



# LB1245

## Active-Low Input Fluorescent Display Tube Driver

### Overview

The LB1245 has been designed for interfacing low-level digital devices to fluorescent display tubes. Its 8-circuit independent Darlington output stage is used for digit and segment drivers. Equivalent pull-down resistors are built in ; externally connected resistors to prevent ghosts are no longer required. Output is activated when input voltages are at a low level, making the IC an ideal interface for N-channel MOS devices. ( $V_{DD}$ ,  $V_{SS}$  of IC can be made common to  $V_{DD}$ ,  $V_{SS}$  of the LB1245.)

### Features

- 8-channel independent Darlington driver.
- Capable of driving digits or segments.
- Built-in pull-down sink current.
- Rated at 55V/30mA

### Specifications

#### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC}$ max		-0.3 to +55.0	V
	$V_{DD}$ max	$V_{DD} \leq V_{CC} - 2.0\text{V}$	-0.3 to +10.0	V
Output supply voltage	$V_{OUT}$ max		-0.3 to $V_{CC}$	V
Input supply voltage	$V_{IN}$ max	$V_{IN} \geq 0$	$V_{CC} - 10$ to $V_{DD}$	V
Maximum output current	$I_{OUT}$ max		30	mA
Allowable power dissipation	$P_d$ max		1.13	mW
Operating temperature	$T_{opr}$		-20 to +75	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-40 to +150	$^\circ\text{C}$

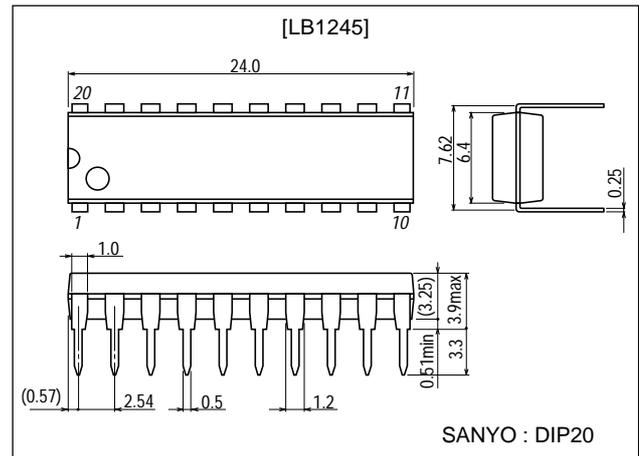
#### Allowable Operating Ranges at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	$V_{CC}$		5.5 to 55	V
	$V_{DD}$	$V_{DD} \leq V_{CC} - 2.0\text{V}$	3.5 to 10	V
Input ON level voltage	$V_{ION}$	$V_{IN} \geq 0$ , $I_{OUT} = -30\text{mA}$	$V_{DD} - 10$ to $V_{DD} - 3.2$	V
Input OFF level voltage	$V_{IOFF}$	$I_{OUT} \geq -30\mu\text{A}$	$V_{DD} - 0.4$ to $V_{DD}$	V

