

# EL5825 Rev A. Demo Board

**Technical Brief** 

December 22, 2004

TB436.0

# Description

The EL5825 REV A demo board is designed for demonstrating the operation of Intersil's high precision reference voltage generator, the EL5825. For a detailed description, please refer to the data sheet. A parallel port Visual Basic program is used to drive the SDI, SCLK, and ENA pins for the channel and voltage selection.

#### 8-Channel Circuit Description

Please refer to Figure 1 and the single demo board circuit. On the board, V<sub>S</sub> is the supply voltage (5V to 16V). V<sub>SD</sub> is the digital supply (3.3V to 5V). REFH is the high reference output voltage (REFL < REFH  $\leq$  V<sub>S</sub>). REFL is the low reference output voltage (0  $\leq$  REFL < REFH). REFH and REFL voltage are supplied by EL5220 and can be adjusted by the 10K Trim POT.

 $R_{20}$  to  $R_{23,}\,R_{26},\,R_{28}$  to  $R_{30}$  are 1.5k load resistors.  $C_6,\,C_{11},$  and  $C_{21}$  are the 0.1µF local bypass capacitors.

 $C_1$  to  $C_{10}$  are 180pF load capacitors. If bigger capacitors are required, then, a serial resistor (20 $\Omega$  to 100 $\Omega$ ) must be used between the output and the capacitor.

#### 16-Channel Circuit Description

A 16-channel voltage reference generator can be simply formed by connecting two single boards together (See Figure 2). The resistors and capacitors connections are the same as the 8-channel connection for each board. Board one contains channel 1 to channel 8 and board two contains channel 9 to channel 16. The parallel port on board two drives the logic signals. The SDO pin on board two is shorted to SDI pin on board one. The REFL pin in board one is shorted to REFH in board two. Those make the channels in board one, high voltage references, and the channels in board two, low voltage references.

#### **Control Software**

For 8-channel and 16-channel configuration, two separated Visual Basic programs are used to drive the parallel port to output the data stream for SDI, SCLK, and ENA inputs. To install the software, just copy the EL5825.exe and EL5825dual.exe to your Windows desktop. If your operating system is Win98, copy the files "ntport.dll and zntport.sys" to the directory: C:\windows\system. If your operating system is NT or Win2000, copy the files "ntport.dll and zntport.sys" to the directory: C:\winnt\system32.

### Single Board Control (8-Channel)

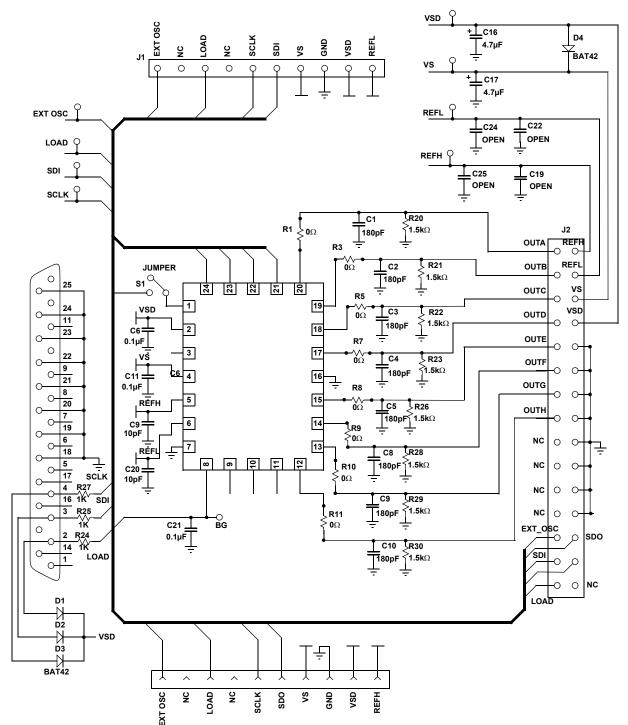
Click the EL5825.exe icon on your windows desktop, a single board control panel shows up (See Figure 3). On the panel, you can set your reference high and reference low voltage. You can set the voltage for each channel. The

"Send" button outputs a 16-bit single channel data. The "SendAll" button outputs 8-channel data. The "Write to File" button can save the setup to a file and the "Read From File" button can load the setup from the file.

