

Triple-Output AMOLED Display Power Supply

■ General Description

The OCP2133 is designed to drive AMOLED displays (Active Matrix Organic Light Emitting Diode) requiring V(AVDD), V(ELVDD) and V(ELVSS). The device integrates a boost converter for V(ELVDD), an inverting buck-boost converter for V(ELVSS) and a boost converter for V(AVDD), which are suitable for battery operated products. The digital interface control pin(CTRL) allows programming V(AVDD), V(ELVDD) and V(ELVSS) in digital steps. The OCP2133 uses a novel technology enabling excellent line and load regulation.

■ Features

- 2.9V to 4.5V Input Voltage Range
- Synchronous Boost Converter (AVDD)
 - 5.8V to 7.9V Output Voltage (programmable)
 - 6.1V Default Output Voltage
 - 1% Accuracy
 - 80mA Output Current Capability
 - 135mA Output Current Protection
 - V_I to V_O and V_O to V_I Isolation
- Synchronous Boost Converter (ELVDD)
 - 4.6V to 5V Output Voltage (programmable)
 - 4.6V Default Output Voltage
 - 0.5% Accuracy
 - 500mA Output Current Capability
 - External Output Voltage Sensing Pin for Load Drop Compensation
 - Excellent Line Transient Response
 - V_I to V_O and V_O to V_I Isolation
- Synchronous Inverting Buck-Boost Converter (ELVSS)
 - 5.4V to -1.4V Output Voltage (programmable)
 - 2.5V Default Output Voltage
 - 1.2% Accuracy at -2.5 V (±30 mV)
 - 500mA Output Current Capability
 - V_I to V_O and V_O to V_I Isolation
- Single-Wire Digital Interface for Programming
- Short Circuit Protection
- Thermal Shutdown
- Available in 3mm × 3mm x 0.75mm 16Pin QFN Package

■ Applications

- Cellular Phones
- Portable Media Players
- Ultra Mobile Devices
- GPS Receivers
- White LED Backlighting for Media Form Factor Display

■ **Pin Configuration**
QFN3X3-16L (TOP VIEW)

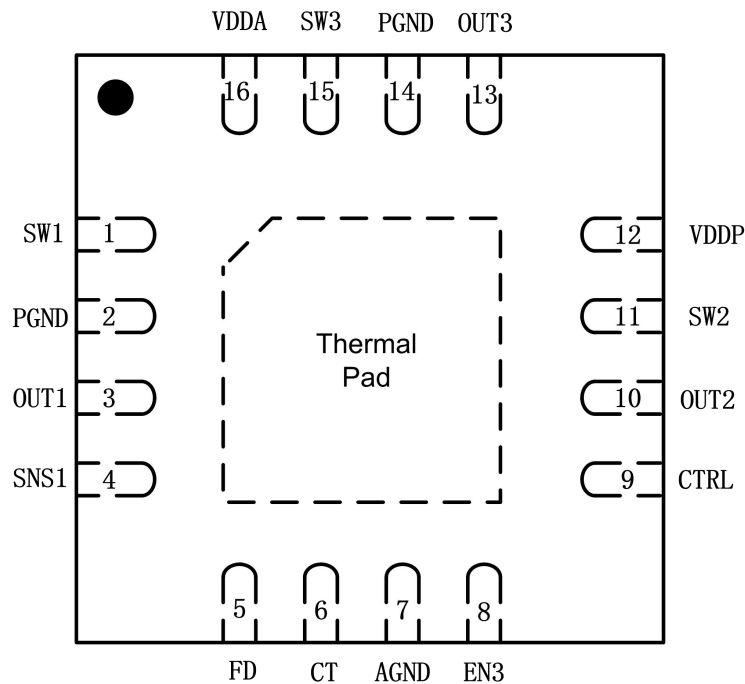


Figure 1, Pin Assignments of OCP2133

Pin Name	Pin No.	I/O	Pin Function
AGND	7	-	Analog ground
CT	6	I/O	Control of the ELVSS transition time.
CTRL	9	I	Enable ELVDD boost converter and delayed ELVSS inverting buck-boost converter. Digital programming.
EN3	8	I	Enable AVDD boost converter.
FD	5	I	Active discharge enables / disable during shut-down.
OUT1	3	O	Output of the ELVDD boost converter
OUT2	10	O	Output of the ELVSS inverting buck-boost converter.
OUT3	13	O	Output of the AVDD boost converter.
PGND	2	-	Power ground of the ELVDD boost converter.
PGND	14	-	Power ground of the AVDD boost converter.
SNS1	4	I	ELVDD sense input.
SW1	1	O	Switch pin of the ELVDD boost converter.
SW2	11	O	Switch pin of the ELVSS inverting buck-boost converter.
SW3	15	O	Switch pin of the AVDD boost converter.
VDDA	16	-	Supply for the internal analog circuits.
VDDP	12	-	Supply for ELVSS inverting buck-boost converter.
Thermal Pad	-	-	Connect this pad to AGND and PGND.

$V_i=2.9V \text{ to } 4.5V$ 