### Package Dimensions

unit:mm

3021C-DIP20



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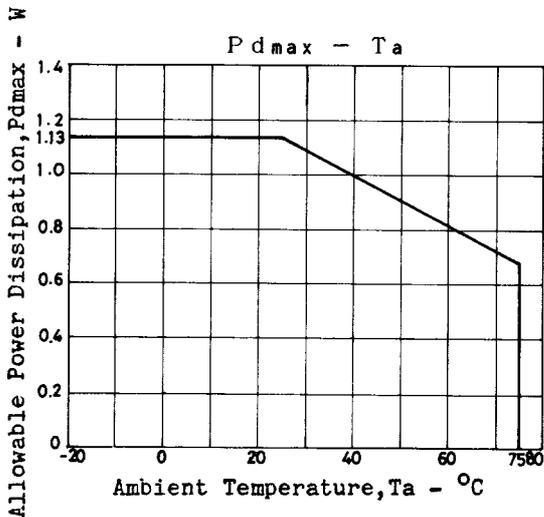
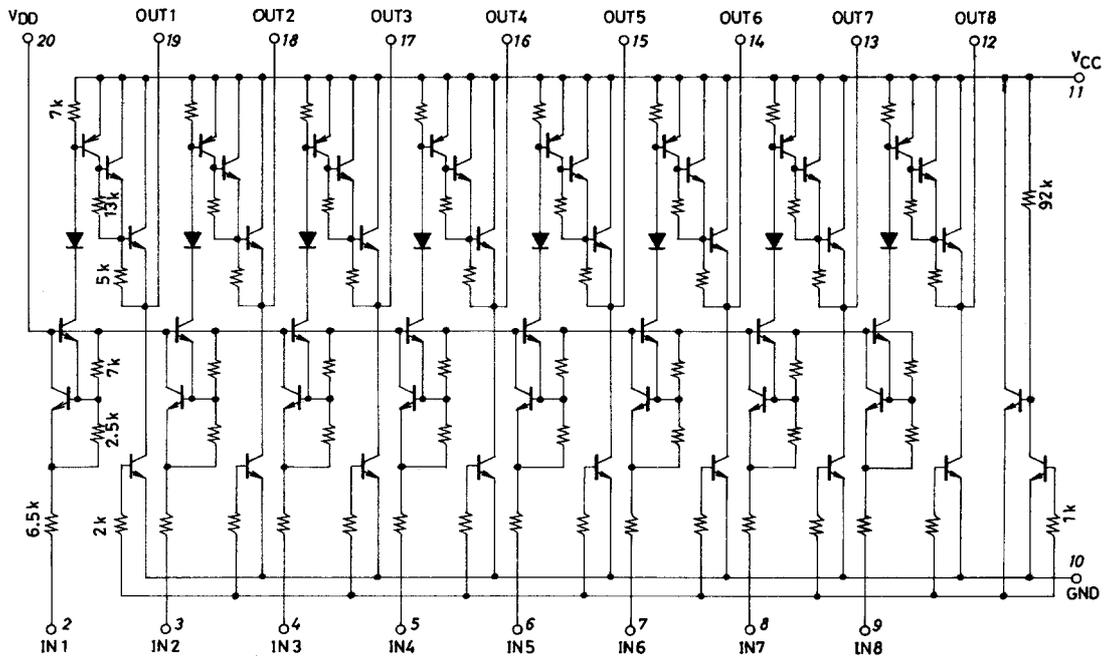
# LB1245

**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$ ,  $V_{CC}=55\text{V}$ ,  $V_{DD}=5.0\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	$I_{CCL}$	All inputs : open			2.0	mA
	$I_{CCH}$	All inputs : $V_{IN}=V_{DD}-5\text{V}$			14	mA
	$I_{DDH}$	All inputs : $V_{IN}=V_{DD}-5\text{V}$			6.5	mA
Output voltage	$V_{OL}$	$V_{IN}=V_{DD}-0.4\text{V}$ , $I_{OUT}=0\text{mA}$			200	mV
	$V_{OH}$	$V_{IN}=V_{DD}-5\text{V}$ , $I_{OUT}=-30\text{mA}$	$V_{CC}-2$			V
Pull-down current	$I_{OPL}$	$V_{OUT}=V_{CC}$	0.2	0.4	1.0	mA
Input current	$I_{IN1}$	$V_{IN}=V_{DD}-5\text{V}$	-0.8			mA
	$I_{IN2}$	$V_{DD}=10\text{V}$ , $V_{IN}=V_{DD}-10\text{V}$	-1.9			mA
Output leakage current	$I_{OL}$	$V_{IN}=V_{DD}-0.4\text{V}$ , $V_{OUT}=0.5\text{V}$	-30			$\mu\text{A}$

## Equivalent Circuit

Unit (resistance:  $\Omega$ )



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