

# STEVAL-CCM002V1

# TFT-LCD panel demonstration board based on the STM32 as LCD controller

Data brief

## **Features**

- Displays images on a TFT-LCD using the STM32 as LCD controller
- Includes a slideshow of images to demonstrate static display model
- STM32 FSMC (flexible static memory interface) drives TFT using external SRAM as refresh RAM
- On-board constant current drive circuit for LED-based TFT-LCD backlighting
- Dimming control for the TFT-LCD backlighting
- Jumper headers offer easy analysis of TFT-LCD interface to the microcontroller
- RoHS compliant

## **Description**

The STEVAL-CCM002V1 demonstration board is an STM32-based LCD controller for TFT-LCD displays. The board provides a platform for testing the capabilities of the STM32F103VET6 FSMC peripheral to drive a TFT-LCD panel without an LCD controller.

A 3.5" QVGA resolution TFT-LCD panel is interfaced with the STM32 FSMC peripheral. The board is designed to be connected as a daughterboard to the STM3210E-EVAL demonstration kit.



STEVAL-CCM002V1

Schematic diagrams STEVAL-CCM002V1

### **Schematic diagrams** 1

**LED** section Figure 1.

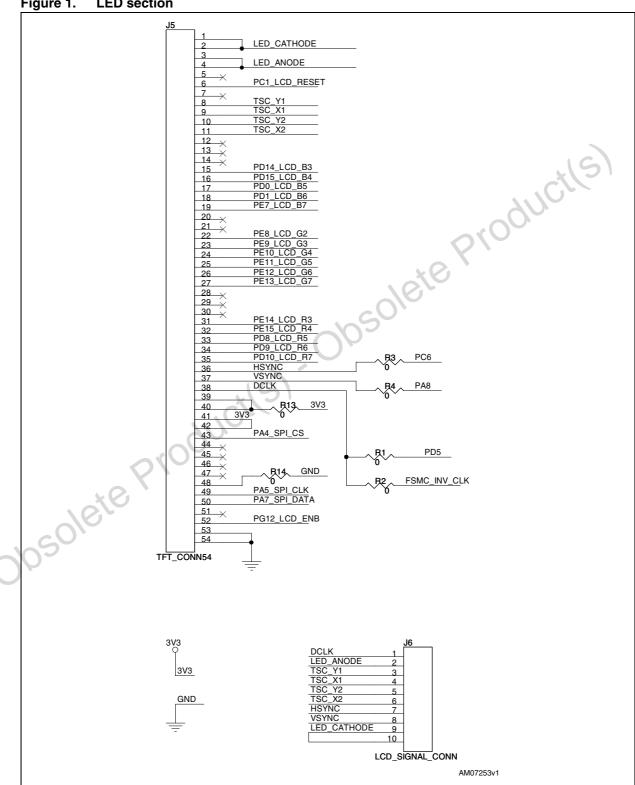


Figure 2. Demonstration board connectors

PEIS LCD R4				
OND 1 2 PGG		CNIC		
POZ 3 4 PGG POZ 3 4 PGG POZ 3 5 A PGG POZ 3 5 A PGG POZ 3 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 - 1 A PGG POZ S 5 A PGG S 5 A				2 PG8
P655	PG7 3			
PC13	PG5 5	6 PG4	PG5 5	6 PG4
RESET   11				
POIST   13				
POB_LCD_RS	PD12 13	14 PD11	PD12 13	14 PD11
Dest				
PB11   SC   SOA   22   PB12   PB13   21   PB15   SOA   22   PB12   PB15   SOA   23   PB15   SOA   24   PB15   SOA   25   PB15   SOA   26				
PETS LCD R4 25   26 PET4 LCD R3   PET5 LCD R4 25   22 PET4 LCD R5   PET5 LCD R6 27   PET5 LCD R6 27   PET5 LCD R6   PET5 LCD R6 27   PET5 LCD R6   PET5 LCD	PB13 21	22 PB12	PB13 21	22 PB12
PETS LCD 67 27   28 PETS LCD 66   PETS LCD 67 27   28 PETS LCD 67 27   28 PETS LCD 67 527   2				
PETILLOD 65 29 P015 LCD 84 31				
PES LCD G3 33	PE11_LCD_G5 29	30 GND	PE11_LCD_G5 29	30 GND
PET LOD B7				
PG1   37   37   38   760   760   39   40   760   39   30   39   30   30   30   30   3				
QND   39	PG1 37	00	PG1 37	00
PF12	GND 39	40 ^PG0	GND 39	40 ^PG0
PB2				
PBI 47 PBO 49 PBO 51 PBO 67 PB				
PBO		48 🗸		48
PC4   53   PA6   PA5   SPI CLK   PA6   S55   FA4   SPI CLK   SA   PA7   SA   PA7   SPI CLK   SA   PA7   SA				
PAA SPI CS 57 GND 59 GN PAZ GND 59 PAI GND 59 PAI GND 59 PAI GND 59 PAI GND 61 PAZ GND 59 PAI GND 61 PAZ GND 62 PAZ GND 6		52 FC3 54 PA7 SPI DATA		52 POS 54 PA7 SPI DATA
PA4. SPI.CS 5.7 GND 5.9 PA1 G1 PC3 TSC INT 6.1 PC3 TSC INT 6.	PA6 55		PA6 55	
PA1 61 PG3 TSC_NT 63 PG1 LCD_RESET 65 PF10 67 ONTOA  CONTOA	PA4_SPI_CS 57	58 PA3	PA4_SPI_CS 57	
PC3 TSC. INT 63 PC1 LCD RESET 65 PF10 REST 65 RE				
PC1 LCD RESET 65 PF10 67 3V3 69  CON70A	PC3_TSC_INT 63	64 ^PC2	PC3_TSC_INT 63	64 ^PC2
CON70A	PC1_LCD_RESET 65	66 PC0	PC1_LCD_RESET 65	66 PC0
CONTOA  CONTOA	21/2		3\/3	
GND 1	30 89	70 (314)	3V3O 69	70 3112
GND 1 PC7 3 PC9	CC	N70A		ON70A
GND 1 PC7 3 A PC8 GND 1 PC7 3 A PC9 S S A PC9 S S A PA9 PA9 PA9 PA9 PA9 PA9 PA9 PA9 PA9 P			102	
GND 1 PC8 GND 1 GND				
PC7 3 PC9 5 PC9 5 PA9 7 PA0 9 PA0 9 PA0 9 PA1 11 PA12 13 PA14 15 PC10 17 GND 19 PA0 19 PA0 19 PA14 15 PC10 17 GND 19 PA0 19 PA0 19 PA0 19 PA0 19 PA0 19 PA14 15 PC10 17 GND 19 PA0 19 PA0 19 PA0 19 PA0 19 PA0 19 PA14 15 PC10 17 GND 19 PA0 19 PA0 19 PA0 19 PA0 11 PA12 13 PA14 15 PC10 17 IR GND 19 PA0 19 PA0 19 PA0 11 PA12 13 PA14 15 PC10 17 IR PC10 17 IR PC10 17 IR PC11 IR PC12 IR PC2 IR PC3 IR PC3 IR PC3 IR PC3 IR IR PC11 IR PC1 IR IR IR PC11 IR IR IL				- DCC