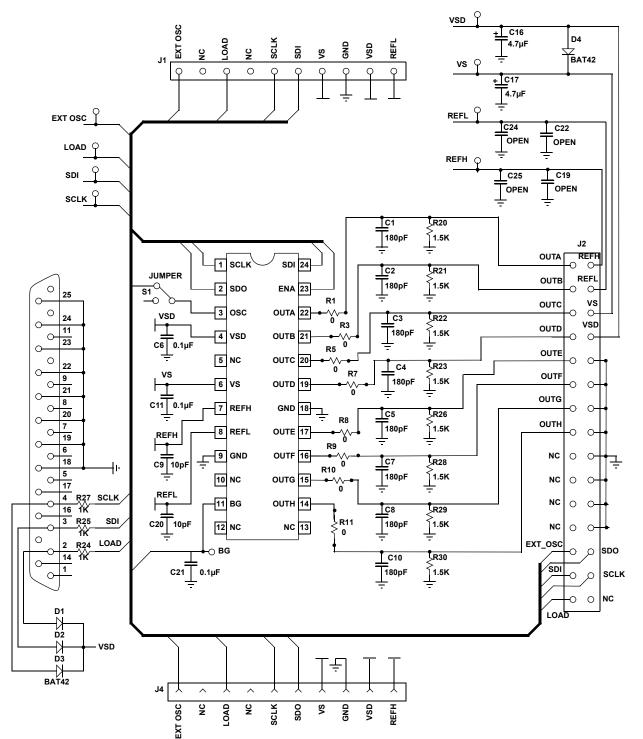
## Dual Board Control (16-Channel)

When you click the EL5825dual.exe icon on your Windows desktop, a dual board control panel shows up (See Figure 4). On the panel, you can set your reference high and reference low voltage for board one and board two. You can set the voltage for each channel. On our 16-channel configuration, the reference high on board two is shorted to reference low in board one. So, the V<sub>REF</sub> Low 1-8 must have the same value as V<sub>REF</sub> High 9-16. The "Send" button outputs a 32 bit dual channel data. The "SendAll" button outs 16 channel data. The "Write to File" button can save the setup to a file and the "Read From File" button can load the setup from the file. For the dual board connection, the OSC pins are shorted together. If no external oscillator is used, then board one can set to the external oscillator mode and use the internal oscillator output in board two.

