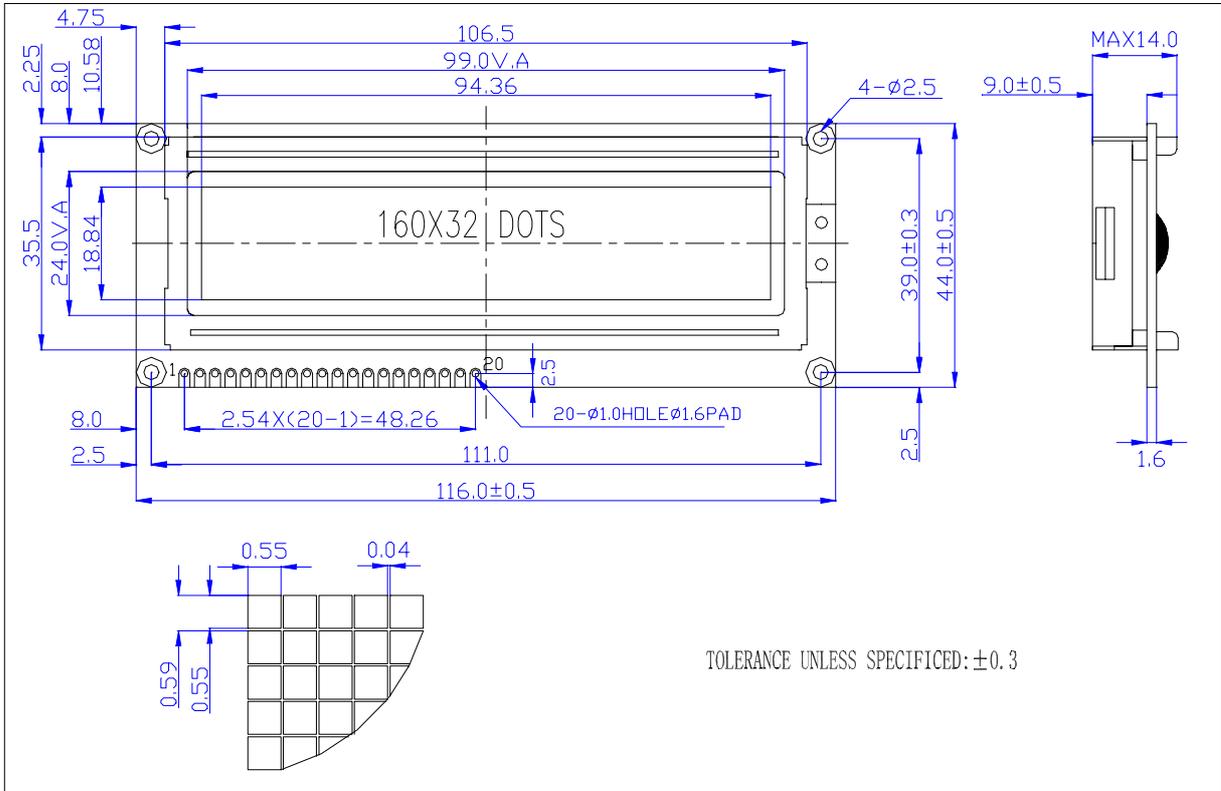


GTG-160321

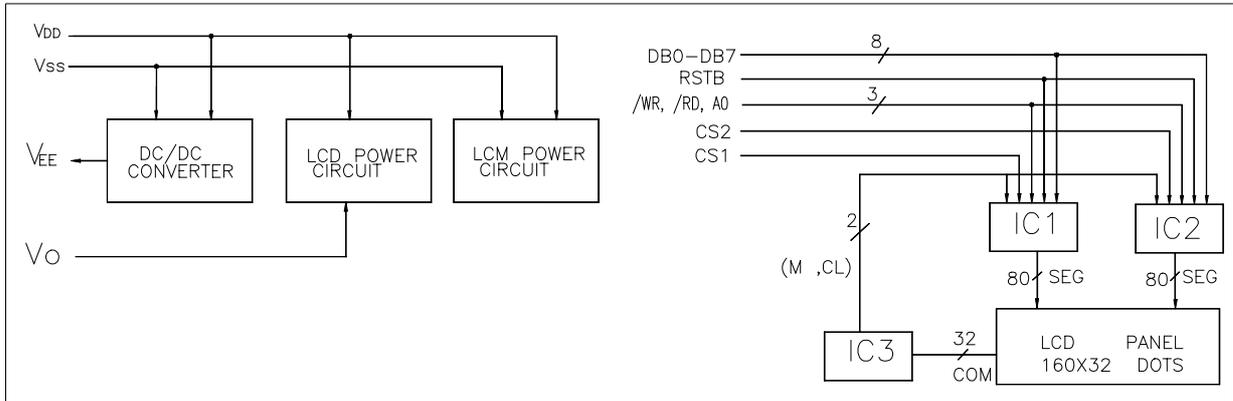
1/32 DUTY, 1/6 BIAS

(160 × 32 Dots)

1. DIMENSIONAL OUTLINE



2. BLOCK DIAGRAM



3. MECHANICAL SPECIFICATIONS

ITEM	SPECIFICATIONS	UNIT	REMARK
DIMENSIONAL OUTLINE	116.0 (W) × 44.0 (H) × 14.0 MAX. (T)	mm	*REFERENCE DIMENSIONAL OUTLINE
VIEWING AREA	99.0 (W) × 24.0 (H)		
EFFECTIVE V/AREA	94.36 (W) × 33.24 (H)		
NUMBER OF DOTS	160 (W) × 32 (H)	-	
DOT PITCH	0.59 (W) × 0.59 (H)	mm	
DOT SIZE	0.55 (W) × 0.55 (H)	mm	

(160 × 32 Dots)

4. ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	CONDITION	STANDARD VALUE		UNIT
			MIN	MAX.	
SUPPLY VOLTAGE FOR LOGIC	V _{DD}	Ta=25°C	-0.3	7.0	V
SUPPLY VOLTAGE FOR LCD	V _{LCD}		-0.3	17.5	
INPUT VOLTAGE	V _I		-0.3	V _{DD} +0.3V	
OPERATING TEMPERATURE	T _{OP}	-	-20	70	°C
STORAGE TEMPERATURE	T _{ST}	-	-30	80	°C

5. ELECTRICAL CHARACTERISTICS (Ta=25°C)

