

## Features

- 8-channel reference outputs
- Accuracy of  $\pm 0.1\%$
- Supply voltage of 5V to 16V
- Digital supply 3.3V to 5V
- Low supply current of 10mA
- Rail-to-rail capability

## Applications

- TFT-LCD drive circuits
- Reference voltage generators

## Ordering Information

Part No	Package	Tape & Reel	Outline #
EL5825CU	24-Pin LPP	-	MDP0046
EL5825CR	24-Pin TSSOP	-	MDP0044

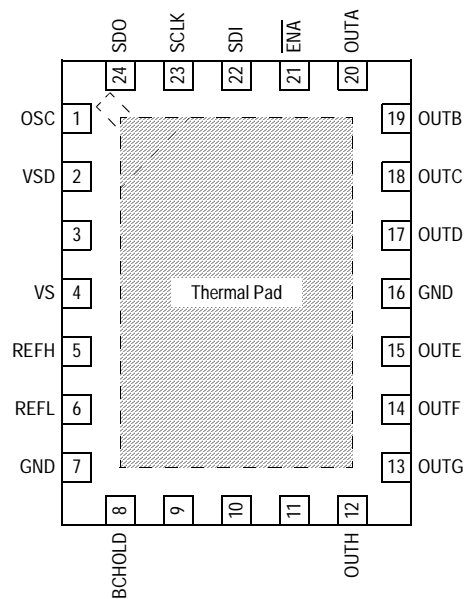
## General Description

The EL5825C is designed to produce the reference voltages required in TFT-LCD applications. Each output is programmed to the required voltage with 10 bits of resolution. Reference pins determine the high and low voltages of the output range, which are capable of swinging to either supply rail. Programming of each output is performed using the serial interface. A serial out pin enables daisy chaining of multiple devices.

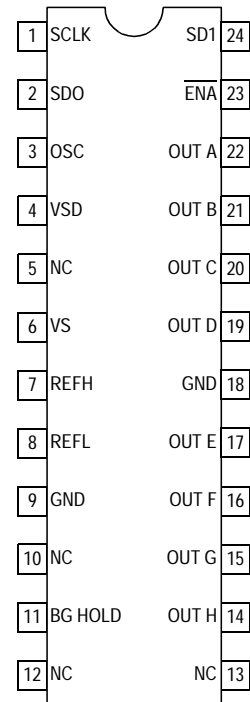
A number of the EL5825C can be stacked for applications requiring more than 8 outputs. The reference inputs can be tied to the rails, enabling each part to output the full voltage range, or alternatively, they can be connected to external resistors to split the output range and enable finer resolutions of the outputs.

The EL5825C has 8 outputs and is available in both the 24-pin TSSOP and the 24-pin LPP packages. It is specified for operation over the full  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  temperature range.

## Connection Diagram



24-Pin LPP Top View



24-Pin TSSOP

Note: All information contained in this data sheet has been carefully checked and is believed to be accurate as of the date of publication; however, this data sheet cannot be a "controlled document". Current revisions, if any, to these specifications are maintained at the factory and are available upon your request. We recommend checking the revision level before finalization of your design documentation.

# EL5825C - Preliminary

## 8-Channel TFT-LCD Reference Voltage Generator

### Absolute Maximum Ratings $(T_A = 25^\circ\text{C})$

Values beyond absolute maximum ratings can cause the device to be prematurely damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Supply Voltage between $V_S$ and GND	+18V
Supply Voltage between $V_{SD}$ and GND	$V_S$ and +7V (min)
Maximum Continuous Output Current	30mA

Maximum Die Temperature	+125°C
Storage Temperature	-65°C to +150°C
Operating Temperature	-40°C to +85°C
Lead Temperature	260°C
Power Dissipation	See Curves
ESD Voltage	2kV

#### Important Note:

All parameters having Min/Max specifications are guaranteed. Typ values are for information purposes only. Unless otherwise noted, all tests are at the specified temperature and are pulsed tests, therefore:  $T_J = T_C = T_A$ .

### Electrical Characteristics

$V_S = 15\text{V}$ ,  $V_{SD} = 5\text{V}$ ,  $V_{REFH} = 13\text{V}$ ,  $V_{REFL} = 2\text{V}$ ,  $R_L = 1.5\text{k}\Omega$  and  $C_L = 200\text{pF}$  to 0V,  $T_A = 25^\circ\text{C}$  unless otherwise specified.

Parameter	Description	Condition	Min	Typ	Max	Unit
<b>Supply</b>						
$I_S$	Supply Current	No load		10	TBD	mA
$I_{SD}$	Digital Supply Current				1	mA
<b>Analog</b>						
$V_{OL}$	Output Swing Low	$R_L = 1.5\text{k}\Omega$ to 7.5V, after 1mS		100	200	mV
$V_{OH}$	Output Swing High	$R_L = 1.5\text{k}\Omega$ to 7.5V, after 1mS	14.75	14.9		V
$I_{SC}$	Short Circuit Current	$R_L = 10\Omega$	100			mA
PSRR	Power Supply Rejection Ratio	$V_{S+}$ is moved from 14V to 16V	TBD	TBD		dB
$V_{OS}$	Offset Voltage	$V_{OUT} = V_S / 2$		2	5	mV
$t_D$	Program to Out Delay			TBD		mS
$V_{AC}$	Accuracy			TBD	12	mV
$V_{DROOP}$	Droop Voltage			TBD	15	mV/mS
$R_{INH}$	Input Resistance @ $V_{REFH}$	$V_{REFH} = 15\text{V}$		32		k $\Omega$
$R_{INL}$	Input Resistance @ $V_{REFL}$	$V_{REFL} = 0\text{V}$		32		k $\Omega$
REG	Load Regulation	$I_{OUT} = 5\text{mA}$ step			2	mV
<b>Digital</b>						
$V_{IH}$	Logic 1 Input Voltage		$V_{SD}-20\%$			V
$V_{IL}$	Logic 0 Input Voltage				$20\% * V_{SD}$	V
$F_{CLK}$	Clock Frequency				5	MHz
$t_S$	Setup Time			10		ns
$t_H$	Hold Time			10		ns
$t_{LC}$	Load to Clock Time			10		ns
$t_{CE}$	Clock to Load Line			10		ns
$t_{DCO}$	Clock to Out Delay Time					ns
$R_{SDIN}$	$SDIN$ Input Resistance			1		G $\Omega$

# *EL5825C - Preliminary*

*8-Channel TFT-LCD Reference Voltage Generator*

## General Disclaimer

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HIGH PERFORMANCE ANALOG INTEGRATED CIRCUITS

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