

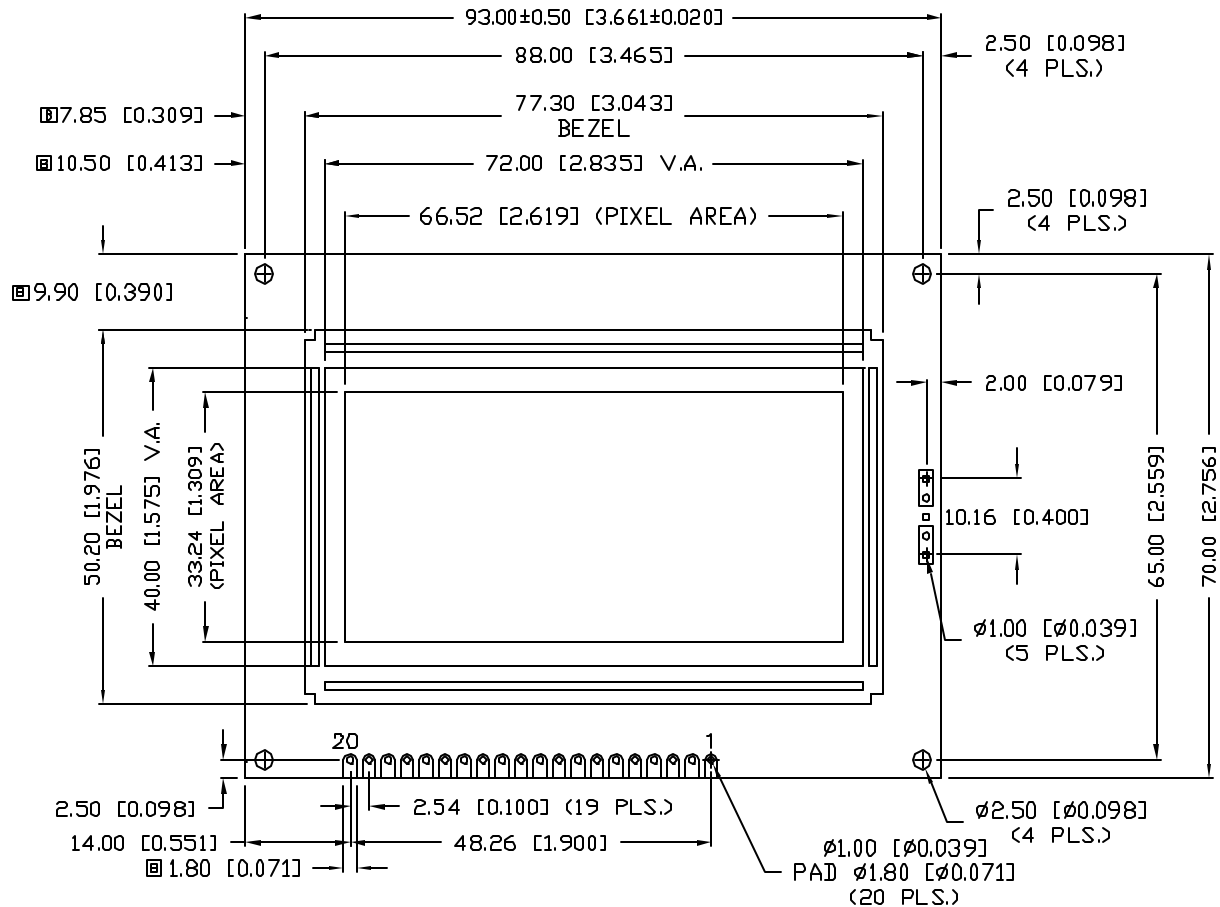
UNCONTROLLED DOCUMENT

| | | |
|---------------|--|------|
| PART NUMBER | | REV. |
| LCM-X12864GXX | | B |

| REV. | E.C.N. NUMBER AND REVISION COMMENTS | DATE |
|------|-------------------------------------|---------|
| A | E.C.N. #10BRDR. & REDRAWN. | 9.1.98 |
| B | E.C.N. #11227. | 3.15.05 |

