

HIC04-AA-01

# TFT LCD INVERTER Driver IC

## (SEM2004)

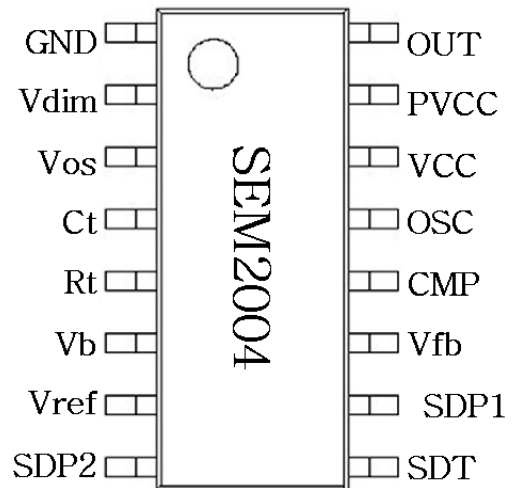


**Samsung Electro-Mechanics**

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## ■ FEATURES

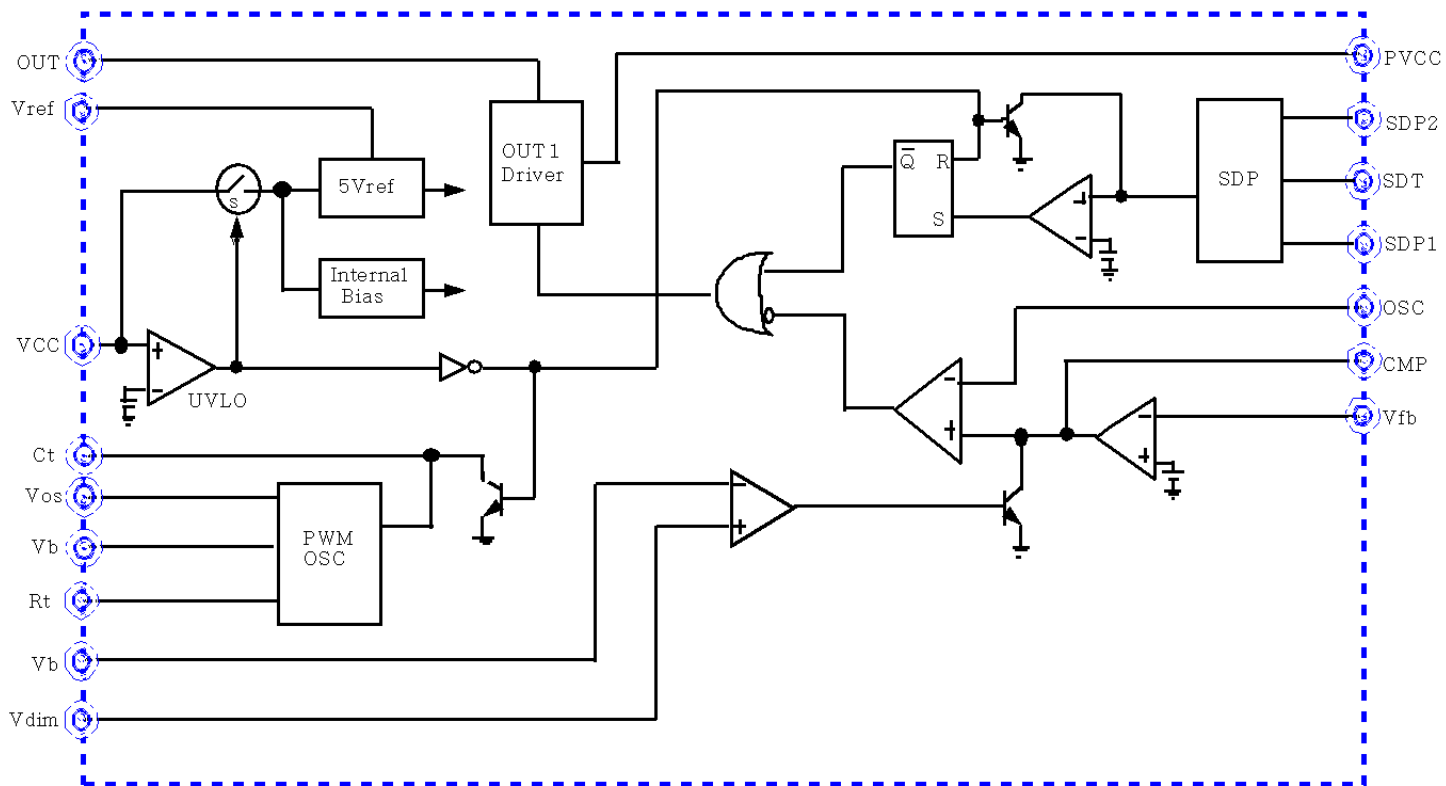
- Backlight Lamp Ballast and Soft Dimming
- Few Ext Components
- Wide Range Operating Voltage 8-26V
- Precision Voltage Reference Trimmed to 2%
- Low Standby Current (150uA)
- PWM Control
- Complex & PWM Dimming Function
- P-Channel MOSFET Drive
- Dual Shut Down Protection(SDP)
- 16-Pin (SOP Type)



