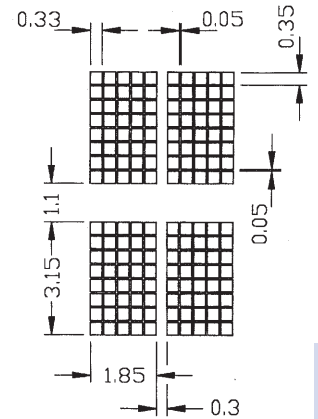
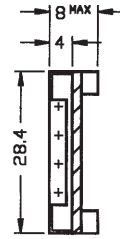
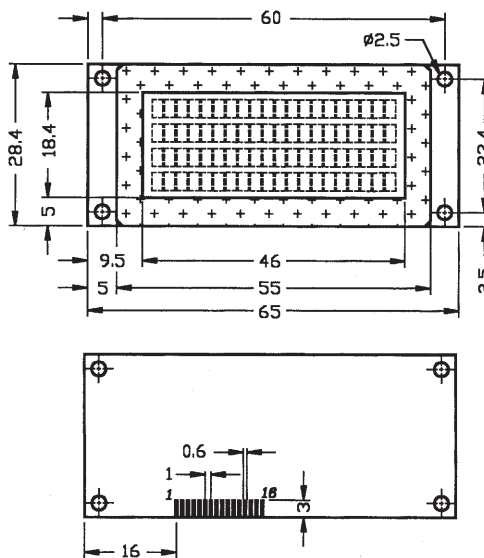


### BT 42003

4 Lines x 20 Characters



Tolerances: +/-0.5



Dot Size

Character LCD Modules

Micro-Line

#### Dimensions [mm]

#### MECHANICAL DATA

Parameter	Width x Height x Depth	Unit
Outline Dimensions	65 x 28.4 x 8 (with LED: 8)*	mm
Effective viewing area	46 x 18.4	mm
Dot Size	0.33 x 0.35	mm
Dot Pitch	0.38 x 0.40	mm
Character Matrix	5 x 7	dots
Character Size	1.85 x 2.75	mm
Character Pitch	2.14 x 4.25	mm
Weight	Approximate 16 (with LED: 18)	g

\*Types with integrated Connector: 9 mm Depth

#### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage (Logic)	$V_{DD} (V_{DD}-V_{SS})$	0	6.5	V
Supply Voltage (LCD Driver)	$V_{EE} (V_{DD}-V_0)$	0	5.0	V
Input Voltage	$V_I$	$V_{SS}$	$V_{DD}$	V
Operating Temperature	$T_{OP}$	See Page 11		°C
Storage Temperature	$T_{ST}$	See Page 11		°C

#### ELECTRICAL CHARACTERISTICS

Condition:  $T_a = 25^\circ\text{C}$ ,  $V_{DD} = 5.0 \pm 0.25\text{V}$

Parameter	Symbol	Min.	Typ	Max.	Unit
Input Voltage HIGH	$V_{INH}$	2.2	---	---	V
Input Voltage LOW	$V_{INL}$	---	---	0.6	V
Output Voltage HIGH	$V_{OH}$	2.4	---	---	V
Output Voltage LOW	$V_{OL}$	---	---	0.4	V
Supply Current (Logic)	$I_{DD}$	---	2.0	---	mA
Supply Current (LCD Driver)	$I_O$	---	0.5	---	mA
Duty Ratio	---	---	1 / 32	---	---

#### LED BACKLIGHT (STANDARD COLOR GREEN)

Parameter	Symbol	Min.	Typ	Max.	Unit
Supply Voltage	$V_F$	3.8	4.1	4.4	V
Supply Current	$I_F$ [at 25°C]	---	40	70	mA
Lamp Style	---	---	01	---	---
LED Segments	---	---	4	---	pcs

#### PIN TABLE

Pin	Symbol	Signal Description
1	$V_{SS}$	GND (0 V)
2	$V_{DD}$	Power Supply (5 V)
3	$V_0$	Supply Voltage (LCD Driver)
4	RS	Register Select - LOW = Instruction, High = Data
5	R / $\bar{W}$	Read / Write LOW = MPU to LCM, HIGH = LCM to MPU
6	E	Enable R / $\bar{W}$ = LOW: Data are taking over at falling edge of E R / $\bar{W}$ = HIGH: Data can be read at E = 1
7 to 14	DB <sub>0</sub> to DB <sub>7</sub>	Data Bus - Software selectable 4 or 8 Bit Mode
15	+ $V_{LED}$	Anode of LED Unit
16	- $V_{LED}$	Cathode of LED Unit

#### ADDITIONAL INFORMATION

- ◆ Display Connector Type (Option):  
DIL 1 x 16 pin Connector - BT 21201 / SMD 1 x 16 pin Connector - BT 21000  
1 x 16 pin Film Cable 70 mm - BT 21300
- ◆ Controller Type - HD 66712 (1) or compatible
- ◆ Internal temperature compensation

#### BLOCK DIAGRAM