ITEM	SYMBOL	CONDITION	MIN	TYPE	MAX.	UNIT
LOGIC CIRCUIT POWER SUPPLY VOLTAGE	V _{DD}	-	4.5	5.0	5.5	V
INPUT HIGH VOLTAGE	V _{IH}	-	0.8 V _{DD}	-	V _{DD}	V
INPUT LOW VOLTAGE	V _{IL}	-	GND	-	0.2V _{DD}	V
OUTPUT HIGH VOLTAGE	V _{OH}	I _{OH} =-0.2mA	2.4	-	-	
OUTPUT LOW VOLTAGE	V _{OL}	I _{OL} =0.2mA	-	-	0.4	
LOGIC CIRCUIT POWER SUPPLY CURRENT	I _{DD}	V _{DD} =5.0V	-	4.0	6.0	mA
OPERATING VOLTAGE FOR LCD	V _{DD} - V _O	-	-	6.5	-	V

6. INTERFACE PIN CONNECTIONS

ITEM	SYMBOL	LEVEL	FUNCTIONS
1	D/I	H/L	Register selection H: Display data; L: Instruction
2	CS2	L	Chip select signal for IC2
3	CS1	L	Chip select signal for IC1
4	/RD	L	Read signal
5	/WR	L	Write signal
6	V _{DD}	-	Power supply
7	GND	-	Power supply (GND)
8 - 15	DB0 - BD7	H/L	Data bus
16	RST	H	Reset signal
18	V _{out}	-	Negative voltage output
19	LED+	-	Power supply for LED
20	LED-	-	Power supply for LED