# 56×128 dots DG05122 1/64 Duty

SANYO SEMICONDUCTOR CORP

This dot matrix module has a built-in RAM driver that allows 56 dots by 128 dots of graphics to be displayed. It can be interfaced with a CPU through an 8-bit data bus. It also provides the control functions necessary for display.

## Mechanical characteristics

| Parameter | Dimensions | unit |
|---|---|---|
| Out line | 85.0 (W)×38.0 (H)×13.5(T) | mm |
| Min. viewing area | 61.7 (W)×26.10(H) | mm |
| Dot display area | 60.12(W)×25.16(H) | mm |
| Dot size | 0.43(W)× 0.41(H) | mm |
| Dot pitch | 0.47(W)× 0.45(H) | mm |
| Weight | 41 (approximately) | g |

## Absolute maximum ratings

| Parameter | Symbol | min. | max. | unit |
|---|---|---|---|---|
| Logic supply voltage | $V_{DD}-V_{SS}$ | 0 | 7.0 | V |
| LCD supply voltage | $V_{DD}-V_O$ | 0 | 16.5 | V |
| Input voltage | $V_I$ | $V_{SS}$ | $V_{DD}$ | V |
| Operating temperature | $T_{opg}$ | 0 | +50 | °C |
| Storage temperature | $T_{stg}$ | −20 | +70 | °C |

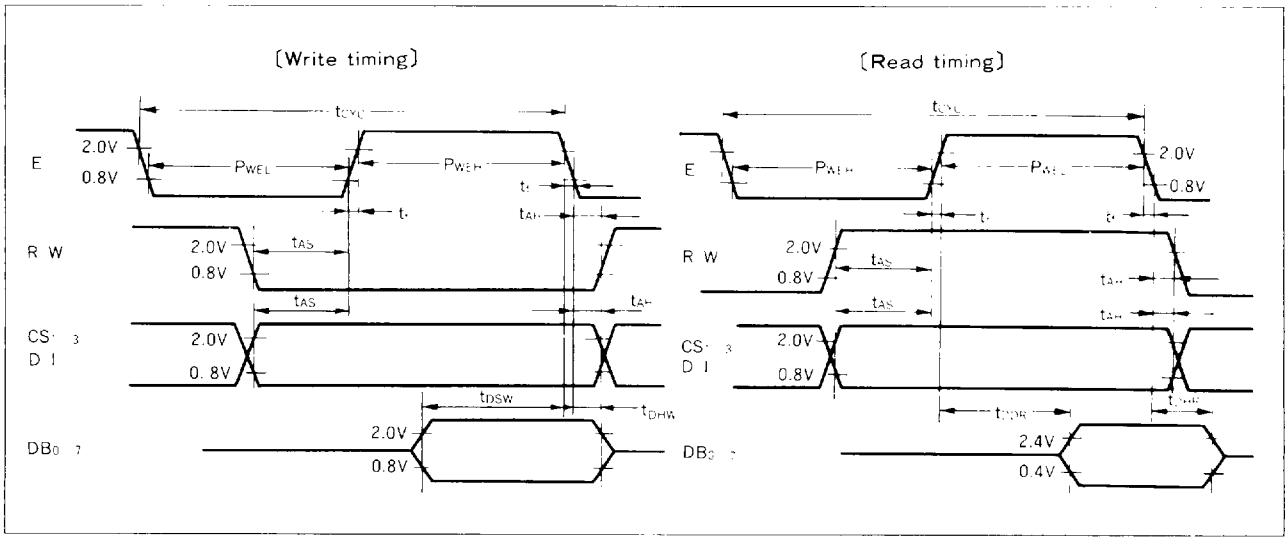
## Electrical characteristics (Ta=25°C, $V_{DD}$=5.0±0.25V)

| Parameter | Symbol | Condition | min. | typ. | max. | unit |
|---|---|---|---|---|---|---|
| Input high-level voltage | $V_{IH}$ | — | 2.0 | — | $V_{DD}$ | V |
| Input low-level voltage | $V_{IL}$ | — | 0 | — | 0.8 | V |
| LCD drive voltage | $V_O$ | — | — | 14.0 | — | V |
| Oscillation frequency | $f_{CL}$ | — | — | 225 | — | KHz |
| Supply current | $I_{DD}$ | $V_{DD}-V_O$=13.0V | — | — | 1.2 | mA |
| LCD supply current | $I_{EE}$ | $f_{OSC}$=225KHz | — | — | 1.0 | mA |

## Pin functions

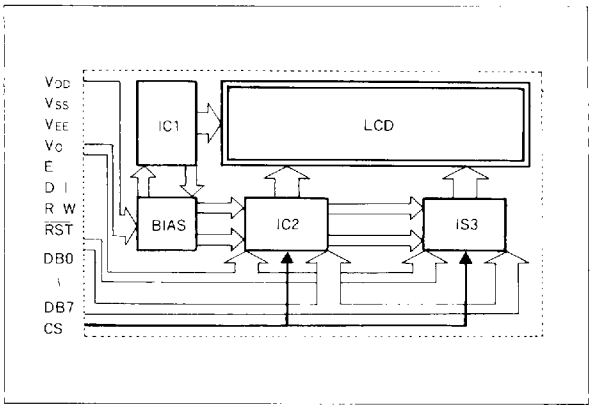
| No | Symbol | Functions | No | Symbol | Functions |
|---|---|---|---|---|---|
| 1 | E | Enable input pin | 10 | NC | (EL/LED: + anode power pin) |
| 2 | D/I | Data/instruction select input pin | 11 | DB 4 | |
| 3 | R/W | Read/write select input pin | 12 | DB 3 | |
| 4 | RST | Reset pulse input pin | 13 | DB 2 | Data bus line |
| 5 | CS | Chip select input pin | 14 | DB 1 | |
| 6 | DB 7 | | 15 | DB 0 | |
| 7 | DB 6 | Data bus line | 16 | $V_{SS}$ | Gnd pin, OV |
| 8 | DB 5 | | 17 | $V_{DD}$ | Positive power pin, +5V |
| 9 | NC | (EL/LED: − cathode power pin) | 18 | $V_O$ | LCD voltage control pin |

## Timing chart




| Parameter | Symbol | min. | typ. | max. | unit |
|---|---|---|---|---|---|
| E cycle time | tCYC | 1000 | | | ns |
| E high-level width | tWEH | 450 | | | ns |
| E low-level width | tWEL | 450 | | | ns |
| E rise time | tr | | | 25 | ns |
| E fall time | tf | | | 25 | ns |
| Address setup time | tAS | 140 | | | ns |
| Address hold time | tAH | 10 | | | ns |
| Data setup time | tDSW | 200 | | | ns |
| Data delay time | tDDR | | | 320 | ns |
| Write data hold time | tDHW | 10 | | | ns |
| Read data hold time | tDHR | 20 | | | ns |

## Block diagram




## Module dimensions

(unit : mm)

■Pattern dimensions