PC9 5 6 PA8	507			
PAO 9 10 GND 12 PA11 12 PA11 12 PA11 14 PA13 PA12 13 14 PA13 PA14 15 16 PA15 PA14 15 16 PA15 PA14 15 18 PC11 PC10 17 18 PC11 PC10 17 18 PC11 18 PC11 PC10 17 18 PC11 PC10 17 18 PC11 PC10 PC10 17 18 PC11 PC10 PC10 PC10 PC10 PC10 PC10 PC10	PC9 5	6 PA8	PC9 5	6 PA8
PA12 13 14 PA13 PA15 15 PC10 17 18 PC11 PC10 PC10 PC10 PC10 PC10 PC10 PC10		2115		
PA12 13 PA14 15 PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG11 PG10 33 PG14 37 GND 39 PG12 LCD ENB 35 PG14 37 GND 39 PG14 47 BP8 41 PB6 43 PB8 45 PE0 47 PB6 43 PB8 45 PE0 47 PB6 43 PB7 PB8 45 PE0 47 PB6 53 PC1 47 PB6 53 PC1 47 PB6 43 PB7 PB8 45 PF0 47 PF0 57 PF0 57 PF0 57 PF0 57 PF0 57 PF0 57 PF0 68 PF7 68 PF7 70 GND 59 PF6 66 PF7 PF6 665 PF8 67 V3O 3V3 69  CON70A  CON70A  CON70A  CON70A  CON70A  CON70A  PA13 PA14 15 PA13 PA14 15 PA13 PA14 15 PA15 PA14 15 PC10 17				
PC10 17 GND 19 PC20 PC12 PC20 PC3 PC30 PC30 PC3 PC30 PC30 PC3 PC30 PC30 PC3 PC30 PC30 PC30 PC3 PC30 PC30 PC30 PC3 PC30 PC30 PC30 PC30 PC3 PC30 PC30 PC30 PC30 PC30 PC30 PC3 PC30 PC30 PC30 PC30 PC30 PC30 PC30 PC30	PA12 ^ 13	14 PA13	PA12 ^ 13	14 PA13
Control   Cont	ΡΔ1// 4.5		5010	
PD0 LCD B5				
PE2 23	PC10 17			
PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PE6 53 PC14 55 PF0 57 GND 57 GND 59 PE4 51 PE6 53 PC14 55 PC14 55 PF0 57 GND 57 GND 59 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF1 60 PF2 61 PF4 63 PF6 65 PF8 67	PC10 17 GND 19 PD0_LCD_B5 21	20 PC12 22 PD1_LCD_B6	GND 19 PD0_LCD_B5 21	20 PC12 22 PD1_LCD_B6
PD6	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23	20 PC12 22 PD1_LCD_B6 24 PE1	GND 19 PD0_LCD_B5 21 PE2 23	20 PC12 22 PD1_LCD_B6 24 PE1
PD7 31 PG10 33 PG9 PD7 31 PG10 33 PG10 33 PG11 PG10 33 PG12 LCD ENB 35 PG14 37 SB PG15 PG14 SF	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3	GND 19 PDD_LCD_B5 21 PE2 23 PD2 25	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3
PG12 LCD ENB         35         PG13         PG15         PG14         37         36 PG13         PG14         37         38 PG15         PG14         37         38 PG15         39 PG14         39 PG14         39 PG15         39 PG14         39 PG15         39	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND	GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND
PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PB0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 57 GND 59 PF2 61 PF2 61 PF2 61 PF4 63 PF6 65 PF8 67 V3O 3V3 69  CON70A  PG15 38 PG15 GND 39 PG14 37 GND 39 PB8 41 PB6 43 PB8 45 PB6 43 PB8 45 PB8 45 PB8 45 PB9 PB8 45 PB0 47 PB9 PB8 45 PE0 57 PE0 57 PE0 57 PF0 57 PF0 57 PF0 57 PF0 57 PF0 60 PF1 PF4 63 PF6 65 PF8 67 PF8 67 OGND 39 PF2 61 PF4 63 PF6 65 PF8 67 OGND 39 PF2 61 PF6 66 PF7 PF8 67 OGND 39  CON70A  CON70A  CON70A	PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9
GND 39 PB4 41 PB5 GND 39 PB4 41 PB5 PB6 43 42 PB5 PB6 43 44 PB7 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PE6 53 PC14 55 PF0 57 GND 59 PF2 61 PF2 61 PF4 63 PF6 65 PF8 67 PF8 68 PF9 PF8	PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11	GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11
PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF0 57 GND 59 PF2 61 PF2 61 PF2 61 PF4 63 PF6 65 PF7 PF6 65 PF8 667 PF8 667 PF8 667 PF8 667 PF8 667 PF8 67 PF8 667	PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD ENB 35	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13	GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13