## ■ PIN DESCRIPTION

Pin No	Symbol	I/O	Description
1	GND	-	Ground
2	Vdim	I	Input Dimming Signal Pin
3	Vos	I	PWM-OSC Frequency Setting Bias Pin
4	Ct	-	PWM-OSC Frequency Trimming Capacitor
5	Rt	-	PWM-OSC Frequency Trimming Resister
6	Vb	I/O	PWM-OSC Frequency Setting Bias Pin
7	Vref	O	5V Reference Voltage Out
8	SDP2	I	Shut Down Protection II Pin
9	SDT	O	Shut Down Time Pin
10	SDP1	I	Shut Down Protection I Pin
11	Vfb	I	Error Amp Negative Input Feedback Pin
12	CMP	O	Error Amplifier Output
13	OSC	I	External Oscillator Input Pin
14	VCC	I	Supply Voltage
15	PVCC	I	Power-Supply Voltage
16	OUT	O	PMOS Gate Drive Output

**■ BLOCK DIAGRAM**



**■ ORDERING INFORMATION**

Device	Package	Operating Temperature
SEM2004	16-SOP	-10 ~ 85°C

**■ ABSOLUTE MAXIMUM RATINGS**

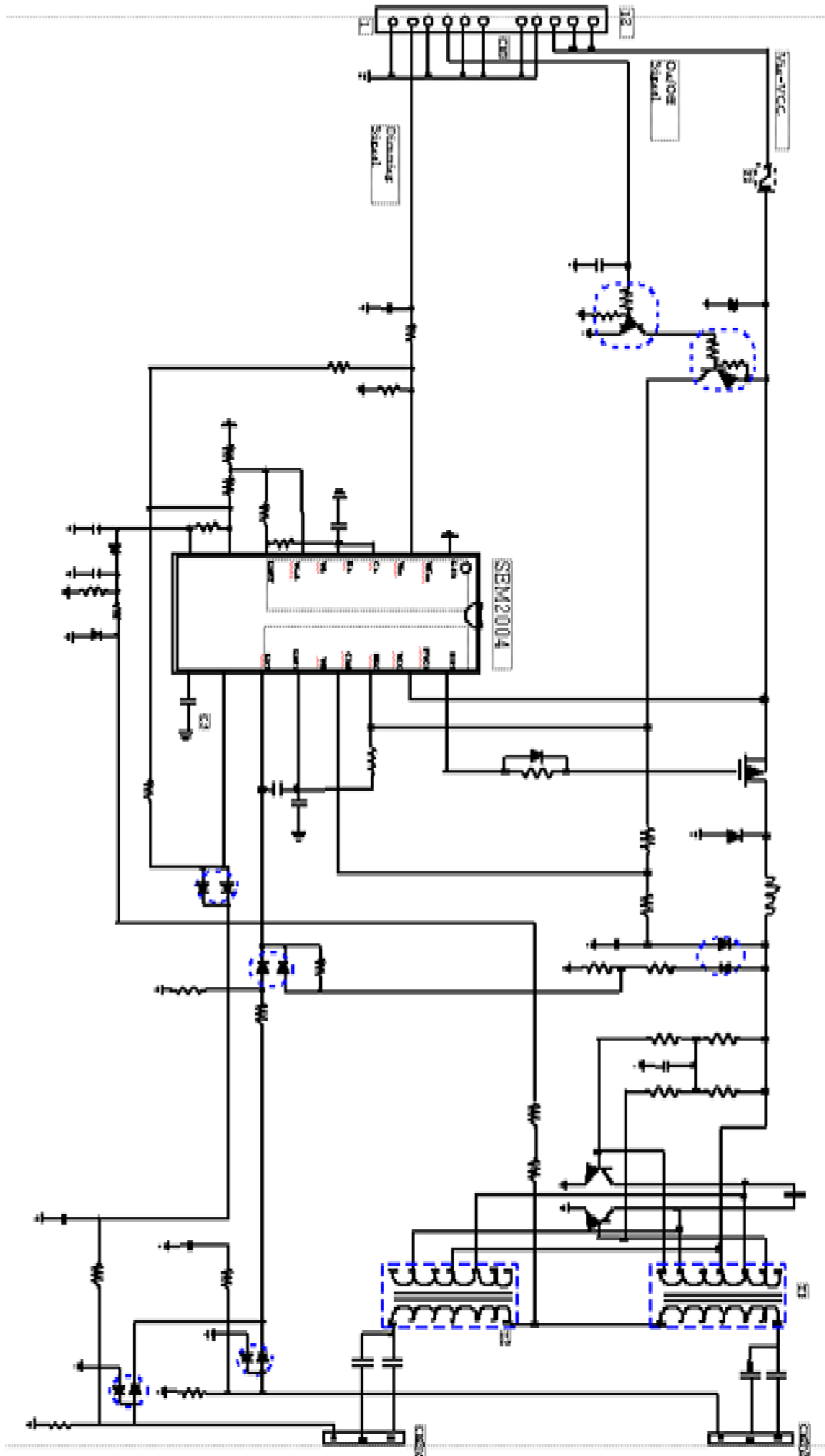
Characteristic	Symbol	Value	Ut
Supply Voltage	VCC	26	V
Power Dissipation	Pd	1	W
Operating Temperature	Topr	-25 ~ 85	°C
Storage Temperature	Tstg	-40 ~ 125	

**■ ELECTRICAL CHARACTERISTICS**

Vcc=15V, Tj=25°C ; unless otherwise specified

