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## 6693D 六位带 EL 控制 IC

# 产 品 说 明 书

## 6 Digit LCD Alarm Watch With Blacklight Control 带 EL 控制的六位多功能表芯片 6693D

### FEATURES

- Hour, Minute, Second, Month and Day normal display
- 6 digit chronograph: Auto ranging after 30 minutes to hour, minute, second, from minute, second, 1/100 second
- Split operative stopwatch (Accurate to 1/100 second)
- Use selectable 12/24 format & 4 year calendar
- Alarm function with 4 to 5 minute snooze
- Chime on every hour
- One touch correction of time error within  $\pm 30$  seconds
- Direct drive of piezo buzzer
- Alarm output driven by build-in transistor
- Oscillating build-in capacitor
- Backlight (EL) control output

### 特点

- 可显示时、分、秒、月、日及星期
- 6位计时器：以分、秒、1/100秒计时显示方式计满30分钟后，自动转换至时、分、秒计时显示方式
- 跑表有分段计时功能（准确到1/100秒）
- 可选用12或24小时制4年日历
- 具有间隔4至5分钟再闹的功能
- 整点发声报时
- 按键一次即可校正 $\pm 30$ 秒的时间误差
- 可直接驱动压电蜂鸣片
- 内置三极管驱动闹钟输出
- 振荡器内置电容
- 背光（EL）控制讯号输出

### ELECTRICAL CHARACTERISTICS 电特性 (VDD=3V, Gnd=0V, TA=25°C unless otherwise specified)

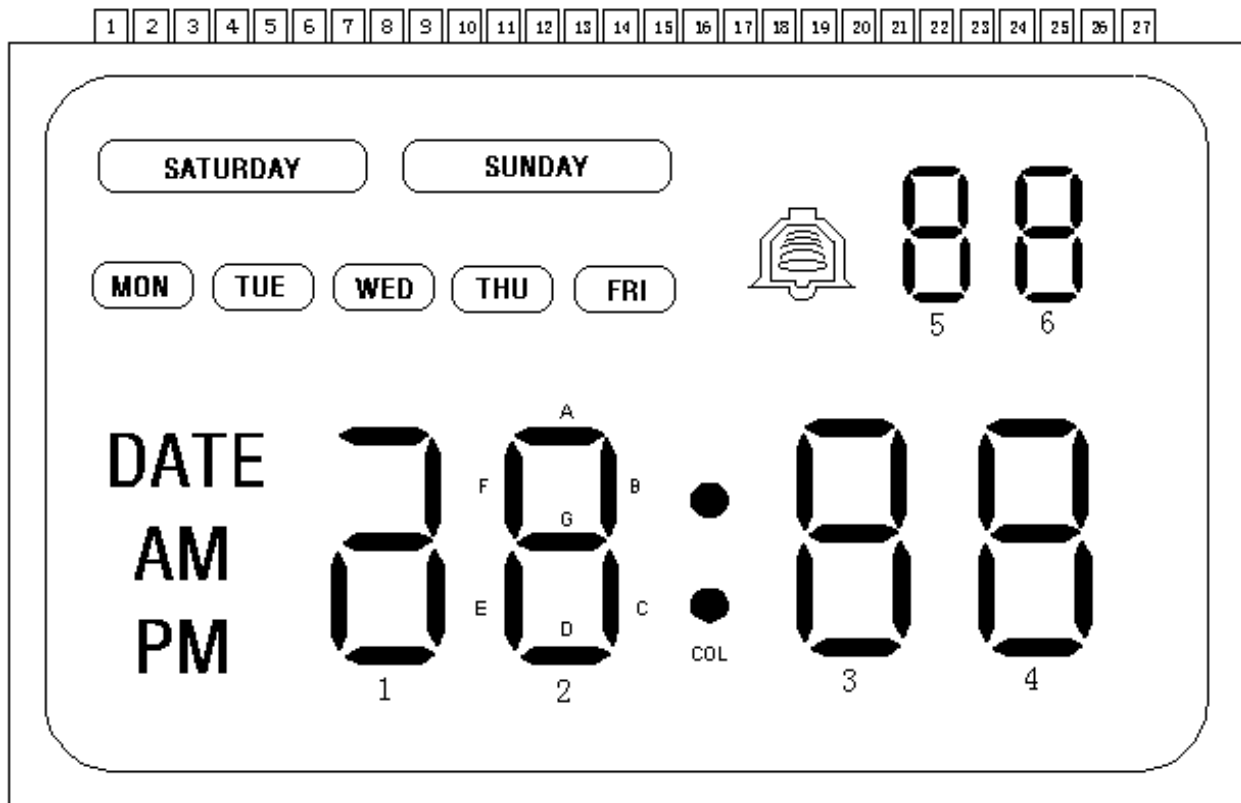
Parameter	Symbol	Test condition	Min.	Type	Max.	Unit
Operating voltage 工作电压	VDD		2.7	3	3.2	V
Operating current 工作电流	IDD1	No load		2.0	3.0	$\mu$ A
Operating current 工作电流	IDD2	EL		8		mA
Input high voltage 输入高电压	VIH		VDD-0.3		VDD	V
Input low voltage 输入低电压	VIL		Gnd		Gnd +0.3	V
Oscillating input capacitor 振荡起振电压	VOSC	Within 2seconds			1.3	V
Alarm drive current 闹铃驱动电流	IALA	V <sub>ALA</sub> =0.5V	0.5	2		mA
Alarm drive current 闹铃驱动电流	IALB	V <sub>ALB</sub> =0.5V	10	50		$\mu$ A
Oscillating input capacitor 振荡频率	F <sub>osc</sub>			32768		Hz
LCD frequency LCD 频率	FLCD			32		Hz
Time stability 时间稳定度	TSTB	VDD=3V		1		ppm
Output current for IND,DIS 输出电流	Io	V <sub>o</sub> =0.5V	1			mA