PB8         45         PB9         PB8         45         PB9         46         PB9         PB8         45         PB9         46         PB9         48         3V3         3V3         3V3         3V3         3V3         3V3         3V3         46         PB9         46         PB9         46         PB9         48         3V3         50         GND         50         GND         50         GND         50         GND         50         FB9         52         PE3         PE4         51         PE5         PE6         53         PC14         55         PE6         52         PE3         PE9         60         PF1         PF2         61         62         PF3         PF3         PF4         63         PF5         FB <td>PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39</td> <td>20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3</td> <td>GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39</td> <td>20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3</td>	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3	GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3
PEO   47   D5V   49   FEO   47   D5V	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5	GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5
D5V         49         50         GND         D5V         49         FE	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7
PE6         53         PE5         PE6         53           PC14         55         56         PC13         PC14         55           PF0         57         58         PC15         PF0         57           GND         59         60         PF1         GND         59           PF2         61         PF3         PF2         61           PF4         63         64         PF5         PF4         63           PF6         65         66         PF7         PF6         65           PF8         67         70         GND         3V3         69    CON70A  CON70A  CON70A	PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3
PC14         55         PC13         PC14         55         PC13         S6         PC13         PC14         55         PC15         S6         PC13         PC14         55         PC15         S8         PC15         S8         PC15         PC10         57         S6         PC15         S8         PC15         S9         G0         PF1         G0         PF1         G0         PF2         G1         S9         G2         PF3         G4         PF5	PC10 17 GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PB8 45 PE0 47 DSV 49	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND
PF0         57         58         PC15         PF0         57         58         PC15         PF0         57         60         PF1         62         PF3         62         PF3         PF4         63         PF4         63         PF6         64         PF5         64         PF5         66         PF7         PF8         67         68         PF9         PF8         67         68         PF9         70         GND         3V3O         3V3O         3V3O         GND	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3	GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3
PF2         61         62         PF3         PF2         61         62         PF3           PF4         63         64         PF5         PF4         63         64         PF5           PF8         67         66         PF7         PF6         65         66         PF7           V3O         3V3         69         3V3O         3V3         69         70         GND	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13	GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 DSV 49 PF4 51 PE6 53	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5
