

## Device Information

### ISL98602

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#### 5 Channel DC/DC Converter + V<sub>ON</sub> Slice + Power Good

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### Datasheet



#### ISL98602

#### 5 Channel DC/DC Converter + V<sub>ON</sub> Slice + Power Good

Input Voltage (V)	9.5 to 15
V <sub>BOOST</sub> (V)	10.83 to 19
Boost Current Limit (A)	5.5
V <sub>ON</sub> (V)	up to 36
V <sub>OFF</sub> (V)	down to -10
V <sub>LOGIC</sub> (V)	(V <sub>logic1</sub> ) 2.5 to 3.3 (V <sub>logic2</sub> ) 0.9 to 2.0
# of V <sub>COM</sub>	N/A
# of Gamma	N/A
Features	Automatic Start-Up Sequencing, fault protection
Input Voltage (min) (V)	9.5
Input Voltage (max) (V)	15
V <sub>BOOST</sub> (min) (V)	10.83
V <sub>BOOST</sub> (max) (V)	19
V <sub>ON</sub> (min) (V)	*
V <sub>ON</sub> (max) (V)	36
V <sub>OFF</sub> (min) (V)	-10
V <sub>OFF</sub> (max) (V)	*
V <sub>LOGIC</sub> (min) (V)	2.5, 0.9
V <sub>LOGIC</sub> (max) (V)	3.3, 2

### Product Information

#### Key Features

- 9.5V to 15.0V Input Supply
- 1.3MHz Switching Frequency
- 5.5A Integrated Boost for Up to 19V AVDD
- V<sub>ON</sub> Charge Pump, Up to 36V and 120mA
- V<sub>OFF</sub> Charge Pump, Down to -10V and 120mA
- Synchronous Buck1 for 3.3V/2.5V with 2.0A Peak FET
- Synchronous Buck2 Controller Output from 0.9V to 2.0V
- On-board AVDD Delay Switch
- V<sub>ON</sub> Slice Function Integrated
- Power Good Function for TCON Enable
- Automatic Start-Up Sequencing
- UVLO, UVP, OVP, OCP, and OTP Protection
- 40 Ld 6x6 QFN
- Specified for Ambient Operation Over the -40°C to +85°C Temperature Range
- Pb- Free (RoHS Compliant)

#### Description

The ISL98602 represents a high-power, integrated LCD supply IC targeted at large panel LCD displays. The ISL98602 integrates a high-power boost converter for AVDD generation, V<sub>ON</sub> and V<sub>OFF</sub> charge pump drivers, one synchronous buck regulator, and one synchronous buck controller for two logic voltages. The V<sub>ON</sub> slicing circuitry and power good function are also included.

Operating at 1.3MHz, the AVDD boost converter features a 5.5A boost FET. Feedback is taken from the far side of the delay FET for improving regulation. The OVP circuit protects output side components.

The logic synchronous buck converter features two 2.3A FETs operating at 1.3MHz internal clock. The output voltage is set by the IC internally or with a feedback resistor. The soft-start circuitry is also integrated with the buck.

The second logic voltage is generated from a synchronous buck converter with MOSFET controllers. The overcurrent protection is also integrated with the buck.

The charge pump of  $V_{ON}$  and  $V_{OFF}$  uses the full switching frequency and integrates the driver for high current capability.  $V_{ON}$  is further processed through an integrated  $V_{ON}$  slice circuit in order to reduce flicker.

Alternative fixed voltages at the boost, Buck1, Buck2,  $V_{ON}$  charge pump, and  $V_{OFF}$  charge pump are available in ISL98602; please contact Intersil Marketing via e-mail at [rmonteir@intersil.com](mailto:rmonteir@intersil.com).

