

LCD Bias ICs

Dual Channel Output LCD Bias Power for Virtual Reality



AS9710

● General Description

The AS9710 is a high integrated PMU which is designed to support positive/negative driven TFT-LCD panels up to 10" at least (from SFF to MFF like tablets). The two output rails are usually connected to the Source Driver IC. The device uses a single inductor scheme in order to provide the user the smallest solution size possible as well as high efficiency.

It features a highly integrated step-up DC-DC converter with wide input voltage range from 2.7V to 5.5V. It is optimized for products powered by single-cell batteries (Li-Ion, Ni-Li, Li-Polymer) and symmetrical output currents up to 100mA at least. An LDO and switched capacitor generate dual outputs at +5.4V (default) and -5.4V (default). Optimized step-up, LDO and switched capacitor converters maximize conversion efficiency, exceeding 85% ($I_{OUT} > 10\text{mA}$).

AS9710 integrates all compensation and soft-start circuitry, which results in a simpler and smaller solution with much fewer external components. High switching frequency 1.4MHz allows the use of a smaller inductor and capacitor to further reduce the solution size.

The I²C compatible interface allows to control the positive and negative outputs from +4.0V to +6.5V and -4.0V to -6.5V, respectively, as well as programming additional registers on the device. The I²C address of AS9710 is **3Eh**, only when the master device initiates the correct address, AS9710 generates an acknowledge condition and works normal.

The device is a RoHS and Green compliant 1.17mm x 1.97mm 15-Ball WLCSP (0.4mm ball pitch) package.

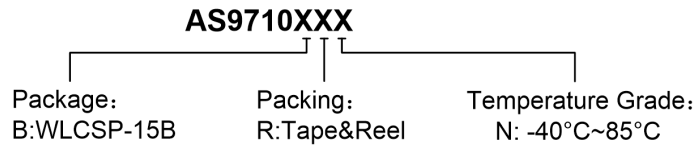
● Features

- High Efficiency above 85% $I_{OUT} > 10\text{mA}$
- Input Voltage Range: 2.7V to 5.5V
- Dual Output Regulator with Single Inductor
- Programmable Output Voltage Voltages
- Positive Output Voltage Range:
 - +4.0V to +6.5V (100mV/Step)
 - Driving Capability Up to 150mA
- Negative Output Voltage Range:
 - 4.0V to -6.5V (100mV/Step)
 - Driving Capability Up to 100mA
- $\pm 1.5\%$ Output Voltage Accuracy
- Excellent Line Regulation
- Switched Capacitor with PFM mode at Light Load
- Advanced Power-Save Mode for Light Load
- Programmable Active Discharge
- Support I²C Compatible Interface
- Integrated Compensation and Feedback Circuits
- 1uA Shut-Down Supply Current
- Boost Current Mode Operation
- Cycle-by-Cycle Current Limit
- Internal Soft-Start Prevents Inrush Current
- Under Voltage Lock Out
- Over-Temperature Protection
- 1.4MHz Fixed Switching Frequency
- Proprietary Switching Loss Reduction Technology
- Small Solution Size
- RoHS and Green Compliant
- Space Saving 15-ball WLCSP (1.17mm x 1.97mm) Packages
- -40°C to +85 °C Temperature Range

● Applications

- TFT LCD Panel
- VR Display
- White Brand MID
- OLED Display
- DAC Supply
- General Dual Power Supply Application

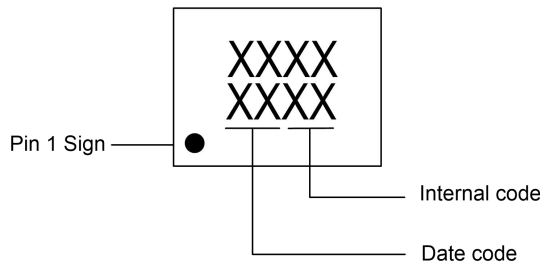
● **Ordering Information**



Part Number	Driver Capability	Package Type	Package Qty	Temperature	Eco Plan
AS9710BRN	100mA	WLCSP-15B	7-in reel 3000pcs/reel	-40~85°C	Green

