T-41-38

Philips Components

Data sheet	
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LTA341

Liquid Crystal Display

DEVICE DESCRIPTION

The LTA341 is a 20-character, 2-line dot matrix display. Typical applications include hand held equipment and industrial applications. The display can be inverted to adapt the optimal viewing direction to the application.

QUICK REFERENCE DATA

Viewing area dimensions	83 x 18.6 mm
Overall glass dimensions	93.6 x 34.6 mm
Character format	5 x 7 dots and cursor
Character size	5.55 x 3.2 mm
Dot size (spacing 0.06 mm)	0.65 x 0.65 mm
Drive method	MUX 1:16
Operating voltage	5 V
Illumination mode	reflective/trans-flective
Preferred viewing direction	6 o'clock

DISPLAY MODE

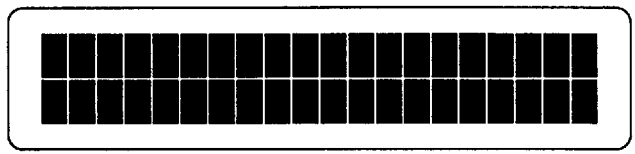
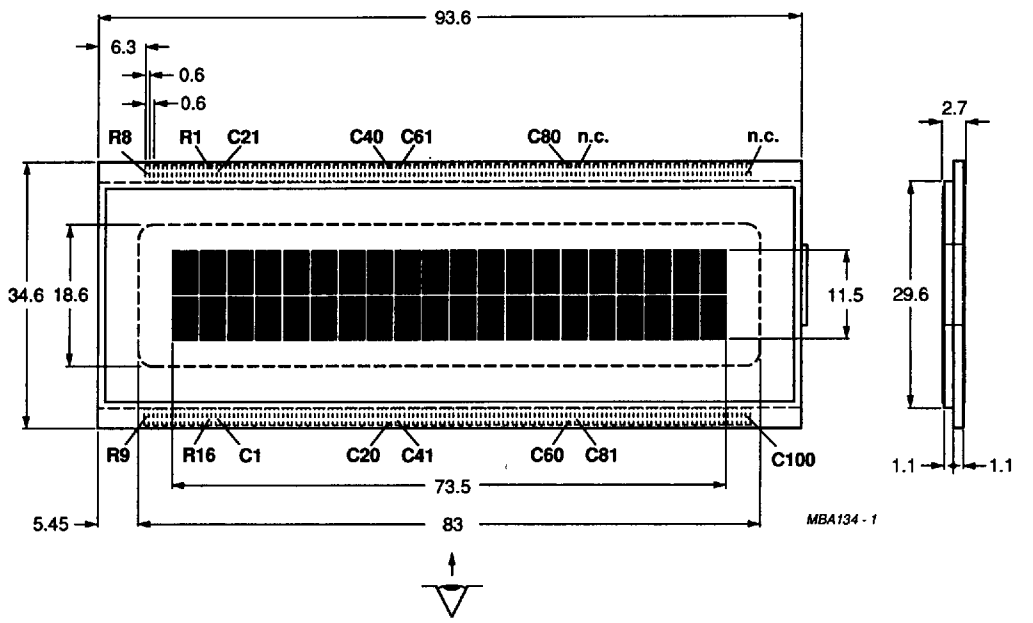


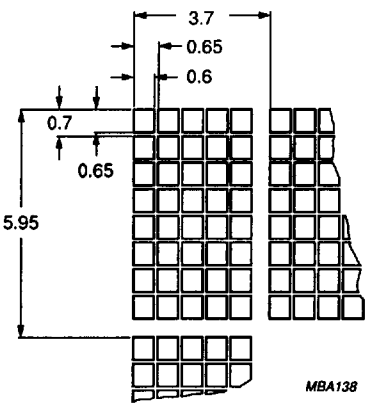
Fig.1 2-line, 20-character, dot matrix display.

TYPE DEPENDENT DATA

TYPE	ILLUMINATION MODE	CONNECTION METHOD	OPERATING AMBIENT TEMPERATURE RANGE	RELIABILITY GRADE
LTA341R–11	reflective	for conductive rubber	–10 to +60 °C	commercial
LTA341F–11	transflective	for conductive rubber	–10 to +60 °C	commercial

MECHANICAL DATA





PIN DESCRIPTION

R = row
C = column

Fig.2 Display area dimensions.

