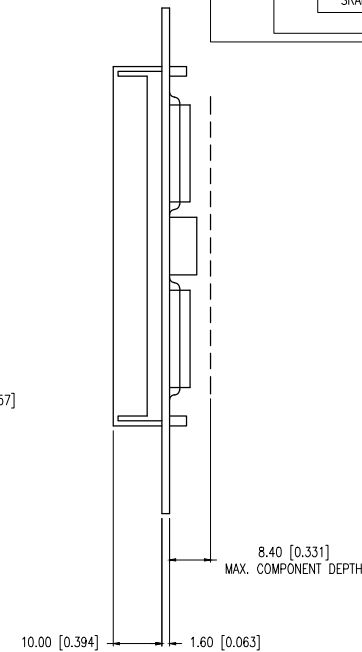
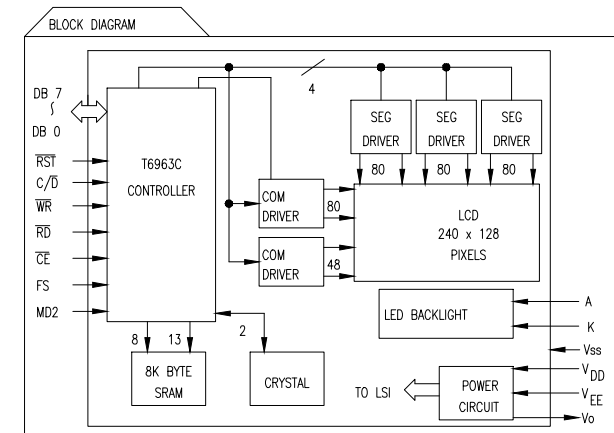
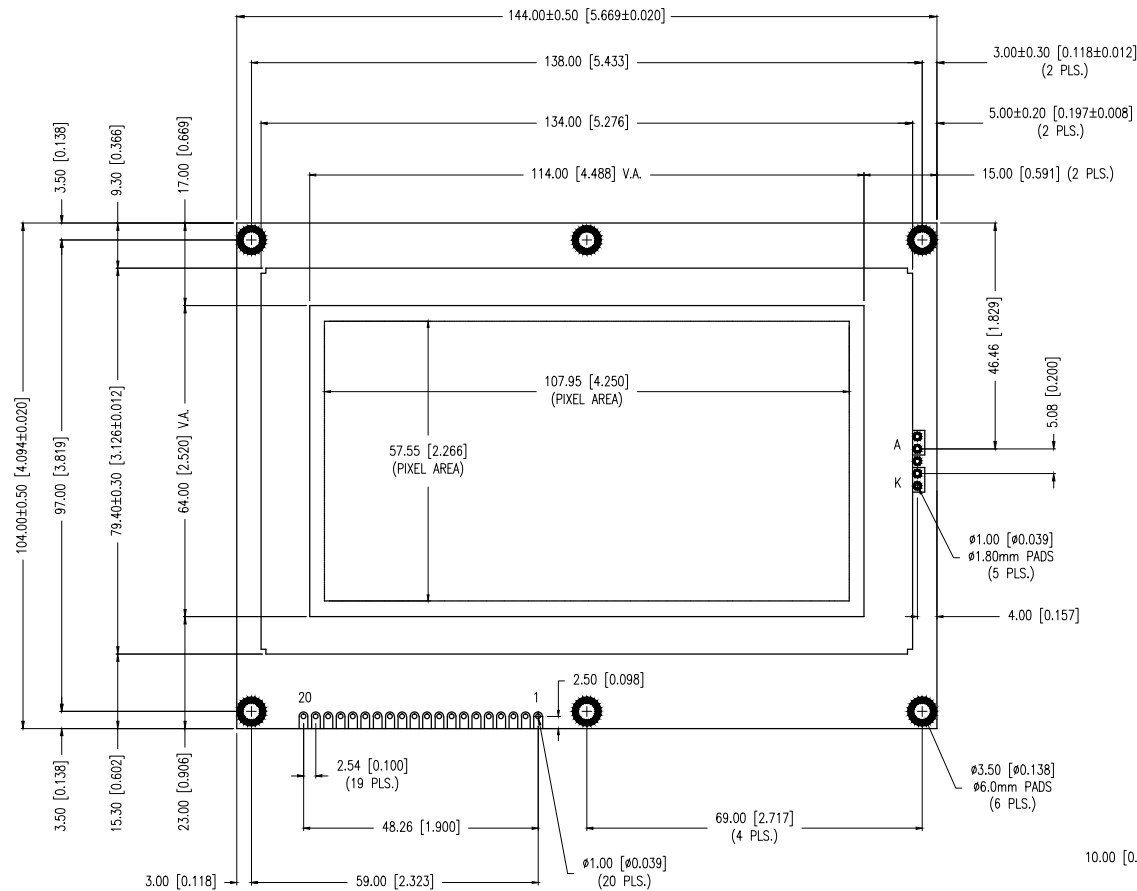
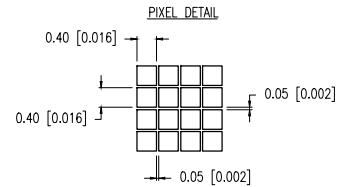




CAUTION: STATIC SENSITIVE DEVICE
FOLLOW PROPER E.S.D. HANDLING PROCEDURES
WHEN WORKING WITH THIS PART.

*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



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240 x 128 DOT MATRIX GRAPHIC MODULE, 1/128 DUTY.

THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.

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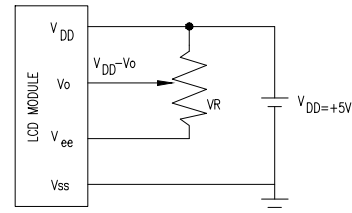
DATE: 06.01.10	DRAWN BY: JH
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SCALE: N/A	APRVD BY: SA
UNIT: mm [INCH]	(16)

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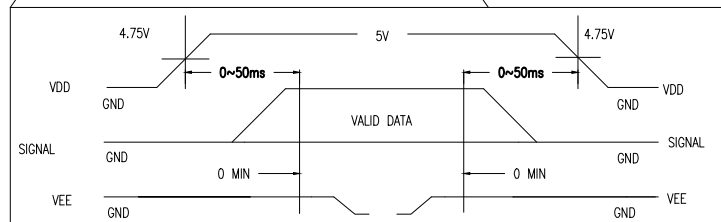
ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	$V_{DD}-V_{SS}$	0	6.5	V
POWER SUPPLY FOR LCD DRIVING	$V_{DD}-V_{EE}$	0	22.0	V
INPUT VOLTAGE	V_I	V_{SS}	V_{DD}	V
STATIC ELECTRICITY			100	V
OPERATING TEMPERATURE	T_{opr}	-20	70	°C
STORAGE TEMPERATURE	T_{stg}	-30	85	°C

$V_{DD}-V_o$: LCD DRIVING VOLTAGE
 V_R : $10K\Omega \sim 20K\Omega$



TIMING OF POWER SUPPLY AND INTERFACE SIGNAL



PIN CONFIGURATION

PIN #	SYMBOL	LEVEL	FUNCTION
1	V_{SS}	-	GROUND (0V)
2	V_{DD}	-	POWER SUPPLY FOR LOGIC CIRCUIT
3	V_o	-	OPERATING VOLTAGE FOR LCD DRIVING
4	$C/\bar{D}$	H/L	$\bar{W}R$ ="L", $C/\bar{D}$ ="H": COMMAND WRITE, "L": DATA WRITE $\bar{R}D$ ="L", $C/\bar{D}$ ="H": STATUS READ, "L": DATA READ
5	$\bar{R}D$	L	DATA READ
6	$\bar{W}R$	L	DATA WRITE
7~14	DB0~DB7	H/L	DATA BUS LINE
15	$\bar{CE}$	L	CHIP ENABLE
16	$\bar{RST}$	L	RESET
17	V_{ee}	-	POWER SUPPLY FOR LCD DRIVING
18	MD2	H/L	COLUMNS SELECT: "H": 32 COLUMNS, "L": 40 COLUMNS
19	FS	H/L	FONT SELECT: "H": 6*8 PIXEL/FONT, "L": 8*8 PIXEL/FONT
20	N.C.	-	
	A	-	POWER SUPPLY FOR LED BACKLIGHT (ANODE)
	K	-	POWER SUPPLY FOR LED BACKLIGHT (CATHODE)

OPTO-ELECTRICAL CHARACTERISTICS

ITEM			SYMBOL	STANDARD VALUE			UNIT
				MIN.	TYP.	MAX.	
POWER SUPPLY VOLTAGE FOR LOGIC			$V_{DD}-V_{SS}$	+4.75	+5.0	+5.25	V
NEGATIVE POWER SUPPLY VOLTAGE FOR LCD DRIVE			$V_{EE}-V_{SS}$	-15.5	-16.0	-16.5	V
INPUT VOLTAGE: NOTE (1)	H LEVEL	V_{IH}	2.2	-	-	V	
	L LEVEL	V_{IL}	0	-	0.8	V	
OUTPUT VOLTAGE: NOTE (2)	H LEVEL	V_{OH}	2.4	-	V_{DD}	V	
	L LEVEL	V_{OL}	0	-	0.4	V	
POWER SUPPLY CURRENT FOR LOGIC:		NOTE (4)	I_{DD}	-	12.0	-	mA
POWER SUPPLY CURRENT FOR LCD DRIVE:		NOTE (4)	I_{EE}	-	5.0	-	mA
RECOMMENDED		$T_a=0^{\circ}C$	$V_{DD}-V_o$	-	+19.4	-	V
LCD DRIVING		$T_a=25^{\circ}C$	$\bar{\phi}=10^{\circ}C$	-	+18.5	-	V
VOLTAGE: (NOTE 3)		$T_a=50^{\circ}C$	$\phi=0^{\circ}C$	-	+16.2	-	V
CLOCK OSCILLATION FREQUENCY			f_{osc}	-	5	-	MHZ
LED BACKLIGHT	VOLTAGE	$I_f=900mA$	V_f	-	4.2	4.6	V
	CURRENT	-	I_f	-	900	-	mA
	POWER CONSUMPTION	-	PD	-	3.8	-	W
	LUMINOUS	$I_f=900mA$	L	60	-	-	cd/m^2
	COLOR	-	-	-	574	-	nm

NOTE (1): APPLIED TO TERMINALS: FS, CE, $\bar{W}R$, $\bar{R}D$, $C/\bar{D}$, DB0~DB7, $\bar{R}ES$, MD2.

NOTE (2): APPLIED TO TERMINALS: DB0~DB7.

NOTE (3): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE

ABOUT $\pm 1.0V$ BY EACH MODULE.

NOTE (4): $V_{DD}-V_{SS}=5.0V$, $V_{DD}-V_o=20.6V$.

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