

Philips Components

Data sheet	
status	Product specification
date of issue	July 1990

LTA343

Liquid Crystal Display

T-41-38

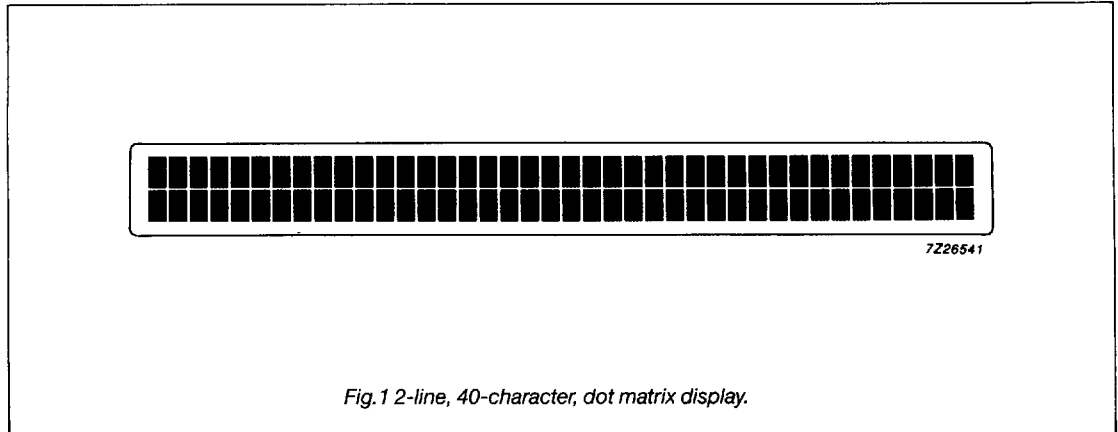
DEVICE DESCRIPTION

The LTA343 is a 40-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	155 x 17.5 mm
Overall glass dimensions	160 x 27.4 mm
Character format	5 x 7 dots and cursor
Character size	4.85 x 3.2 mm
Dot size (spacing 0.05 mm)	0.65 x 0.60 mm
Drive method	MUX 1:16
Operating voltage	5 V
Illumination mode	reflective/trans-reflective
Preferred viewing direction	6 o'clock

DISPLAY MODE



TYPE DEPENDENT DATA

TYPE	ILLUMINATION MODE	CONNECTION METHOD	OPERATING AMBIENT TEMPERATURE RANGE	RELIABILITY GRADE
LTA343R-11	reflective	for conductive rubber	-10 to +60 °C	commercial
LTA343F-11	transflective	for conductive rubber	-10 to +60 °C	commercial