● **Marking Information**

15-Bump WLCSP



● **Typical Application Circuit**

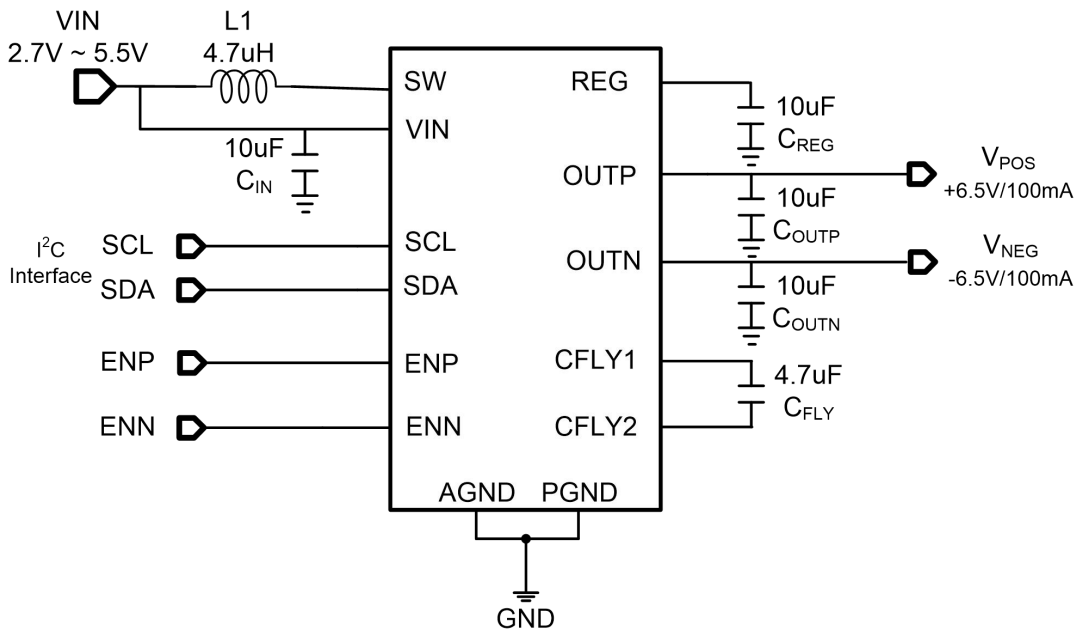
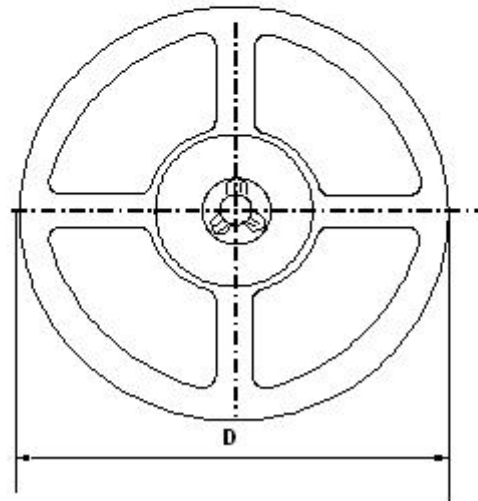
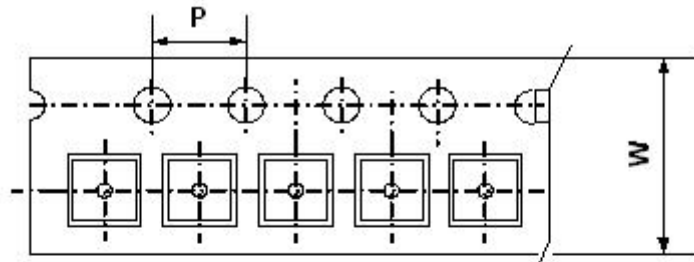
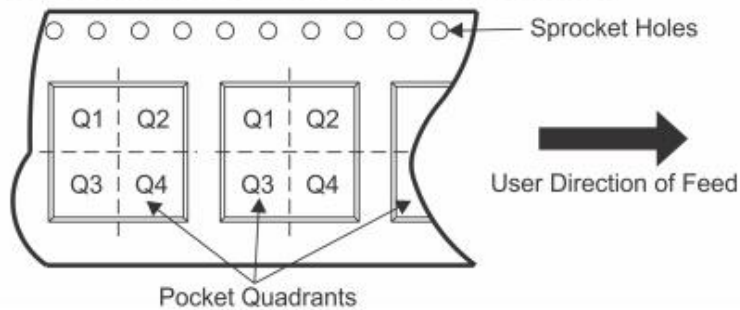


Figure 1, Typical Smartphone Application Circuit of AS9710

■ Packing Information



QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



Device	Package Type	SPQ	Carrier Width (W)	Pitch(P)	Reel Size(D)	Pin1 Quadrant
AS9710BRN	WLCSP-15B	3000pcs	8.0±0.1 mm	4.0±0.1 mm	180±1 mm	Q1