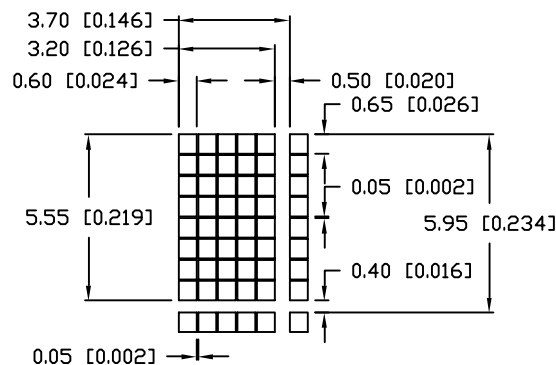
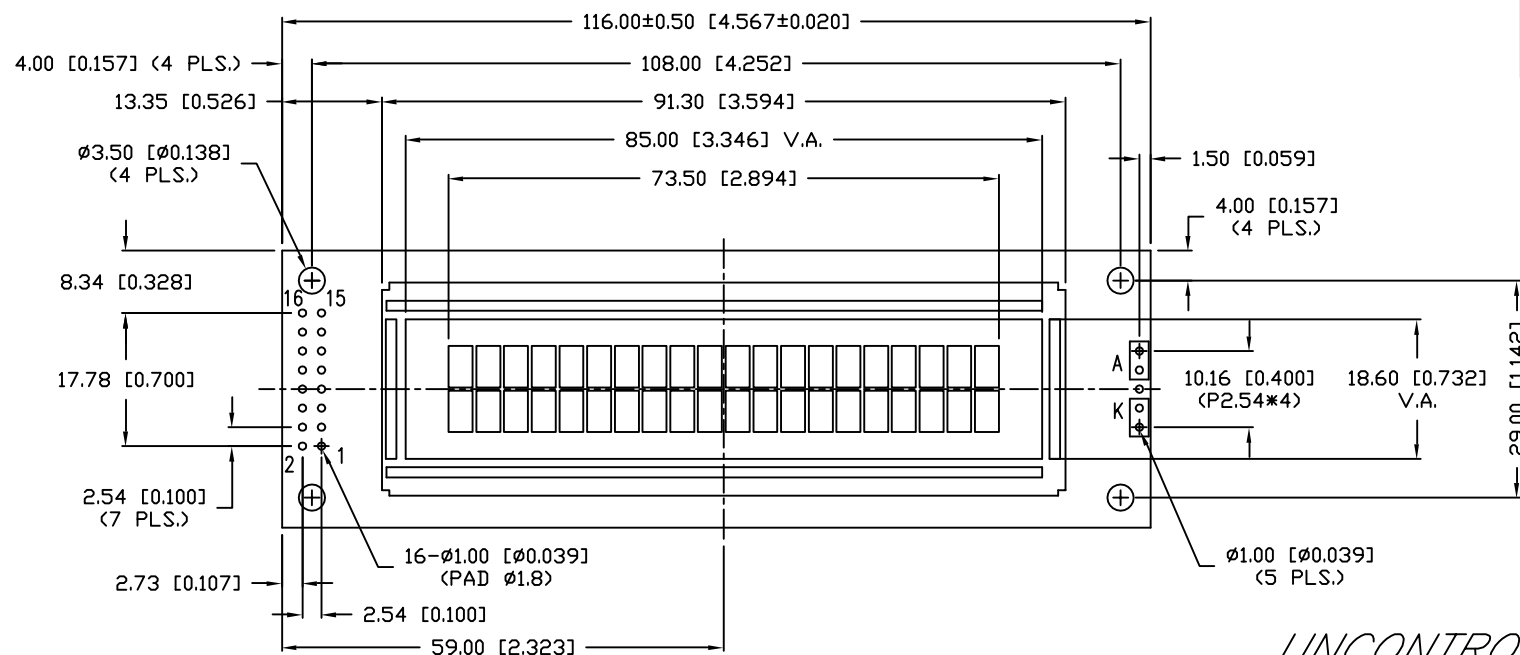


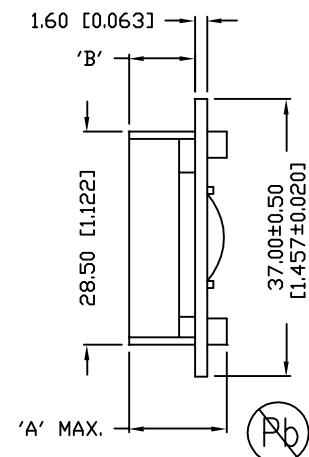
## CHARACTER DETAIL



CAUTION: STATIC SENSITIVE DEVICE  
FOLLOW PROPER E.S.D. HANDLING PROCEDURES  
WHEN WORKING WITH THIS PART.



TYPE	DIM.	A	B
WITH BACKLIGHT	12.7	8.8	
NO BACKLIGHT	8.9	4.8	



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REV.

PART NUMBER

LCM-S02002DSF-S5

5.55mm CHARACTER HEIGHT, 5 x 8 DOT MATRIX,  
20 x 2 LCD MODULE, 1/16 DUTY, 1/5 IAS,  
EUROPEAN FONT IC.

