

# SIEMENS

## ICs for Consumer Electronics

### MEGATEXT

Display Applications

Edition 10.94

<b>MEGATEXT® Display Applications</b>	
<b>Revision History:                      Original Version 10.94</b>	
Previous Releases:	
Page	Subjects (changes since last revision)

## Data Classification

## Maximum Ratings

Maximum ratings are absolute ratings; exceeding only one of these values may cause irreversible damage to the integrated circuit.

## Characteristics

The listed characteristics are ensured over the operating range of the integrated circuit. Typical characteristics specify mean values expected over the production spread. If not otherwise specified, typical characteristics apply at  $T_A = 25\text{ °C}$  and the given supply voltage.

## Operating Range

In the operating range the functions given in the circuit description are fulfilled.

For detailed technical information about “**Processing Guidelines**” and “**Quality Assurance**” for ICs, see our “**Short Form Catalog**”.

## Edition 10.94

This edition was realized using the software system FrameMaker®.

**Published by Siemens AG, Bereich Halbleiter, Marketing-Kommunikation,  
Balanstraße 73, 81541 München**

© Siemens AG 1994. All Rights Reserved.

As far as patents or other rights of third parties are concerned, liability is only assumed for components, not for applications, processes and circuits implemented within components or assemblies.

The information describes the type of component and shall not be considered as assured characteristics.

Terms of delivery and rights to change design reserved.

For questions on technology, delivery and prices please contact the Semiconductor Group Offices in Germany or the Siemens Companies and Representatives worldwide (see address list).

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Siemens Office, Semiconductor Group.

Siemens AG is an approved CECC manufacturer.

## Packing

Please use the recycling operators known to you. We can also help you - get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport.

For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

### Display Applications

#### Selecting Pixelrate Characters per Line

MEGATEXT can generate 4 different pixel rates selectable by the control bits of register R114:

Pixel rate	DLP	16-by-9	
24.0 MHz	0	0	standard (4:3)
25.5 MHz	1	0	slightly compressed
30.0 MHz	0	1	compressed display
31.9 MHz	1	1	compressed display (16:9)

The pixel rate determines the number of characters per line generated by MEGATEXT. The following list shows the maximum of independent characters for different modes of operation.

In 16:9 mode a FIFO is used to accelerate the pixel rate by a factor of 1.25. The FIFO can store a maximum of 66 characters. The margin area outside the 64 characters is filled with the repetition of the first respectively the last of 66 characters.

In general the number of visible characters on the screen is less than the number of characters per line generated by MEGATEXT. The reason for that is the horizontal flyback. The ratio of the numbers is approximately 52  $\mu$ s/64  $\mu$ s.

To make all characters visible the display has to be scrolled.

Abbreviations:

OSDA = Outer Screen Display Area

ISDA = Inner Screen Display Area

T = termination display character (block 0, row 3, column 5)

B = black character

M = OSD mask character

X in a setting of a register means: no influence in the current context.

### Standard 4:3 Normal Scan

64 characters per line

T T T T [	40 characters ISDA	]	[	20 char. OSDA	]
-----------	--------------------	---	---	---------------	---

R114: = X000.X0XX

DSC (0/03/01/25) = 0

80 character mode (normal scan only)

T T T T [	40 half width char	]	[	40 half width char	]	[	20 OSD mask char.	]
-----------	--------------------	---	---	--------------------	---	---	-------------------	---

R114: = X000.X0XX

DSC (0/03/01/25) = 1

### 4:3 Double Scan

T T T T T T T T [	40 characters ISDA	]	[	16 char. OSDA	]
-------------------	--------------------	---	---	---------------	---

R114: = XX10.X0XX or X1X0.X0XX

DSC (0/03/01/25) = 1

### Slightly Compressed Display Normal Scan

68 characters per line

T T T T [	40 characters ISDA	]	[	24 char. OSDA	]
-----------	--------------------	---	---	---------------	---

R114: = X001.X0XX

DSC (0/03/01/25) = 0

80 character mode (normal scan only)

T T T T [	40 half width char	]	[	40 half width char	]	[	24 OSD mask char.	]
-----------	--------------------	---	---	--------------------	---	---	-------------------	---

R114: = X001.X0XX

DSC (0/03/01/25) = 1

### Slightly Compressed Display Double Scan

68 characters per line

T T T T T T T T [	40 characters ISDA	]	[	20 char. OSDA	]
-------------------	--------------------	---	---	---------------	---

R114: = X001.X0XX

DSC (0/03/01/25) = 0

### Compressed Display Normal Scan

80 characters per line

XXXXXXXXXX T T T T [	40 characters ISDA	]	[	19 char. OSDA	]	CDEFFFFB
----------------------	--------------------	---	---	---------------	---	----------

X = 20<sup>th</sup> character of each OSDA row

C (D, E, F) = 3<sup>rd</sup> (4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>) character of each OSDA row

R114: = X000.X1XX

DSC (0/03/01/25) = 0

### Compressed Display Double Scan

80 characters per line

T T T T T T T T [	40 characters ISDA	]	[	14 char. OSDA	]	XYZAAAABUUUUUUUUUW
-------------------	--------------------	---	---	---------------	---	--------------------

A = 1<sup>st</sup> char. of each OSDA row

U = 15<sup>th</sup> char. of each OSDA row

X (Y, Z) = 1<sup>st</sup> (2<sup>nd</sup>, 3<sup>rd</sup>) char. of each **ISDA (!)** row

R114: = XX10.X1XX or X1X0.X1XX

DSC (0/03/01/25) = 1

### Compressed Display (16:9) Normal Scan

85 characters per line

T T T T [ 40 characters ISDA ] [ 22 char. OSDA ] XXXXXXXXXXXBYYYYYYYYYY

X = 23<sup>rd</sup> character of each OSDA row

Y = 24<sup>th</sup> character of each OSDA row

R114: = X001.X1XX

DSC (0/03/01/25) = 0

### Compressed Display (16:9) Double Scan

85 characters per line

T T T T T T T T [ 40 char. ISDA ] [ 17 char. OSDA ] XXXXXXXXXXXBYYYYYYYYYYZ

X = 18<sup>th</sup> character of each OSDA row

Y = 19<sup>th</sup> character of each OSDA row

Z = 20<sup>th</sup> character of each OSDA row

R114: = XX11.X1XX or X1X1.X1XX

DSC (0/03/01/25) = 1