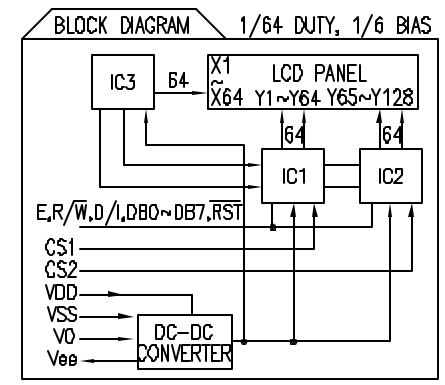
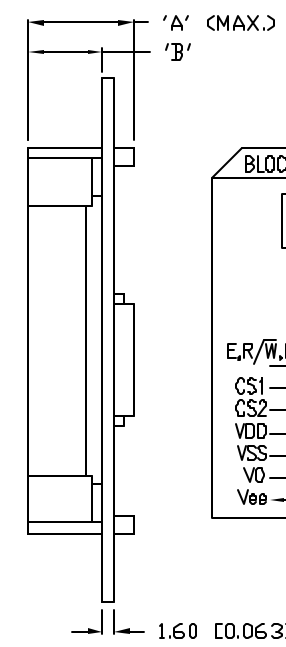
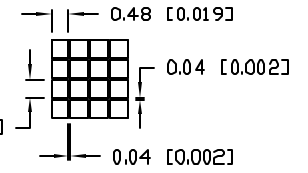
| LCM-X | DXX | DESCRIPTION |
|------------|-----|-------------------------------------|
| STANDARD | S | SR STN, REFLECTIVE |
| HIGH TEMP. | H | SF STN, TRANSFLECTIVE(W/ BACKLIGHT) |

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



| TYPE | DIM. | A | B |
|----------------|------|-----|---|
| WITH BACKLIGHT | 12.7 | 8.7 | |
| NO BACKLIGHT | 8.8 | 4.8 | |

PIXEL DETAIL



UNCONTROLLED DOCUMENT

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), XX=±0.5 (±0.020), XXX=±0.25 (±0.010), XXXX=±0.127 (±0.006). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN.= +DECIMAL PRECISION -0.00, MAX.= +0.00 -DECIMAL PRECISION

| | |
|--|---------------|
| REV. | PART NUMBER |
| B | LCM-X12864GXX |
| 128 x 64 DOT MATRIX GRAPHIC MODULE, 1/64 DUTY, 1/6 BIAS, WITH NEGATIVE CHARGE PUMP. | |

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RELIABILITY NOTE
OUR MANY YEARS OF EXPERIENCE, DATA ACCUMULATION INDICATE THAT SOLDER HEAT IS A MAJOR CAUSE OF EARLY AND FUTURE FAILURE. PLEASE PAY ATTENTION TO YOUR SOLDERING PROCESS.

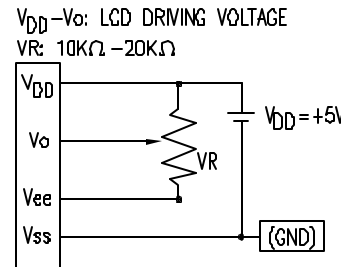


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| DRAWN BY: | CHECKED BY: | APPROVED BY: | DATE: |
| J.D | | | 3.15.05 |
| | | | PAGE: 1 OF 1 |
| | | | SCALE: N/A |