## Pricing / Packaging / Samples / Ordering

 iBuy direct from Intersil

 iBuy direct - out of stock

 Request samples

 Check distributor inventory

 Available in RoHS/Pb-Free

Part No.	Design-In Status	Temp.	Package	MSL	Price US \$			
ISL98602IRAAZ	Active	Ind	40 Ld QFN	3	2.50			
ISL98602IRAAZ-T	Active	Ind	40 Ld QFN T+R	3	2.50			
ISL98602IRAAZ-T7A	Active	Ind	40 Ld QFN T+R	3	2.75			
ISL98602IRAAZ-TK	Active	Ind	40 Ld QFN T+R	3	2.50			
ISL98602IRABZ	Active	Ind	40 Ld QFN	3	2.50			
ISL98602IRABZ-T	Active	Ind	40 Ld QFN T+R	3	2.50			
ISL98602IRABZ-T7A	Active	Ind	40 Ld QFN T+R	3	2.75			
ISL98602IRABZ-TK	Active	Ind	40 Ld QFN T+R	3	2.50			

The price listed is the manufacturer's suggested retail price for quantities of 1K units. However, prices in today's market are fluid and may change without notice.

MSL = Moisture Sensitivity Level - per IPC/JEDEC J-STD-020

SMD = Standard Microcircuit Drawing

## Technical Documentation

Datasheet(s):

 [5 Channel DC/DC Converter +  \$V\_{ON}\$  Slice + Power Good](#)

Technical Homepage:

[Display Products](#)

## Tools And Support

### iSim Design Simulation

No Models Available

### Application Block Diagrams

[LCD-TV Panel](#)

### Applications

LCD TV

### Related Devices

[EL7515](#) High Frequency PWM Step-Up Regulator

[EL7520](#) 4-Channel DC/DC Controller

 [Parametric Table](#)

EL7520A	4-Channel DC/DC Controller
EL7581	3-Channel DC/DC Converter
EL7583	3-Channel DC/DC Converter
EL7586	TFT-LCD Power Supply
EL7586A	TFT-LCD Power Supply
EL7640	TFT-LCD DC/DC with Integrated Amplifiers
EL7640A	TFT-LCD DC/DC with Integrated Amplifiers
EL7641	TFT-LCD DC/DC with Integrated Amplifiers
EL7641A	TFT-LCD DC/DC with Integrated Amplifiers
EL7642	TFT-LCD DC/DC with Integrated Amplifiers
EL7642A	TFT-LCD DC/DC with Integrated Amplifiers
ISL78010	Automotive Grade TFT-LCD Power Supply
ISL78020	Automotive Grade TFT-LCD DC/DC with Integrated Amplifiers
ISL78022	Automotive Grade TFT-LCD DC/DC with Integrated Amplifiers
ISL97516	600kHz/1.2MHz PWM Step-Up Regulator
ISL97519	1% Output Accuracy 600kHz/1.2MHz PWM Step-Up Regulator
ISL97519A	600kHz/1.2MHz PWM Step-Up Regulator
ISL97522	4-Channel TFT-LCD Supply
ISL97536	Monolithic 1A Step-Down Regulator with Low Quiescent Current
ISL97642	TFT-LCD DC/DC with Integrated Amplifiers
ISL97645	Boost + $V_{ON}$ Slice + $V_{COM}$
ISL97645A	Boost + $V_{ON}$ Slice + $V_{COM}$ + Reset
ISL97646	Boost + LDO + $V_{ON}$ Slice + $V_{COM}$
ISL97649A	TFT-LCD Supply + DCP + $V_{COM}$ Amplifier + Gate Pulse Modulator + RESET
ISL97649B	TFT-LCD Supply + DCP + $V_{COM}$ Amplifier + Gate Pulse Modulator + RESET
ISL97650	4-Channel Integrated LCD Supply
ISL97650B	4-Channel Integrated LCD Supply
ISL97651	4-Channel Integrated LCD Supply
ISL97652	4-Channel Integrated LCD Supply with Dual $V_{COM}$ Amplifiers
ISL97653A	5-Channel Integrated LCD Supply
ISL97656	Integrated 4A Switch PWM Step-Up Regulator
ISL98012	1.8V Input PWM Step-Up Regulator
ISL98603	5 Channel DC/DC Converter + $V_{ON}$ Slice + Power-Good