PF4 63 PF6 65 PF8 67 V30 3V3 69 CON70A FF5 PF8 637 V30 CON70A FF5 PF8 637 V30 GND 3V3 69 CON70A FF5 64 PF5 66 PF7 PF8 67 70 GND CON70A	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15	GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 A37 GND 39 PB4 41 PB6 43 PB8 45 PB8 45 PE0 47 DSV 49 PE4 51 PE6 53 PC14 55 PF0 57	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15
PF6     65       PF8     67       V3O     3V3       SON70A         66     PF7       68     PF9       70     GND       3V3O     3V3       SON70A     CON70A         CON70A	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PC14 55 PF0 57 GND 59	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 DSV 49 PF4 51 PE6 53 PC14 55 PF0 57 GND 59	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1
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	PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF2 61 PF4 63 PF6 65 PF8 67	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB8 41 PB6 43 PB8 45 PE0 47 DSV 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF2 61 PF4 63 PF8 67	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9
AM072	PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF2 61 PF4 63 PF2 61 PF4 63 PF6 65 PF8 67	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF2 61 PF4 63 PF6 65 PF6 65	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9
AM072	PC10 17 GND 19 PD0_LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12_LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF2 61 PF4 63 PF2 61 PF4 63 PF6 65 PF8 67	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9 70 GND	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF6 57 GND 59 PF2 61 PF4 63 PF6 65 PF8 67 3V3 3V3 69	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9 70 GND
	PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF2 61 PF4 63 PF2 61 PF4 63 PF6 65 PF6 65 PF6 65 PF6 65 PF6 65	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9 70 GND	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF6 57 GND 59 PF2 61 PF4 63 PF6 65 PF8 67 3V3 3V3 69	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9 70 GND
	PC10 17 GND 19 PD0 LCD B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF0 57 GND 59 PF2 61 PF4 63 PF2 61 PF4 63 PF6 65 PF8 67 V30 3V3 69	20 PC12 22 PD1_LCD_B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9 70 GND	GND 19 PD0 LCD_B5 21 PE2 23 PD2 25 PD4 27 PD6 29 PD7 31 PG10 33 PG12 LCD_ENB 35 PG14 37 GND 39 PB4 41 PB6 43 PB8 45 PE0 47 D5V 49 PE4 51 PE6 53 PC14 55 PF6 57 GND 59 PF2 61 PF4 63 PF6 65 PF8 67 3V3 3V3 69	20 PC12 22 PD1 LCD B6 24 PE1 26 PD3 28 PD5 30 GND 32 PG9 34 PG11 36 PG13 38 PG15 40 PB3 42 PB5 44 PB7 46 PB9 48 3V3 50 GND 52 PE3 54 PE5 56 PC13 58 PC15 60 PF1 62 PF3 64 PF5 66 PF7 68 PF9 70 GND

Schematic diagrams STEVAL-CCM002V1

VCC Single channel inverter FSMC\_INV\_CLK 74V1G14CTR\_SOT323-5L Josolete Product(s) 3V3 <u>L1</u> 4.7uH 3 GND FB LCD backlight driver STLD40DPUR\_QFN8 C1 2.2uF R5 R6 8 ohm GND C4 =2pF C5 =2pF C6 =2pF Ξ TSC\_X2 3V3 VIO DATA\_IN TSC\_Y2 Touchscreen controller STMPE811QTR C7 100nF TSC\_X1 PB11\_TSC\_SDA2 16 A0 PB10\_TSC\_SCL2 PC3\_TSC\_INT PB11\_TSC\_SDA2 PB10\_TSC\_SCL2 AM07255v1

Figure 3. Single channel inverter, LCD backlight driver and touchscreen controller

STEVAL-CCM002V1 Revision history

# 2 Revision history

Table 1. Document revision history

Date	Revision	Changes
16-Jun-2010	1	Initial release.



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