

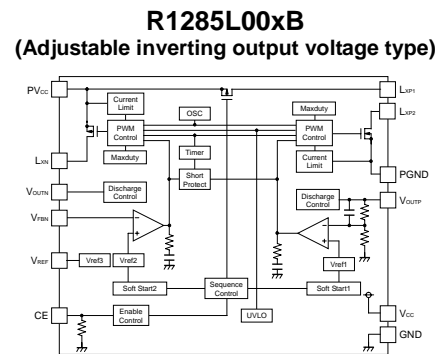
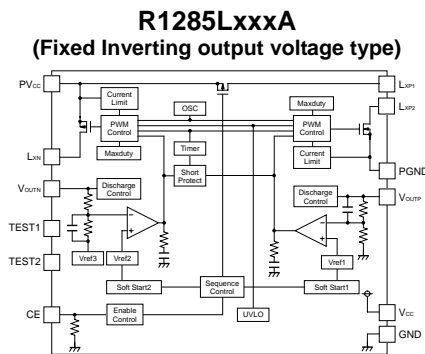
## PWM Step-up/Inverting DC/DC Converter for AMOLED

The R1285L Series are dual output CMOS-based PWM step-up/inverting DC/DC converters. R1285L includes a soft start circuit, an under-voltage lockout circuit (UVLO) and a latch type protection circuit. By simply using inductors, capacitors, and (resistors) as external components, a high-efficiency step-up/inverting DC/DC converter can be easily configured. The Inverting DC/DC converter can be started after Step-up DC/DC converter by sequence control. At the standby mode, the internal shutdown switch can separate the output from the input.

### FEATURES

- Supply Current ( $I_{DD1}$ )..... Typ. 4mA ( $V_{IN}=4.8V$ , In switching)
- Supply Current ( $I_{DD2}$ )..... Typ. 350 $\mu$ A ( $V_{IN}=4.8V$ , In non-switching)
- Standby Current ( $I_{standby}$ )..... Max. 3 $\mu$ A ( $V_{IN}=4.8V$ , CE="L")
- Input Voltage Range ( $V_{IN}$ )..... 2.3V to 4.8V
- Step-up Output Voltage Range ( $V_{OUTP}$ )..... Select from 4.6V, 4.8V or 5.0V
- Inverting Output Voltage Range ( $V_{OUTN}$ )..... -2.0V to -6.0V (A Version)  
The output voltage adjustable up to -6V with an external resistor.  
(Feed back voltage 0V) (B Version)
- Step-up Output Voltage Accuracy.....  $\pm 1.5\%$
- Inverting Output Voltage Accuracy ..  $\pm 1.5\%$  (A Version)  
 $\pm 25mV$  (B Version)
- Output Reference Voltage ( $V_{REF}$ ) ..... 1.2V ( $\pm 28mV$ )
- Oscillator Frequency ( $f_{osc}$ )..... 1.4MHz
- Oscillator Maximum Duty Cycle (Maxduty)..... Step-up :Typ. 85%  
Inverting :Typ. 90%
- UVLO Detect Voltage ( $V_{UVLO}$ )..... Typ. 2.05V
- Soft Start Time ( $t_{start}$ ) ..... Typ. 4.5ms
- Latch Protection Circuit ..... Delay time for protection  
Typ. 50ms
- Auto-Discharge function
- Package..... DFN2730-12

### BLOCK DIAGRAMS



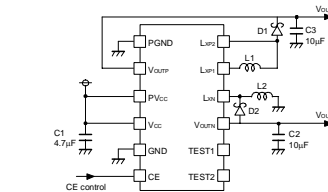
### SELECTION GUIDE

Package	Quantity per Reel	Part No.
DFN2730-12	5,000 pcs	R1285Lxx\$*-TR-F

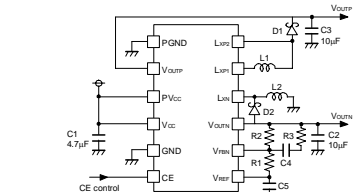
- xx : Specify the inverting output voltage within the range -2.0V (20) to -6.0V (60) in 0.1V steps. For the adjustable inverting output voltage type, 00. (B Version)
- \$ : Select the step-up output voltage from (1) 4.6V, (2) 4.8V or (3) 5.0V.
- \* : Select from (A) Fixed Inverting output voltage type or (B) Adjustable inverting output voltage type

### TYPICAL APPLICATIONS

**R1285LxxxA** (Fixed Inverting output voltage type) **R1285L00xB** (Adjustable inverting output voltage type)



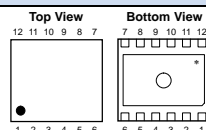
L1,L2: VLF3010-4R7 (TDK)  
SD: CRS02 (Toshiba)



L1,L2: VLF3010-4R7 (TDK)  
SD: CRS02 (Toshiba)  
R1, R2: Resistors for setting VOUTN  
R3: 2k $\Omega$ , C4: 47pF, C5: 0.1 $\mu$ F

### PACKAGE

#### DFN2730-12



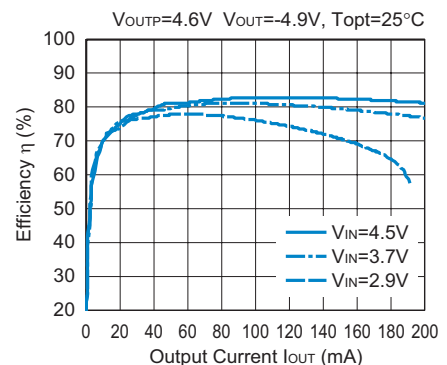
1	PGND	7	TEST2*2 or VREF
2	VOUTP	8	TEST1*2 or VFBN
3	PVCC	9	VOUTN
4	VCC	10	LXN
5	GND	11	LXP1
6	CE	12	LXP2

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

\*2) The TEST1 pin and TEST2 pin connected to the GND level or should be open.

### TYPICAL CHARACTERISTIC

#### R1285Lxx1A/001B Efficiency vs. Output Current



### APPLICATIONS

- Power source for active matrix OLED
- Power source for battery-powered equipment



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