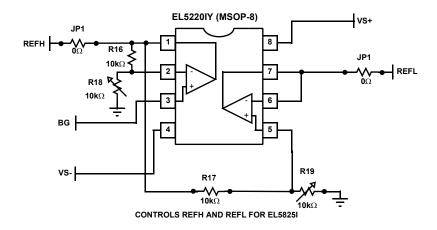








# EL5825IY Rev A. Demo Board Circuit



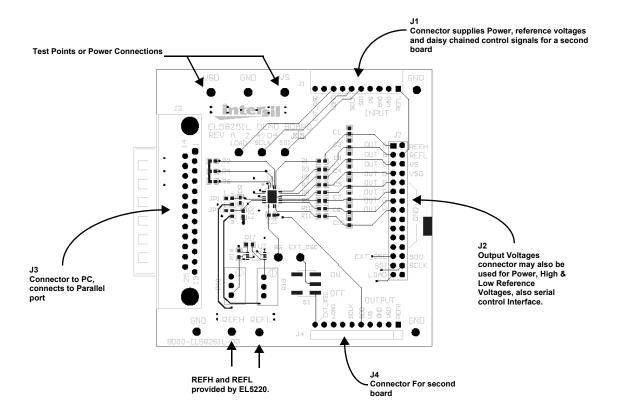


FIGURE 1. 8-CHANNEL



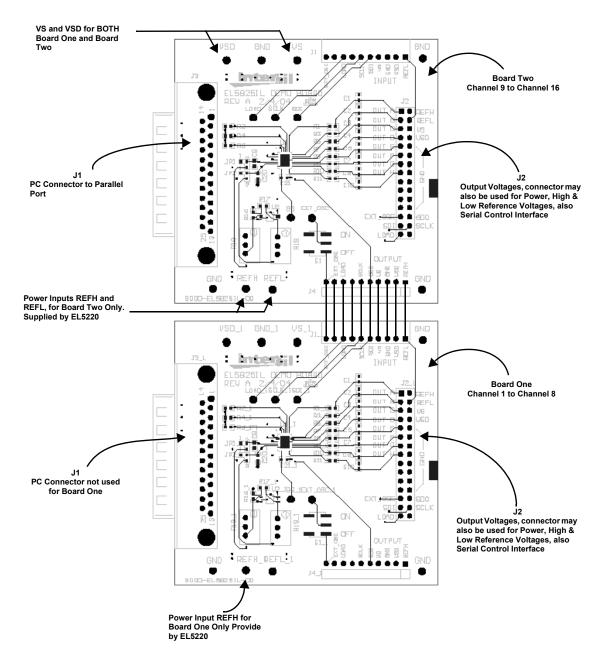


FIGURE 2. 16-CHANNEL

é EL5825C D	emo Boai	d Revision	3 - 4th S	eptember	2001			_ 🗆 ×			
- Parallel Port-		Control									
Port External Oscillator O - Internal Oscillator VRef											
LPT1( &H378	<u> </u>		1	5.000							
		Write (Unchecked)  Read (Checked)  VRef Low VRef Low									
		🗖 Run Co	°P   (	00.000							
Gain Control											
	Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8			
	<b>_</b>	<b>_</b>	<u> </u>	<b>_</b>	<b>_</b>	<u> </u>	<u> </u>	<b>_</b>			
EL5825 Rev 3 4th September											
2001	· -	-	-	-	-	-	-	-			
Value	0	0	0	0	0	0	0	0			
N / - H	00.000	00.000			00.000	00.000	00.000	00.000			
Voltage	00.000	00.000	00.000	00.000	00.000	00.000	00.000	00.000			
	Send	Send	Send	Send	Send	Send	Send	Send			
						1		[			
Send	All	Hec	eive All		Write To Fil	e	Read F	rom File			
Load RegisterLSB											
Transmit Bits Read/Write Osc Address (4 Bits) Data (10 Bits)											
0								Debug			
élantec s	emicon	ductor; i	0.01111								
CINILLES 3											

FIGURE 3.

C EL5825C Demo B Parallel Port Port LPT1(&H378)	Control     Control     Reference Voltages       External Oscillator 1 - 8     1 - External Oscillator     VRef High 1 - 8     15.000       External Oscillator 1 - 8     0 - Internal Oscillator     VRef High 1 - 8     00.000       Write (Unchecked)     0 - Write     VRef High 9 - 16     15.000       Run Continuous On Send     Stop     VRef Low 9 - 16     00.000										
Gain Control Uut1 Value 0 Voltage 00.000	Out2 0 00.000	Out3 0 00.000	0ut4 0 00.000	0ut5 0 00.000	Dut6 0 00.000	Out7 0 00.000	Out8 0 00.000				
Value 0 Voltage 00.000 Out9 Send	0 00.000 Out10 Send	0 00.000 Out11 Send	0 00.000 Out12 Send	0 00.000 0ut13 Send	0 00.000 0ut14 Send	0 00.000 0ut15 Send Read F	O OULOO Out16 Send				
Load Register Busy Transmit Bits 10 Élantec semico	MSB Read/Wri		dress (4 Bits)	Data (10 Bits	)		i Out 1 i Out 2 49				

FIGURE 4.

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