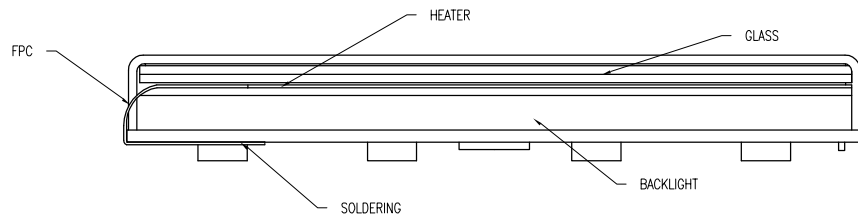
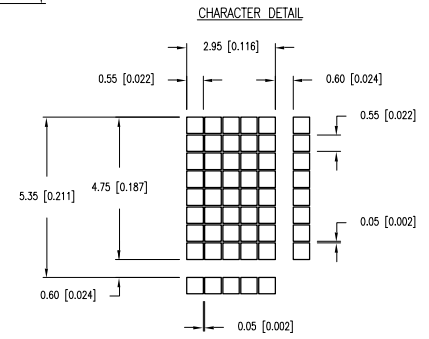
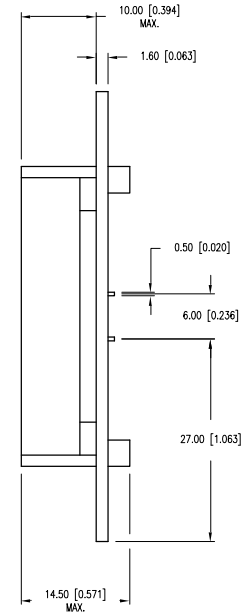
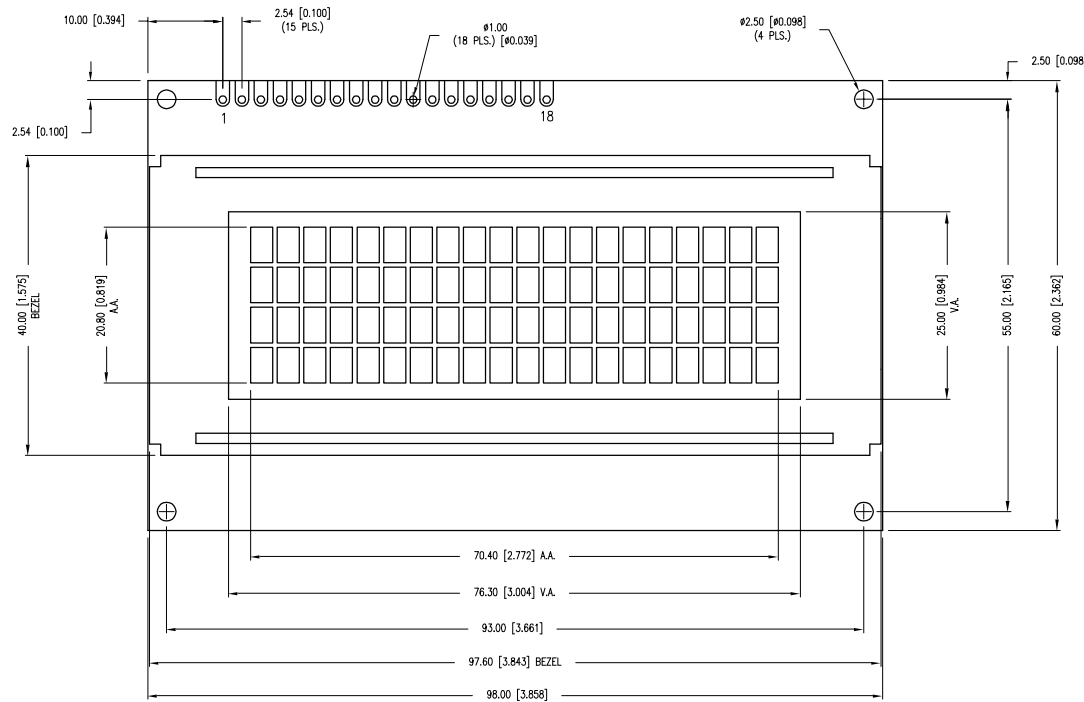


