



NOTES:
 1. R1 IS THE CONTRAST RESISTOR.
 2. VOUT=-10.0V
 3. ADJUST R1 TO GET GOOD CONTRAST. TYP: V0 IS -13.0V.

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	T _a =25°C	-0.3	7.0	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{LCD}	-	0	30	V
INPUT VOLTAGE	V _{IN}	T _a =25°C	-0.3	V _{DD} +0.3	V
OPERATING TEMPERATURE	T _{opr}	W/ HEATER	-30	+85	°C
STORAGE TEMPERATURE	T _{stg}	W/ HEATER	-40	+85	°C

PIN CONFIGURATION

PIN NO.	SYMBOL	FUNCTION
1	FLM	FIRST LINE MAKER
2	M	CONTROL SIGNAL FOR AC DRIVING
3	LP	COMMON DRIVER DATA SHIFT SIGNAL
4	CP	CLOCK PULSE FOR SEGMENT SHIFT REGISTER
5	V _{DD}	POWER SUPPLY
6	V _{SS}	GROUND
7	VEE	POWER SUPPLY VOLTAGE FOR LCD
8	D1_SID	DATA BIT INPUT/OUTPUT
9	D2_DL	
10	D3_DM	
11	D4_DR	
12	Vo	CONTRAST ADJUSTMENT VOLTAGE
13	LED+ (A)	ANODE OF LED
14	LED- (K)	CATHODE OF LED
15	N/C	NO CONNECTION
16	N/C	NO CONNECTION

ELECTRICAL CHARACTERISTICS

V_{DD}=2.7V to 5.5V, T_A=25°C

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT	
			MIN.	TYP.	MAX.		
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	-	2.7	5.0	5.5	V	
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V _o	V _{DD} =5V	6.0	18.0	28.0	V	
SUPPLY CURRENT FOR LOGIC	I _{DD}	V _{DD} =5V	-	8.2	13.0	mA	
LED BACKLIGHT	VOLTAGE	V _f	I _f =60mA	-	5.0	-	V
	CURRENT	I _f	-	-	60	80	mA
	POWER CONSUMPTION	PD	-	-	192	-	mW
	LUMINOUS	L	-	-	150	-	cd/m ²
	COLOR COORDINATE	X Y	WHITE	.260 .260	- -	.330 .330	-
HEATER	VOLTAGE	V _{fH}	-	-	12	-	V
	RESISTANCE	-	-	160	210	260	Ω
	CURRENT	I _H	-	40	60	80	mA
	POWER	PH	-	-	0.71	-	W

*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 MAX.= +^{0.00}/_{-0.00} DECIMAL PRECISION