in 0.1V steps.  
\* : Select the polarity of the CE pin from (A) "L" active or (B) "H" active.

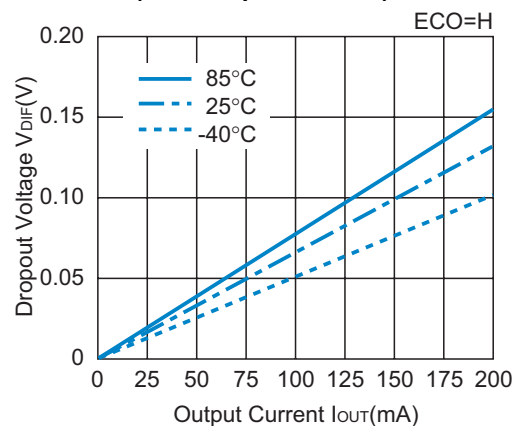
### PACKAGES

SON-6		SOT-23-5	
1	$V_{DD}$	1	$V_{DD}$
2	NC	2	GND
3	$V_{OUT}$	3	CE or CE
4	ECO	4	ECO
5	GND	5	$V_{OUT}$
6	CE or CE		

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

### TYPICAL CHARACTERISTIC

**R1160x261x Dropout Voltage vs. Output Current (Fast Response Mode)**



### APPLICATIONS

- Power source for hand-held communication equipment, cameras, and VCRs
- Power source for battery-powered equipment
- Very stable voltage reference



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Ricoch continually strives to promote customer satisfaction, and shares the achievements of its management quality improvement program with people and society.



■ Ricoh awarded ISO 14001 certification.  
The Ricoh Group was awarded ISO 14001 certification, which is an international standard for environmental management systems, at both its domestic and overseas production facilities. Our current aim is to obtain ISO 14001 certification for all of our business offices.

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Ricoh completed the organization of the Lead-free production for all of our products. After Apr. 1, 2006, we will ship out the lead free products only. Thus, all products that will be shipped from now on comply with RoHS Directive.