PART NUMBER	LCR-U02004DSF-WH	REV.	A
DATE	E.C.N. NUMBER AND REVISION COMMENTS		REV.
05.20.10	E.C.N. #11642.		A



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

\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= +DECIMAL PRECISION -0.00, MAX.= +0.00 -DECIMAL PRECISION UNCONTROLLED DOCUMENT



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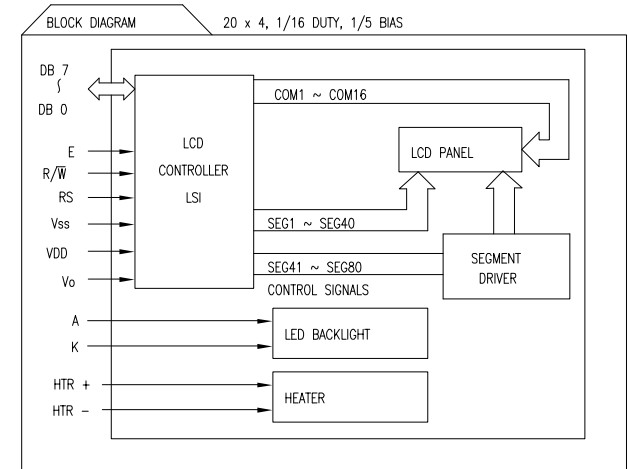
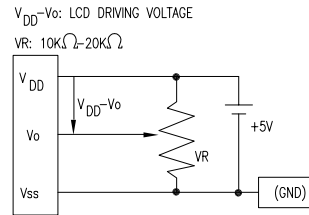
20 x 4 CHARACTER LCD MODULE, STN GRAY, W/ HEATER, TRANSLFLECTIVE, WHITE LED BACKLIGHT, 6:00 VIEW.

\*\*THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.\*\*  
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DATE:	11.23.09	DRAWN BY:	JN
PAGE:	1 OF 2	CHKD BY:	JD
SCALE:	N/A	APRVD BY:	SA
UNIT:	mm [INCH]		(R)

PART NUMBER	LCR-U02004DSF-WH	REV.	A
DATE	E.C.N. NUMBER AND REVISION COMMENTS		REV.
	SEE PAGE 1		

PIN CONFIGURATION			
PIN NO.	SYMBOL	LEVEL	FUNCTION
1	V <sub>SS</sub>	-	POWER SUPPLY
2	V <sub>DD</sub>	-	
3	V <sub>O</sub>	-	
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
16	K	-	CATHODE
17	HTR +	-	+12V
18	HTR -	-	GND (0V)



ELECTRICAL CHARACTERISTICS		V <sub>DD</sub> =4.7V to 5.3V, T <sub>A</sub> =25°C					
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT	
			MIN.	TYP.	MAX.		
SUPPLY VOLTAGE FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	-	-	5.0	-	V	
SUPPLY CURRENT FOR LOGIC	I <sub>DD</sub>	V <sub>DD</sub> =5V	-	1.6	2.5	mA	
INPUT VOLTAGE	HIGH	V <sub>IH</sub>	-	2.2	-	V <sub>DD</sub>	
	LOW	V <sub>IL</sub>	-	0	-	0.6	
OUTPUT VOLTAGE	HIGH	V <sub>OH</sub>	-	2.4	-	V	
	LOW	V <sub>OL</sub>	-	-	-	0.4	
LED BACKLIGHT	VOLTAGE	V <sub>f</sub>	I <sub>f</sub> =15mA	-	3.3	-	V
	CURRENT	I <sub>f</sub>	-	-	30	40	mA
	POWER CONSUMPTION	PD	-	-	99	-	mW
	LUMINOUS	L	I <sub>f</sub> =15mA	70	-	-	cd/m <sup>2</sup>
	COLOR	X	WHITE	.260	-	.330	
COORDINATE	Y	.260		-	.330		
HEATER	VOLTAGE	V <sub>TH</sub>	-	-	12	20	V
	RESISTANCE	-	-	70	120	170	OHM
	CURRENT	I <sub>H</sub>	-	50	100	150	mA
	POWER	PH	-	0.5	1.0	1.5	W

ABSOLUTE MAXIMUM RATINGS					
ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
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>	W/ HEATER	-40	+85	°C
STORAGE TEMPERATURE	T <sub>stg</sub>	W/ HEATER	-40	+85	°C

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