

Advance Information

TICE89 Hardware User's Manual

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tenx technology, inc.

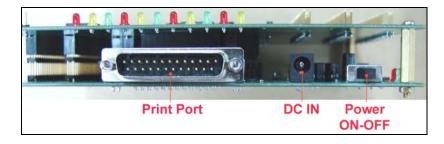
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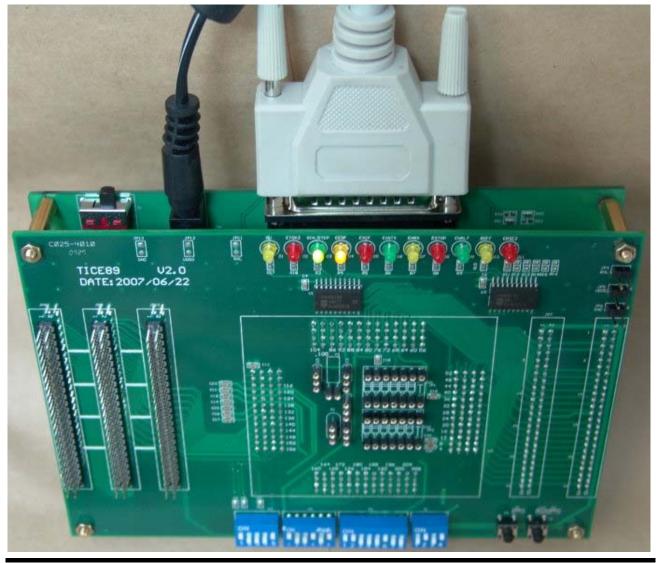
- 1. Supply MCU Model: TM89 series, TM8727
- 2. TICE89 Power Set up Guide:



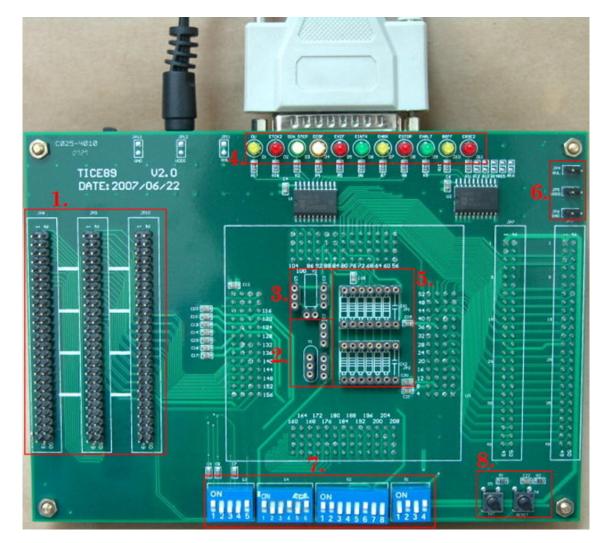
<u>Step-1</u>: Connect the computer and TICE89 with the printer port cable.

<u>Step-2</u>: Plug the DC adaptor in the DC IN jack on the TICE89.

Step-3: Power on the TICE89. (Switch the Power ON-OFF button on.)



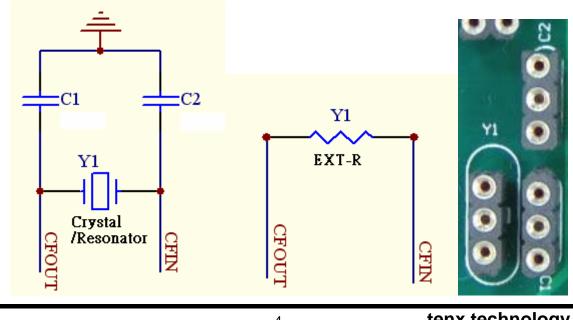
3. Hardware Set up Guide:



(1). JP8, JP9 and JP10: Connect to application circuit and LCD panel interface.