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## RELIABILITY NOTE

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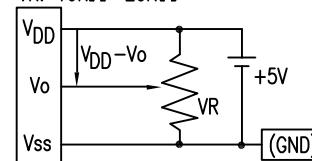
DATE: 9.17.07

PAGE: 1 OF 4

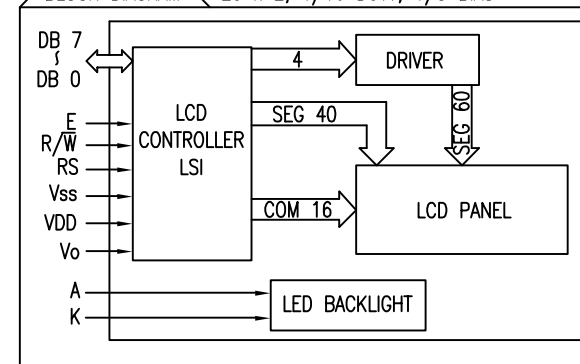
SCALE: N/A

PIN CONFIGURATION				
PIN NO.	SYMBOL	LEVEL	FUNCTION	
1	V <sub>SS</sub>	-	POWER SUPPLY	GND (0V)
2	V <sub>DD</sub>	-		5V
3	V <sub>O</sub>	-		FOR LCD DRIVE
4	RS	H/L	REGISTER SELECT SIGNAL H: DATA INPUT L: INSTRUCTION INPUT	
5	R/W	H/L	H: DATA READ (MODULE-->MPU) L: DATA WRITE (MODULE<--MPU)	
6	E	H,H->L	ENABLE	
7~14	DB0~DB7	H/L	DATA BUS—SOFTWARE SELECTABLE 4 OR 8 BIT MODE.	
15	A	-	ANODE	LED BACKLIGHT
16	K	-	CATHODE	LED BACKLIGHT

V<sub>DD</sub>-V<sub>O</sub>: LCD DRIVING VOLTAGE  
VR: 10KΩ-20KΩ



BLOCK DIAGRAM 20 x 2, 1/16 DUTY, 1/5 BIAS



ELECTRICAL CHARACTERISTICS		V <sub>DD</sub> =4.7V to 5.3V, T <sub>A</sub> =25°C				
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
SUPPLY VOLTAGE FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	-	MIN.	TYP.	MAX.	
SUPPLY CURRENT FOR LOGIC	I <sub>DD</sub>	V <sub>DD</sub> =5V	-	2.0	3.0	mA
INPUT VOLTAGE	HIGH	V <sub>IH</sub>	-	2.2	-	V <sub>DD</sub> V
	LOW	V <sub>IL</sub>	-	0	-	0.6 V
OUTPUT VOLTAGE	HIGH	V <sub>OH</sub>	-	2.4	-	V
	LOW	V <sub>OL</sub>	-	-	0.4	V
*LED BACKLIGHT	VOLTAGE	V <sub>f</sub>	I <sub>f</sub> =210mA	-	4.2	4.6 V
	CURRENT	I <sub>f</sub>	-	-	210	mA
	POWER CONSUMPTION	PD	-	-	882	mW
	LUMINOUS	L	I <sub>f</sub> =210mA	70	-	cd/m <sup>2</sup>
	COLOR	-	-	-	-	nm

\*ONLY APPLIES TO MODULES WITH BACKLIGHT

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
SUPPLY VOLTAGE FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	T <sub>a</sub> =25°C	4.7	5.3	V
SUPPLY VOLTAGE FOR LCD DRIVE	V <sub>DD</sub> -V <sub>O</sub>	-	4.2@50°C	4.8@0°C	V
INPUT VOLTAGE	V <sub>I</sub>	T <sub>a</sub> =25°C	V <sub>SS</sub>	V <sub>DD</sub>	V
OPERATING TEMPERATURE	T <sub>opr</sub>	LCM-S	0	50	°C
		LCM-H	-20	70	°C
STORAGE TEMPERATURE	T <sub>stg</sub>	LCM-S	-20	70	°C
		LCM-H	-30	85	°C

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PAGE: 2 OF 4

SCALE: N/A

UPPER 4 BIT 4 BIT LOWER	LLLL	LLLH	LLHL	LLHH	LHLL	LHLH	LHHL	LHHH	HLLL	HLLH	HLHL	HLHH	HHLL	HHLH	HHHL	HHHH
LLLL																
LLLH																
LLHL																
LLHH																
LHLL																
LHLH																
LHHL																
LHHH																

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UPPER 4 BIT 4 BIT LOWER	LLLL	LLLH	LLHL	LLHH	LHLL	LHLH	LHHL	LHHH	HLLL	HLLH	HLHL	HLHH	HHLL	HHLH	HHHL	HHHH
HLLL			C	B	H	X	H	X	O	A	N	K	H	*	1	0
HLLH			>	9	I	Y	i	4	O	A	3	#	0	L	2	4
HLHL			*	2	J	Z	j	Z	O	3	9	#	9	\	j	E
HLHH			+	3	K	L	k	0	8	3	Y	2	9	X	0	U
HHLL			.	<	L	¥	1	1	6	3	Y	7	0	0	4	9
HHLH			—	=	M	J	m	>	6	3	W	W	0	0	9	U
HHHL			.	>	N	^	n	*	6	3	W	W	0	U	0	U
HHHH			/	?	0	—	0	*	0	0	W	W	0	U	0	U

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