

## 150mA 24V Input VR with/without Adjust pin

The R1154x Series are CMOS-based 24V input voltage regulators featuring 150mA output ( $2.5V \leq V_{OUT} \leq 2.9V$ , 140mA). In addition to B version with the internally fixed output voltage, C version with adjustable output voltage with an external resistor is also available. In addition to a fold-back protection circuit built into conventional regulators, R1154x contains a thermal shutdown circuit. R1154x features high input voltage of Max. 24V and wide operating range  $-40^{\circ}\text{C}$  to  $105^{\circ}\text{C}$ , making it suitable for use in digital home appliances.

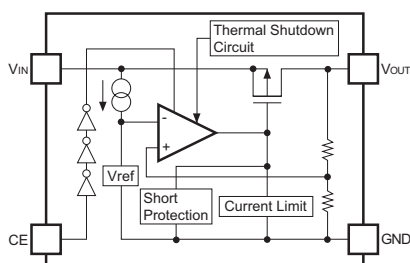
### FEATURES

- Supply Current ( $I_{SS}$ ) ..... Typ.  $5\mu\text{A}$  ( $V_{IN}=\text{SET } V_{OUT}+2.0\text{V}$ )
- Standby Current ( $I_{standby}$ ) ..... Typ.  $0.1\mu\text{A}$  ( $\text{CE}=\text{"L"}$ )
- Dropout Voltage ( $V_{DIF}$ ) ..... Typ.  $0.2\text{V}$  ( $I_{OUT}=20\text{mA}$ ,  $V_{OUT}=2.8\text{V}$ )
- Input Voltage Range ( $V_{IN}$ ) ..... Max.  $24.0\text{V}$
- Output Voltage Range ( $V_{OUT}$ ) .....  $2.5\text{V}$  to  $12.0\text{V}$  (internally fixed, B Version)  
 $2.5\text{V}$  to  $24.0\text{V}$  with external resistors  
(Reference voltage  $2.5\text{V}$ , C Version)
- Output Voltage Accuracy .....  $\pm 2\%$
- Operating Temperature Range  
(Absolute maximum rating) .....  $-40^{\circ}\text{C}$  to  $105^{\circ}\text{C}$
- Temp. coeff. of Output Voltage ..... Typ.  $\pm 100\text{ppm}/^{\circ}\text{C}$
- Line Regulation ..... Typ.  $0.05\%/V$
- Fold-back Protection Circuit ..... Current limit Typ.  $45\text{mA}$
- Thermal Shutdown Circuit ..... Stops at  $150^{\circ}\text{C}$
- Packages ..... DFN1616-6  
SOT-23-5, SOT-89-5

### BLOCK DIAGRAMS

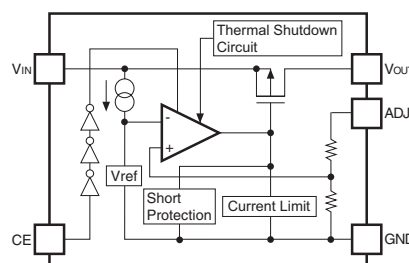
#### R1154xxxxB

(Internally fixed output voltage type)



#### R1154xxxxC

(Externally adjustable output voltage type)



### SELECTION GUIDES

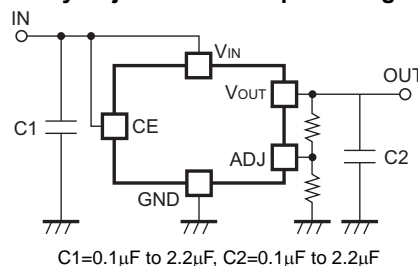
Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN1616-6	5,000 pcs	R1154Lxxx*-TR
H/F	SOT-23-5	3,000 pcs	R1154Nxxx*-TR-FE
H/F	SOT-89-5	1,000 pcs	R1154Hxxx*-T1-FE

xxx : Specify the output voltage within the range of  $2.5\text{V}$  (025) to  $12.0\text{V}$  (120) in  $0.1\text{V}$  steps.  
For C Version, fixed at (001).

\* : Select from (B) internally fixed output voltage type or (C) externally adjustable output voltage type.

### TYPICAL APPLICATION

#### Externally Adjustable of Output Voltage Type



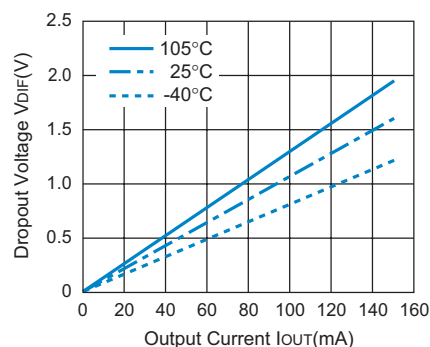
### PACKAGES (Top View)

DFN1616-6	SOT-23-5	SOT-89-5
1 $V_{DD}$	1 $V_{OUT}$	1 $V_{OUT}$
2 NC	2 GND	2 GND
3 $V_{OUT}$	3 $V_{DD}$	3 CE
4 CE	4 NC or ADJ	4 NC or ADJ
5 NC or ADJ	5 CE	5 $V_{DD}$
6 GND		

\*) The tab is substrate level. (GND)

### TYPICAL CHARACTERISTIC

#### R1154x030B Dropout Voltage vs. Output Current



- Power source for home appliances (refrigerators, rice cookers, electric water warmers, etc.)
- Power source for laptop personal computers, digital TVs, cordless phones, and private LAN systems for home
- Power source for copiers, printers, facsimiles, scanners



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■ 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.