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| PIN CONFIGURATION | | | |
|-------------------|-----------------|--------|---|
| PIN NO. | SYMBOL | LEVEL | FUNCTION |
| 1 | V _{SS} | - | POWER SUPPLY GND (0V) 5V FOR LCD DRIVE |
| 2 | V _{DD} | - | |
| 3 | V _b | - | |
| 4 | D/I | 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 |
| 15 | CS1 | H/L | CHIP SELECTION SIGNAL FOR IC1 |
| 16 | CS2 | H/L | CHIP SELECTION SIGNAL FOR IC2 |
| 17 | RST | - | RESET SIGNAL (ACTIVE "LOW") |
| 18 | V _{ee} | - | OUTPUT VOLTAGE FOR LCD DRIVING |
| 19 | A | - | ANODE LED BACKLIGHT |
| 20 | K | - | CATHODE LED BACKLIGHT |



| READ/WRITE TIMING FOR MPU INTERFACE | | | | |
|-------------------------------------|------------------|------|-----|------|
| PARAMETER | SYMBOL | MIN | MAX | UNIT |
| ADDRESS HOLD TIME | t _{AH} | 10 | - | ns |
| ADDRESS SETUP TIME | t _{AS} | 140 | - | ns |
| E CYCLE TIME | t _{CYC} | 1000 | - | ns |
| E HIGH LEVEL WIDTH | t _{WEH} | 450 | - | ns |
| E LOW LEVEL WIDTH | t _{WEL} | 450 | - | ns |
| DATA SETUP TIME | t _{DSW} | 200 | - | ns |
| DATA HOLD TIME (READ) | t _{DHR} | 20 | - | ns |
| DATA DELAY TIME | t _{DDR} | - | 320 | ns |
| DATA HOLD TIME (WRITE) | t _{DHW} | 10 | - | ns |
| E RISE TIME | t _R | - | 25 | ns |
| E FALL TIME | t _F | - | 25 | ns |

| ELECTRICAL CHARACTERISTICS | | V _{DD} =4.75V to 5.25V, T _A =25°C | | | | | |
|----------------------------|----------------------------------|---|-----------------------|------|---------------------|------|-------------------|
| ITEM | SYMBOL | CONDITION | STANDARD VALUE | | | UNIT | |
| | | | MIN. | TYP. | MAX. | | |
| SUPPLY VOLTAGE FOR LOGIC | V _{DD} -V _{SS} | - | 4.75 | 5.0 | 5.25 | V | |
| SUPPLY CURRENT FOR LOGIC | I _{DD} | V _{DD} =5V | - | 8.0 | - | mA | |
| INPUT VOLTAGE | HIGH | V _{IH} | 0.7*V _{DD} | - | V _{DD} | V | |
| | LOW | V _{IL} | 0 | - | 0.3*V _{DD} | V | |
| *LED BACKLIGHT | VOLTAGE | V _f | I _f =300mA | - | 4.2 | 4.5 | V |
| | CURRENT | I _f | - | - | 300 | - | mA |
| | POWER CONSUMPTION | P _D | - | - | 1260 | - | mW |
| | LUMINOUS | L | I _f =300mA | 60 | 90 | - | cd/m ² |
| COLOR | - | - | - | - | - | nm | |

*ONLY APPLIES TO MODULES WITH BACKLIGHT

| ABSOLUTE MAXIMUM RATINGS | | | | | |
|------------------------------|----------------------------------|----------------------|-----------------|-----------------|------|
| ITEM | SYMBOL | TEST CONDITION | STANDARD VALUE | | UNIT |
| | | | MIN | MAX | |
| SUPPLY VOLTAGE FOR LOGIC | V _{DD} -V _{SS} | T _a =25°C | - | 7.0 | V |
| SUPPLY VOLTAGE FOR LCD DRIVE | V _{DD} -V _o | - | 10.8@40°C | 12.4@0°C | V |
| INPUT VOLTAGE | V _I | T _a =25°C | V _{SS} | V _{DD} | V |
| OPERATING TEMPERATURE | T _{opr} | LCM-S | 0 | 50 | °C |
| | | LCM-H | -20 | 70 | °C |
| STORAGE TEMPERATURE | T _{stg} | LCM-S | -20 | 70 | °C |
| | | LCM-H | -30 | 85 | °C |

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