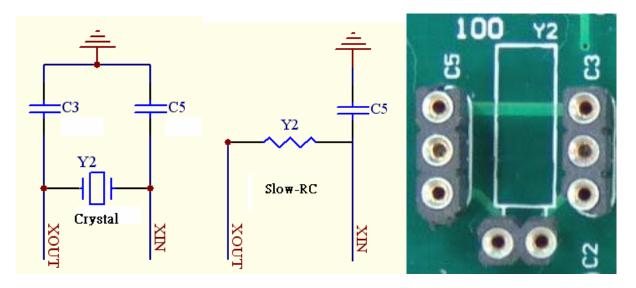
JP8	JP9	JP10
SEG27 0 1 2 0 SEG29 0 3 4 0 3 SEG29 0 5 6 0 3 GND 0 9 10 0 3 SEG31 0 7 8 0 3 SEG33 0 11 12 0 3 SEG33 0 11 12 0 3 SEG33 0 13 14 0 3 SEG37 0 15 16 0 3 GND 0 19 20 0 3 SEG41 0 21 22 0 3 SEG45 0 23 24 0 3 SEG47 27 28 0 3 34 0 3 SEG51 0 33 34 0 3 34 0 3 SEG55 0 37 38 0 0 3 34 0 3	EG26 COM1 1 2 COM2 EG38 COM3 3 4 COM4 EG30 COM5 5 6 COM6 EG32 COM7 7 8 GND EG34 COM9 11 12 COM10 EG34 COM9 11 12 COM10 EG36 COM11 13 14 COM12 EG38 COM15 15 16 COM14 EG40 COM15 17 18 GND EG42 SEG1 21 22 SEG2 EG44 SEG3 23 24 SEG4 EG46 SEG5 25 26 SEG4 EG44 SEG3 23 24 SEG10 EG50 SEG9 29 30 SEG10 EG51 SEG11 33 34 SEG12 EG54 SEG15 37 38 GND EG55	ELC 1 2 ELP BZB 3 4 GND GND 5 6 GND IOA1 7 8 IOA2 IOA3 9 10 GND IOA3 9 10 GND IOB1 11 12 GND IOB3 15 16 OB4 GND 17 18 OIOC2 IOC3 21 22 GND IOD1 25 26 IOD2 IOD3 27 28 GND IOE1 31 32 IOE2 IOE3 33 34 VDD0 RESET 37 38 GND IND 39 40 GND RESET 37 38 GND GND 43 44 GND MIT 43 44 GND MID 45 46 KI2 KI3 47 48 GND MID 49 50 <

(2). Fast Clock Source: Connect with the Fast R or Crystal/Resonator. This clock source can be used under "Free Run" mode only. It can not be used in the "Free Run" option under ICE mode. (Please refer to the TICE89 software Integrated Development Editor.)



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tenx technology, inc. Rev 1.0, 2007/10/23 (3). Slow Clock Source: Connect with the Slow RC or Crystal. This clock source can be used under "Free Run" mode only. It can not be used in the "Free Run" option under ICE mode. (*Please refer to the TICE89 software Integrated Development Editor.*)

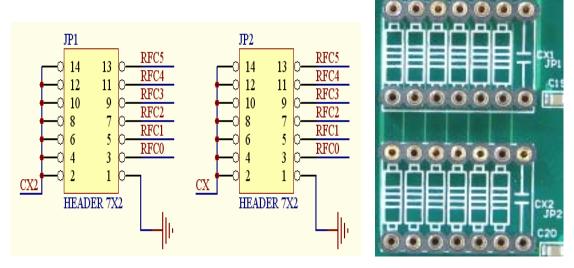


(4). LED Description:



- D1: Stack Over/Underflow (On: Over/Underflow; Off: Normal)
- D2 and D3: Program execution
- D4: Fast/Slow Clock status (On: Fast; Off: Slow)
- D5: Positive Back-up Flag (On: 1; Off: 0)
- D6: Interrupt release Flag(On: 1; Off: 0)
- D7: Halt Release Flag(One: 1; Off: 0)
- D8: Stop model Flag (On: In Stop state)
- D9: Halt model Flag (On: In Halt state)
- D10: LCD OFF Flag(On: LCD OFF; Off: LCD ON)
- D11: Reset Flag(On: in Reset state)

(5). RFC connector:

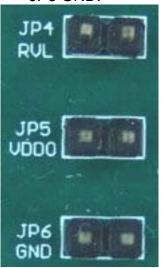


- (6). POWER connector:
 - JP4 RVL: RVL is an exteranl regulated power source for LCD driver.

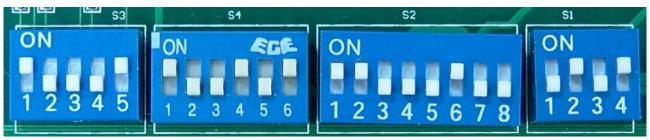
Output type: In normal condition.

Input type: When set the power source of LCD driver comes from RVL.)

- JP5 VDDO: The simulation voltage of TICE89. (Output)
- JP6 GND:



(7). SWITCH SET UP: When the switch is pushed to ON on S1, S2, S3 or S4, the bit will be set to 1.