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MECHANICAL DATA

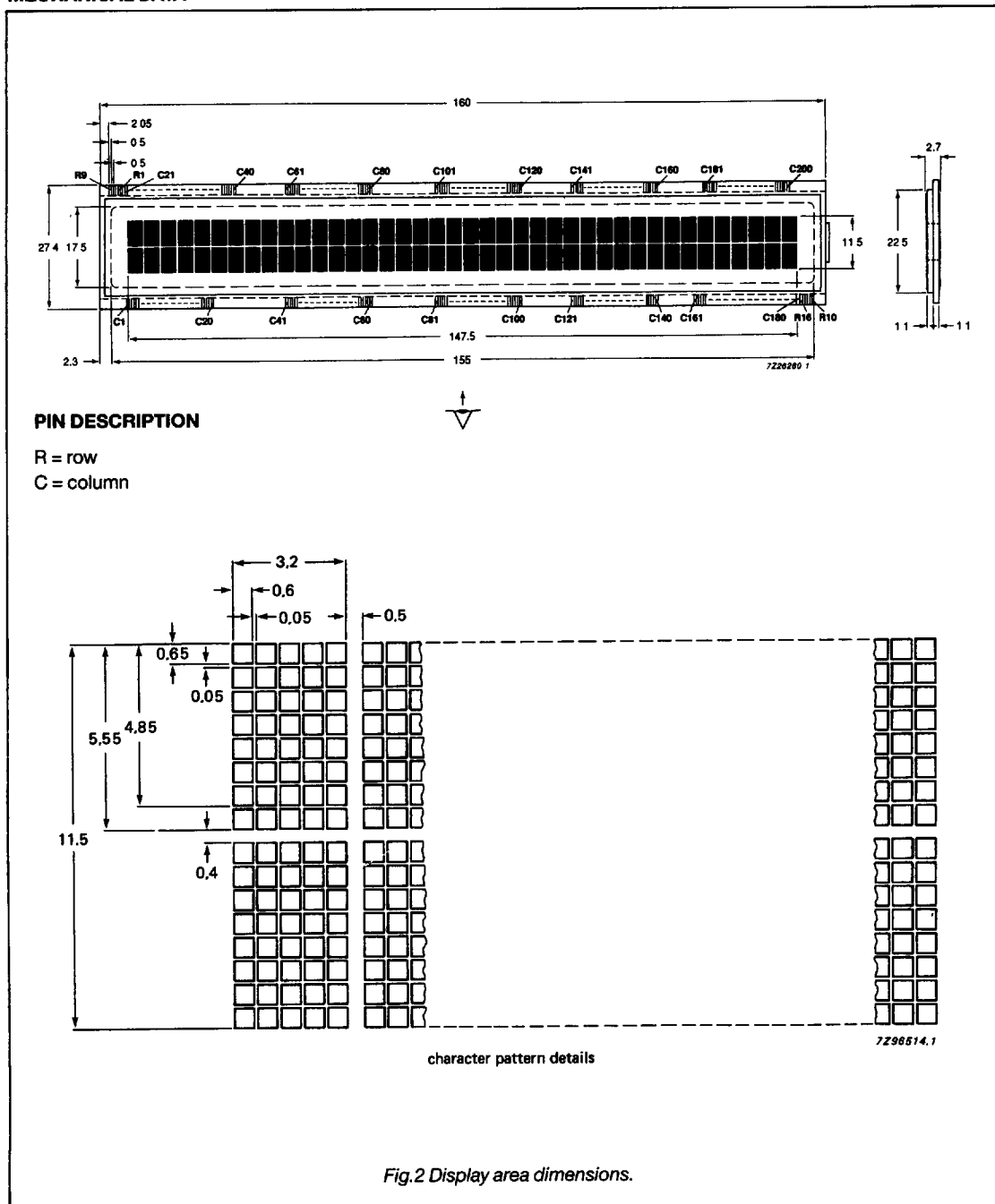


Fig.2 Display area dimensions.

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
operating voltage	V_{op}	-	5	-	V
temperature compensation of V_{op}	TC	-	-20	-	mV/°C
operating ambient temperature	T_{amb}	-10	-	+60	°C
current consumption (see note)	I	-	287	574	μA
frame frequency	f_{dr}	30	-	100	Hz

Note: with all dots "ON".

ELECTRO-OPTICAL CHARACTERISTICS

 $T_{amb} = 25\text{ °C}$, $V_{op} = V_{op\ typ}$, $\alpha = 10^\circ$, $\phi = \phi_{opt}$, unless otherwise specified

PARAMETER	SYMBOL	CONDITIONS	TYP.	MAX.	UNIT
Response times	t_{on}	$T_{amb} = 0\text{ °C}$	380	760	ms
		$T_{amb} = 25\text{ °C}$	110	220	ms
	t_{off}	$T_{amb} = 0\text{ °C}$	470	940	ms
		$T_{amb} = 25\text{ °C}$	110	220	ms
Viewing Angles (contrast ratio CR > 3)	α_{opt} $\alpha_2 - \alpha_1$	reflective types	35	-	°
			25	-	°
	α_{opt} $\alpha_2 - \alpha_1$	transflective types	35	-	°
		reflective operation	25	-	°
	α_{opt} $\alpha_2 - \alpha_1$	transflective types	35	-	°
		transmissive operation	20	-	°

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

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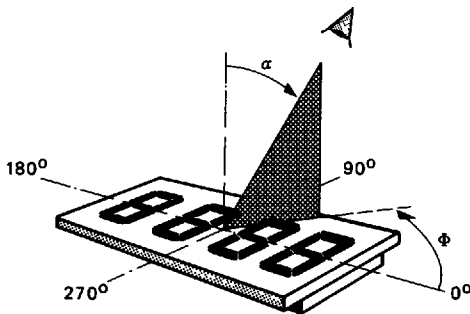
Note 1 Definition of contrast ratio (C_R).

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

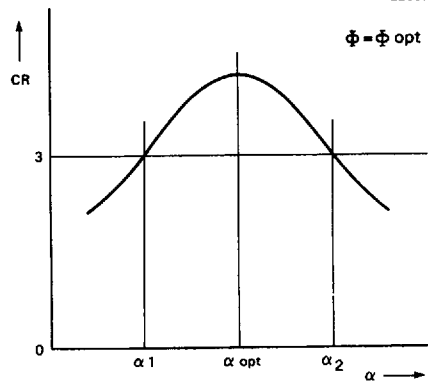
in negative image mode: $C_R = \frac{B_{on}}{B_{off}}$

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 .

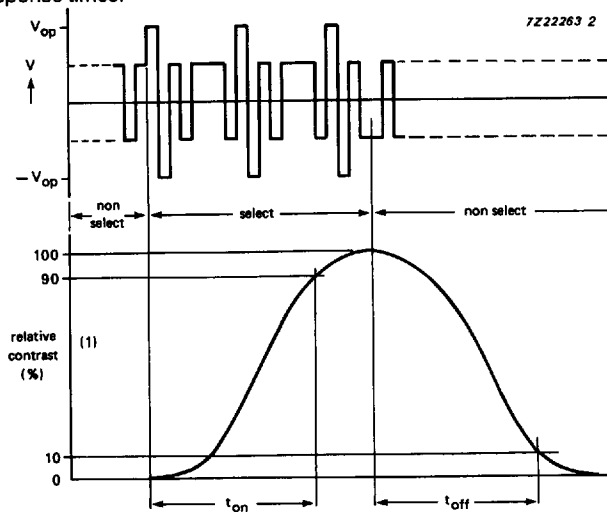


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Note 3 Definition of response times.



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1) measured at $\alpha = 10^\circ$

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Note 4 Definition of waveforms.