Characteristic	Symbol	Test Condition	Min	Typ	Max	Ut
<b>▶ U.V.L.O SECTION</b>						
Start Voltage	Vst	-	6.0	7.0	8.0	V
Start Current	Ist	Vcc = 6V	-	150	300	uA
<b>▶ REFERENCE SECTION</b>						
Reference Voltage	Vref	Tj=25°C, Iref=0mA	4.6	5	5.4	V
Line Regulation	$\Delta V_{ref1}$	10≤Vcc≤20V	-	6	30	mV
Load Regulation	$\Delta V_{ref2}$	0mA≤Iref≤5mA	-	6	30	mV
<b>▶ ERROR AMP SECTION</b>						
Input bias Voltage	Vebi	-	2.0	2.5	3.0	V
<b>▶ PWM OSCILLATOR SECTION</b>						
Operating Frequency	f	-	480	500	520	Hz
OSC High Voltage	Vh	-	-	3.2	-	V
OSC Low Voltage	VI	-	-	1.2	-	V
<b>▶ SHUT DOWN SECTION</b>						
Shutdown Current 1	I <sub>sd1</sub>	-	1	3	6	uA
Shutdown Voltage 1	V <sub>sd1</sub>	-	3.0	3.5	4.0	V
Shutdown Voltage 2	V <sub>sd2</sub>	-	3.0	3.5	4.0	V
<b>▶ OUTPUT SECTION</b>						
OUTPUT Operating VTG Range	Vh		Vcc-1.5	-	Vcc	V
	VI		-	-	1.5	V
<b>▶ TOTAL SECTION</b>						
Standby Current	I <sub>cc</sub>	-	-	7	15	mA

■ APPLICATION EXAMPLE



■ PACKAGE DIMENSION

# 16-SOP-225

Dimensions in millimeters/inches