 SWITCH S1 Description: Set the power mode of MCU(VDDO), according to the mask option file.

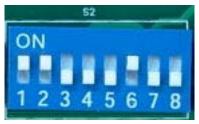


	Bit1	Bit2	Bit3	Bit4
Ext (5V)	1	0	0	1
Li (3V)	0	1	0	1
Ag (1.5V)	0	0	1	1
RVL*1	*	*	*	0

Note: Please clear all of the bits to zero before changing power mode in order to avoid burning down the power system.

*1: RVL is an external regulated power source for LCD driver.

SWITCH S2 Description: Set the Bias of LCD driver. Have to set it in accordance with each power mode.



	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Bit8
Ext/Li 1/2	1	1	1	VL2	0	VDDO	VL1	0
Ext/Li 1/3	1	1	0	VL2	0	VDDO	VL1	0
Ext/Li 1/4	1	0	0	VL2	0	VDDO	VL1	0
Ext/Li 1/5	0	0	0	VL2	0	VDDO	VL1	0
Ext/Li_DC	1	1	1	0	1	1	0	0
Ag 1/2	1	1	1	0	0	0	VL1	VDDO
Ag 1/3	1	1	0	0	0	0	VL1	VDDO

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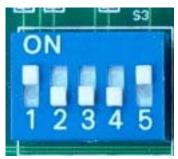
	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Bit8
Ag 1/4	1	0	0	0	0	0	VL1	VDDO
Ag 1/5	0	0	0	0	0	0	VL1	VDDO
Ag DC	1	1	1	0	1	0	0	1

Mask Option file --> Power --> EXTERNAL REGULATOR for LCD:

- VL1 => 0: REGULATOR for LCD: NO USE 1: REGULATOR for LCD: VL1
- VL2 => 0: REGULATOR for LCD: NO USE 1: REGULATOR for LCD: VL2
- VDDO => 0: REGULATOR for LCD: VL1 or VL2 1: REGULATOR for LCD: NO USE

RVL is an exteranl regulated power source for LCD driver.

SWITCH S3: Set the combination of CUP related pin. (Please refer to the Bias selection setting on OPT file.)



Mask Option file --> LCD --> Bias

	Bit1	Bit2	Bit3	Bit4	Bit5
CUP1-2	1	*	0	0	*
CUP0-2	*	1	0	0	*
CUP0-1	*	*	0	0	*
CUP1-N	*	*	0	0	*
CUP0-N	*	*	0	0	1

• SWITCH S4: VDDT, BAK and VDDR



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	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6
VDDR = VDDO	1	0	*	0	*	*
VDDR = BAK	0	1	*	0	*	*
BAK = VDDO	*	*	1	0	*	*
BAK = 0.1 uF	*	*	0	0	*	*
VDDT = VDDO	*	*	*	0	1	0
VDDT = VDD5	*	*	*	0	0	1

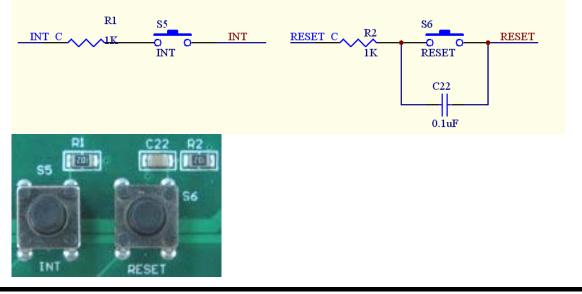
VDDR: Positive Voltage for RFC Normal: "VDDR = VDDO"

BAK: Positive Back-up Voltage

Mask Option file --> Power --> Power Source: "VBAT for BCF = 0" => "BAK = VDDO" "VL1 for BCF = 0" => "BAK = 0.1 uF" (For TM8727 Used)

- VDDT: Select the output voltage for COM, SEG, IO, RFC, EL, and Alarm Pads. When VDDO > VDD5, the setting must be"VDDT = VDDO" When VDDO < VDD5, the setting must be "VDDT = VDD5"
- VDD5: The highest output voltage of LCD driver Example: If the LCD driver is 1/4 Bias and VL1 = 1.5V for each bias voltage, VDD5 = VL1 * 4 = 1.5 * 4 = 6 V
- (8). INT and RESET

INT C and RESET C: According to the setting for INT and RESET pins specified in the mask option file, ICE will convert the signals applied on INT and RESET pins to "INT C" and "RESET C" that MCU needed.



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