### APPLICATION INFORMATION 应用资料

Pad	Name	Pad	Name	Pad	Name	Pad	Name
1	M	12	B2/C2	23	G6/D6	34	A5/FR
2	ALA2	13	F3/E3	24	B6/C6	35	A4/TH
3	ALA1	14	G3/D3	25	VDD	36	A3/WE
4	GND	15	B3/C3	26	VEE	37	CL/TU
5	IND	16	F4/E4	27	CAP	38	A2/MO
6	DIS	17	G4/D4	28	F1K	39	C1/B1
7	L	18	B4/C4	29	S	40	A1/SU
8	OSCO	19	F5/E5	30	D	41	PM/AM
9	OSC1	20	G5/D5	31	COM1	42	COM2
10	F2/E2	21	B5/C5	32	DM/AL	43	AC
11	G2/D2	22	F6/E6	33	A6/SA	44	T1

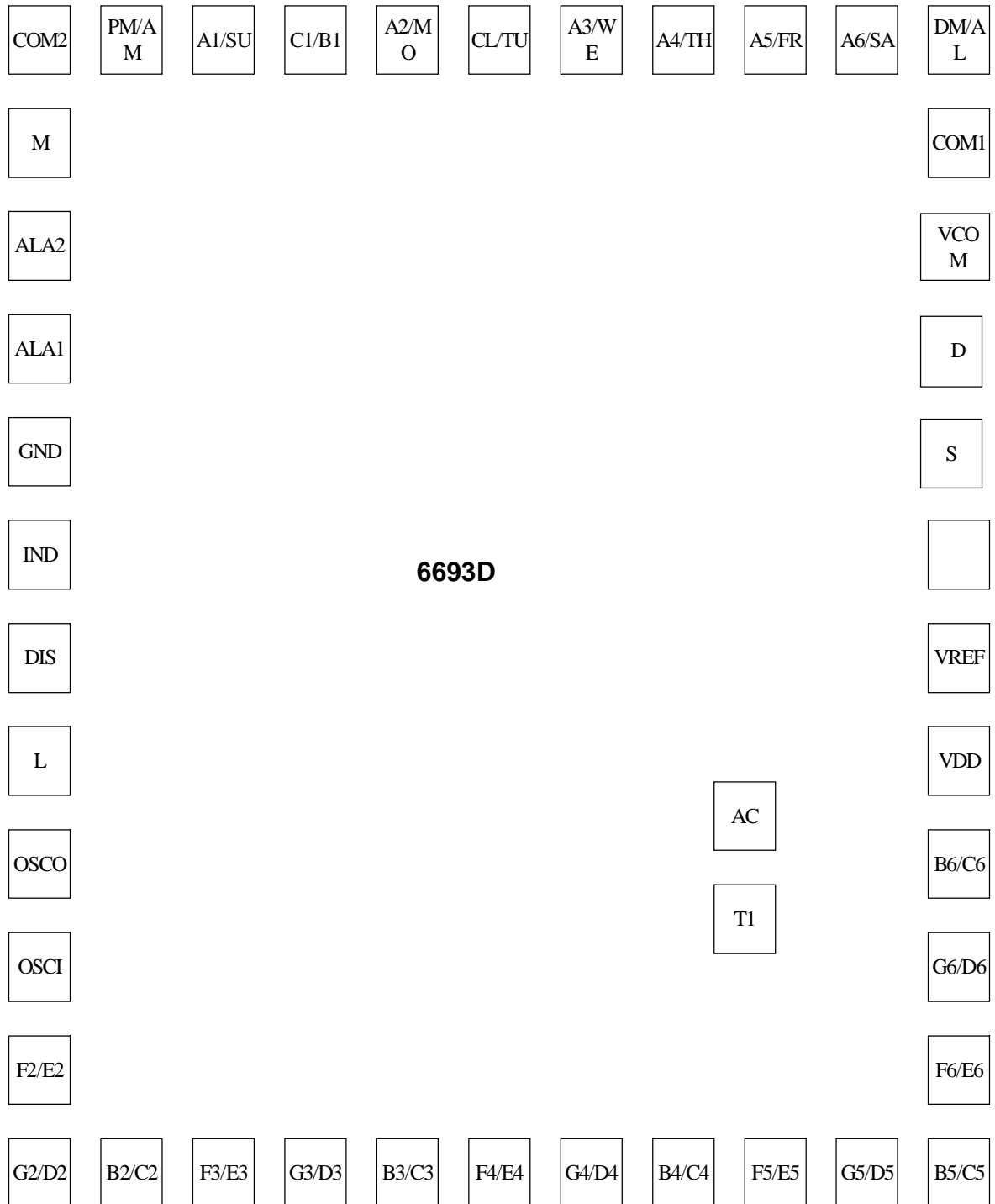
LCD 连接关系图表

SEG	PM/AM	A1/SUN	C1/B1	A2/MO	CL/TU	A3/WE	A4/TH
COM1	PM	A1	C1	A2	CL	A3	A4
COM2	AM	SU	B1	MO	TU	WE	TH
SEG	A5/FR	A6/SA	DM/AL	B6/C6	G6/D6	F6/E6	B5/C5
COM1	A5	A6	DM	B6	G6	F6	B5
COM2	FR	SA	AL	C6	D6	E6	C5
SEG	G5/D5	F5/E5	B4/C4	G4/D4	F4/E4	B3/C3	G3/D3
COM1	G5	F5	B4	G4	F4	B3	G3
COM2	D5	E5	C4	D4	E4	C3	D3
SEG	F3/E3	B2/C2	G2/D2	F2/E2			
COM1	F3	B2	G2	F2			
COM2	E3	C2	D2	E2			



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管脚图:



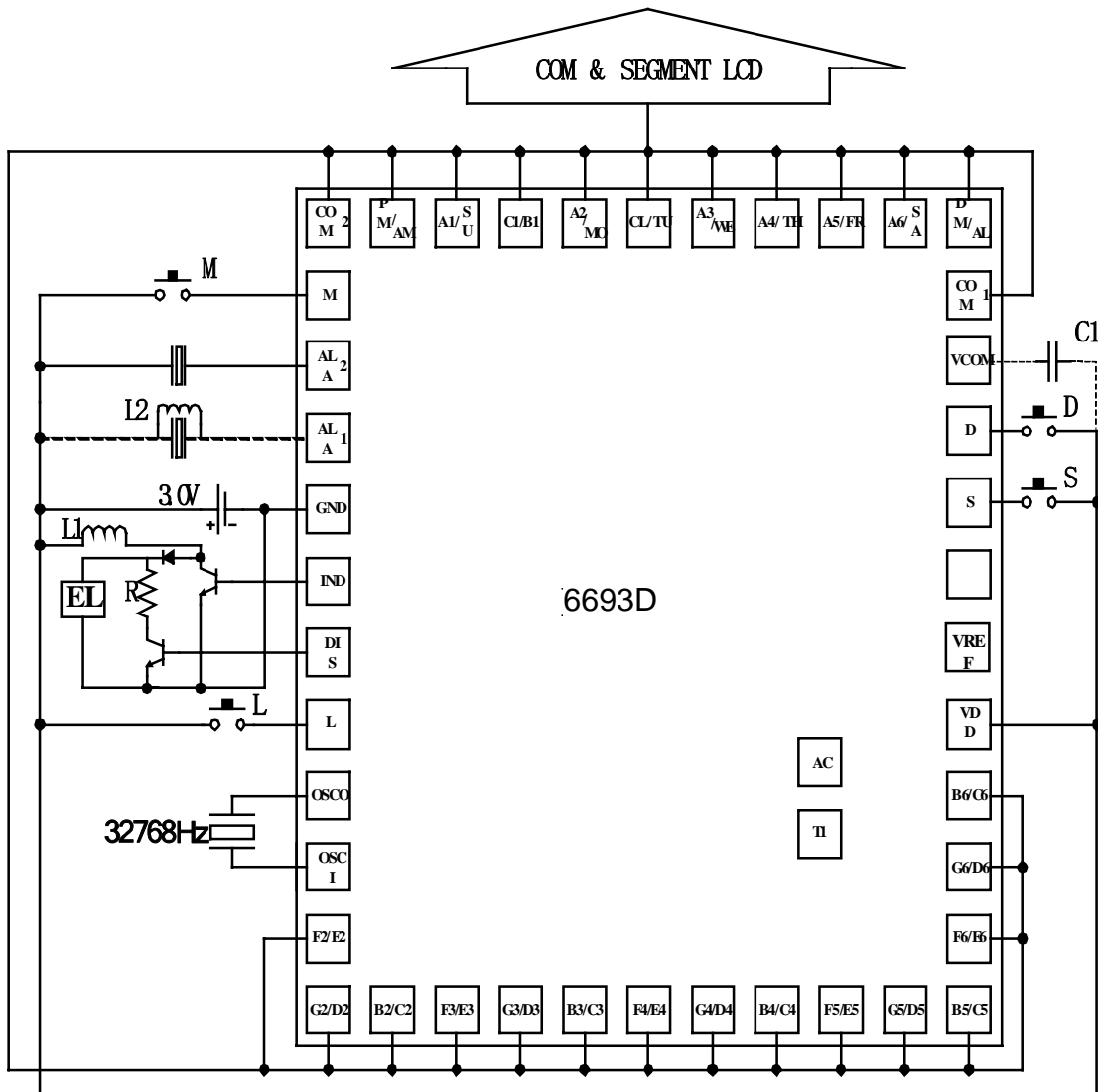
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### 管脚说明:

表一: 6693D 管脚功能说明

Pad NO	Symbol	Description	Pad NO	Symbol	Description
1	M	M key input	23	G6D6	Segment Output
2	ALA2	ALARM Pin 2	24	B6C6	Segment Output
3	ALA1	ALARM Pin 1	25	VDD	Battery positive 3V
4	GND	Battery negative	26	VREF	1.8V Output
5	IND	EL Pin 1	27	--	--
6	DIS	EL Pin 2	28	vcom	1.5v for LCD
7	L	L key input	29	S	S key input
8	OSCO	Oscillator output (with internal capacitor)	30	D	D key input
9	OSCI	Oscillator output (with internal capacitor)	31	COM1	Common
10	F2E2	Segment Output	32	DMAL	Segment Output
11	G2D2	Segment Output	33	A6SA	Segment Output
12	B2C2	Segment Output	34	A5FR	Segment Output
13	F3E3	Segment Output	35	A4TH	Segment Output
14	G3D3	Segment Output	36	A3WE	Segment Output
15	B3C3	Segment Output	37	CLTU	Segment Output
16	F4E4	Segment Output	38	A2MO	Segment Output
17	G4D4	Segment Output	39	C1B1	Segment Output
18	B4C4	Segment Output	40	A1SU	Segment Output
19	F5E5	Segment Output	41	PMAM	Segment Output
20	G5D5	Segment Output	42	COM2	Common
21	B5C5	Segment Output	43	AC	Test Pin 2
22	F6E6	Segment Output	44	T1	Test Pin 1

应用电路:



NOTE: 1.  $L_1 = 1.0 \sim 2.5 \text{mH}$ ,  $10 \sim 20$  欧姆, 由发光片 EL 的面积决定,  $R = 10 \text{K}$ ; VCOM 端电容 ( $C_1 = 0.1 \mu$ ) 可接或不接。

2. EL 驱动输出 IND 及 DIS 线路应尽可能远离各触发控制端 (M.L.S.D) 的连线, 且走线粗短。

3. EL 高压部分线路用地线 GND 或电源 VDD 线隔离, 以降低其对其他连线的干扰。

4. ALA1 脚和 ALA2 脚可选择 (应用时只能选择其中一脚), 蜂鸣片声音大小可调整  $L_2$  电感值, 建议  $L_2 = 15 \sim 20 \text{mH}$ 。

## 6 Digit LCD Alarm Watch With Blacklight Control 帶 EL 控制的六位多功能表芯片 6693D

### Pad Coordinate

Pad No.	Pad Name	X	Y	Pad No.	Pad Name	X	Y
1	G2/D2	22.5	26	23	COM1	1215.7	1183.25
2	F2/E2	22.5	148.25	24	D	1215.7	1068.25
3	OSCI	22.5	263.25	25	S	1215.7	953.25
4	OSCO	22.5	378.25	26	VCOM	1215.7	838.25
5	L	22.5	493.25	27	---	1215.7	723.25
6	DIS	22.5	608.25	28	VREF	1215.7	608.25
7	IND	22.5	723.25	29	AC	987.55	441.5
8	GND	22.5	838.25	30	T1	987.55	326.5
9	ALA1	22.5	953.25	31	VDD	1215.7	493.25
10	ALA2	22.5	1068.25	32	B6/C6	1215.7	378.25
11	M	22.5	1183.25	33	G6/D6	1215.7	263.25
12	COM2	29.7	1324	34	F6/E6	1215.7	148.25
13	PM/AM	162.7	1324	35	B5/C5	1215.7	26
14	A1/SU	277.7	1324	36	G5/D5	1082.7	26
15	C1/B1	392.7	1324	37	F5/E5	967.7	26
16	A2/MC	507.7	1324	38	B4/C4	852.7	26
17	CL/TU	622.7	1324	39	G4/D4	737.7	26
18	A3/WE	737.7	1324	40	F4/E4	622.7	26
19	A4/TH	852.7	1324	41	B3/C3	507.7	26
20	A5/FR	967.7	1324	42	G3/D3	392.7	26
21	A6/SA	1082.7	1324	43	F3/E3	277.7	26
22	DM/AL	1215.7	1324	44	B2/C2	162.7	26