

PWM Step-up/Inverting DC/DC Converter for AMOLED/LCD with synchronous rectifier

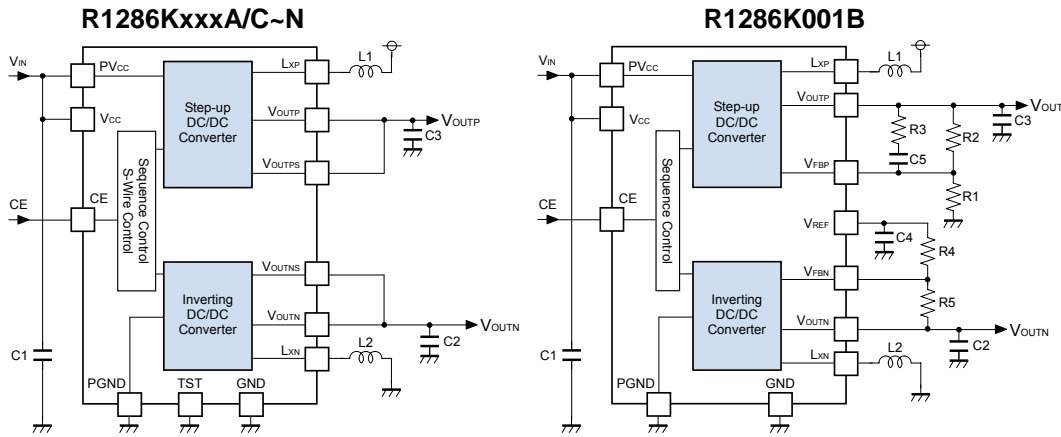
The R1286K Series are CMOS-based PWM step-up/inverting DC/DC converters featuring 250mA×2 output current with synchronous rectifier. R1286K includes a soft start circuit, an under-voltage lockout circuit (UVLO), a latch protection circuit, a thermal shutdown circuit, and a shutdown circuit. By simply using two inductors and three capacitors as external components, a high-efficiency step-up/inverting DC/DC converter can be easily configured. R1286K is available in two types: R1286K001B is the type to which the output voltage (V_{OUTP} and V_{OUTN}) can be adjusted by external resistors. R1286KxxxA/C-N are the type to which the step-up output voltage (V_{OUTP}) is internally fixed and the inverting output voltage (V_{OUTN}) can be adjusted dynamically by the single wire interface. The R1286K has a sequenced start up. After the CE pin is enabled, the step-up output is starting up followed by the inverting output after a delay time. As for shutdown, both outputs will be turned off by the auto-discharge function. R1286K is used for applications such as LCD and AMOLED displays.

FEATURES

- Supply Current (I_{CC}) Typ. 1.2mA (No switching)
- Standby Current ($I_{standby}$) Typ. 0.1 μ A (CE="L")
- Input Voltage Range (V_{IN}) 2.3V to 5.5V (Absolute maximum rating : 6.0V)
- Step-up Output Voltage (V_{OUTP}) 4.6V to 5.8V (internally fixed), 4.6V to 5.8V, Externally adjustable (V_{FB} : 1V) (001B)
- Inverting Output Voltage (V_{OUTN}) -2.0V to -6.0V (internally fixed), -2.0V to -6.0V, Externally adjustable (V_{FB} : 0V) (001B), Dynamically adjustable output voltage with single wire interface.
- Feedback Voltage Accuracy Step-up: ± 9 mV (Except B), ± 15 mV (B) Inverting: ± 70 mV (Except B), ± 25 mV (B)
- Output Current (I_{OUT}) Step-up:250mA, Inverting:250mA
- Oscillator Frequency (f_{osc}) 1.75MHz
- Maximum Duty Cycle (Maxduty) Step-up: Typ. 85%, Inverting: Typ. 90%
- UVLO Detect Voltage (V_{UVLO}) Typ. 2.05V
- Soft Start Time (t_{SSP}) Step-up: Typ. 2.4ms, Inverting: Typ. 2.8ms (B)
- Coil-current Limit Circuit Step-up: Typ. 1A, Inverting: Typ. 1.5A
- Latch Protection Circuit Delay time for protection Typ. 16ms, Typ. 40ms
- Auto-discharge Function
- Thermal Shutdown Circuit Stops at 150°C
- Package DFN(PLP)2730-12

(The above shows specification at $T_{opt}=25^{\circ}C$. Design assurance value at $-40^{\circ}C \leq T_{opt} \leq 85^{\circ}C$ is also available. For details, please refer to the datasheet.)

BLOCK DIAGRAMS



SELECTION GUIDES

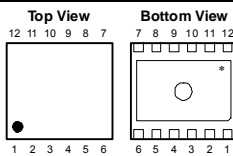
Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN(PLP)2730-12	5,000 pcs	R1286Kxyy\$-TR
			R1286K001B-TR

- x : Specify a delay time for latch protection. (0) 16ms, (1) 40ms
- yy : Serial number to specify a combination of the V_{OUTP} voltage and V_{OUTN} preset value. The externally adjustable output voltage type is (01).

- \$: Specify designation method of V_{OUTP} and V_{OUTN} settings. (A/C to N*) V_{OUTP} voltage is internally fixed. V_{OUTN} voltage can be adjusted dynamically by the single wire interface.
- 001B : Delay time for latch protection is 16ms. V_{OUTP} and V_{OUTN} are externally adjustable.
- *) R1286KxxxI does not exist. For information about the details, Please contact us.

PACKAGE

DFN(PLP)2730-12

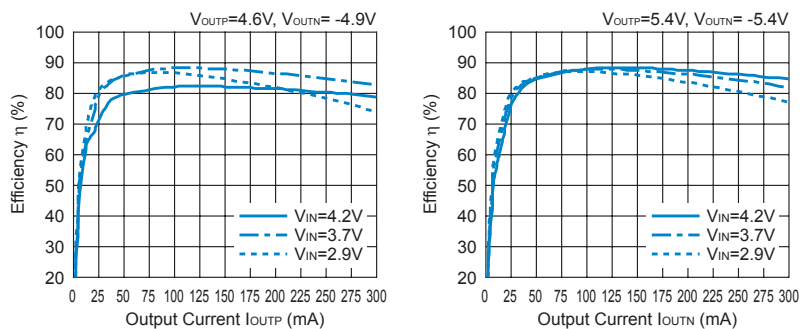


	xxA/C~N	001B		xxA/C~N	001B
1	V_{OUTS}	V_{FBN}	7	PGND	
2	V_{OUTN}		8	LXP	
3	LXN		9	V_{OUTP}	
4	PVCC		10	V_{OUTPS}	V_{FBP}
5	VCC		11	CE	
6	GND		12	TST	V_{REF}

*) The tab is substrate level (GND).

TYPICAL CHARACTERISTICS

R1286K Efficiency vs. Output Current



APPLICATIONS

- Power source for AMOLED and LCD
- Power source for hand-held equipment



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