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RATINGS

Limiting values in accordance with Absolute Maximum System (IEC 134)

Maximum voltage between any two connections (see note)	V_{max}	10 V RMS
Storage temperature range	T_{stg}	−25 to +70 °C

Note: maximum DC component = 0.1 V

OPERATING CONDITIONS

All values at, T_{amb} = 25 °C; V_{op} = $V_{op\ typ}$; f_{dr} = 100 Hz, unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
operating voltage	V_{op}	-	5	-	V
temperature compensation of V_{op}	TC	-	−13	-	mV/°C
operating ambient temperature	T_{amb}	−10	-	+60	°C
current consumption (see note)	I	-	175	350	µA
frame frequency	f_{dr}	30	-	100	Hz

Note: with all dots "ON".

ELECTRO-OPTICAL CHARACTERISTICS

T_{amb} = 25 °C, V_{op} = $V_{op\ typ}$, α = 10°, ϕ = ϕ_{opt}, unless otherwise specified

PARAMETER	SYMBOL	CONDITIONS	TYP.	MAX.	UNIT
Response times	t_{on}	T_{amb} = 0 °C T_{amb} = 25 °C T_{amb} = 50 °C	380 110 45	760 220 90	ms ms ms
	t_{off}	T_{amb} = 0 °C T_{amb} = 25 °C T_{amb} = 50 °C	470 110 45	940 220 90	ms ms ms
Viewing Angles (contrast ratio CR > 3)	α_{opt} α_2-α_1	reflective types	30 25	- -	° °
	α_{opt} α_2-α_1	transflective types reflective operation	30 25	- -	° °
	α_{opt} α_2-α_1	transflective types transmissive operation	30 20	- -	° °

For definitions of contrast ratio, viewing angles and response times see notes 1 to 3.

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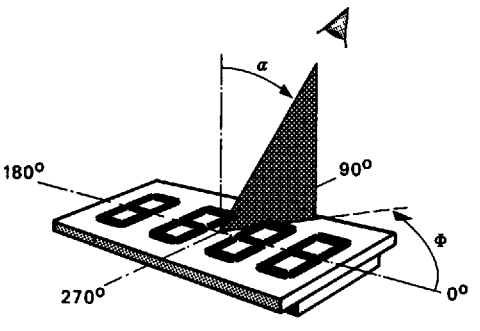
Note 1 Definition of contrast ratio (C_R).

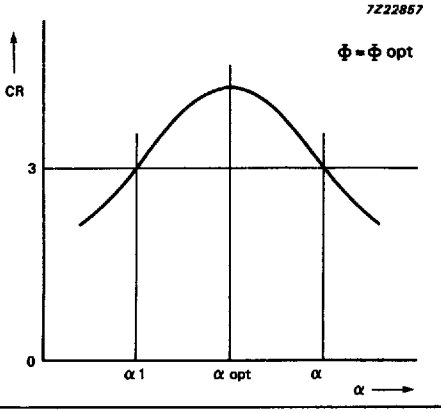
$$\text{in positive image mode: } CR = \frac{B_{off}}{B_{on}}$$

$$\text{in negative image mode: } CR = \frac{B_{on}}{B_{off}}$$

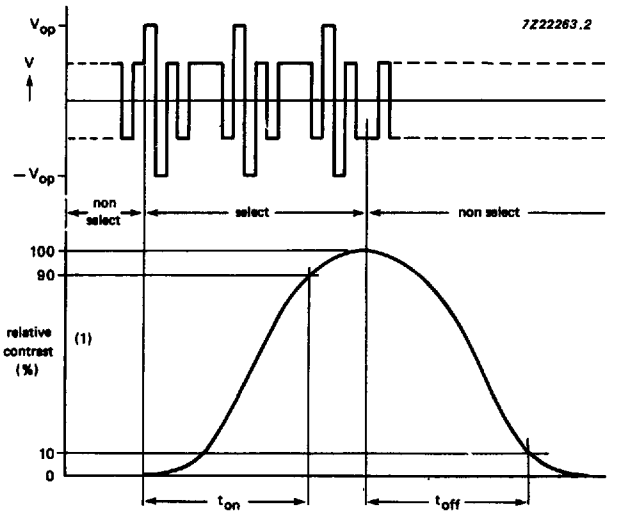
B_{on} is the brightness of selected segments
B_{off} is the brightness of non-selected segments

Note 2 Definition of viewing angles α and ϕ.





Note 3 Definition of response times.



1) measured at $\alpha = 10°$

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Note 4 Definition of waveforms.