



LB1710

Low-Active, 7-Unit, Darlington Transistor Array

Applications

- Relay drivers, printer drivers, lamp drivers.

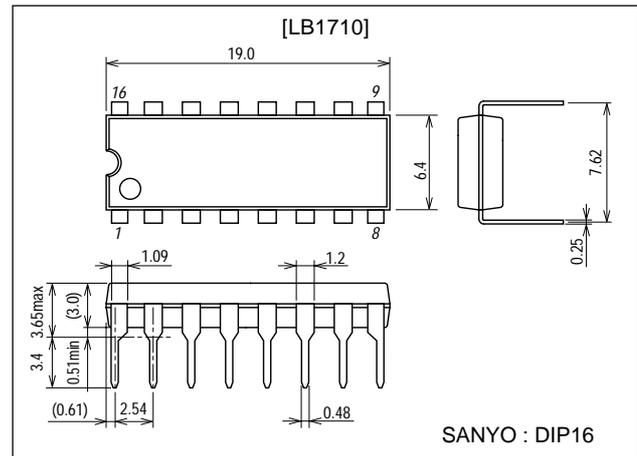
Features

- Input : Low-active type, Output : Sink type
- High breakdown voltage $V_{CEO}=50V$.
- High-current drive $I_C \text{ max}=400mA$.
- On-chip input diodes.

Package Dimensions

unit:mm

3006C-DIP16



Specifications

Absolute Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC \text{ max}}$		10	V
Collector-to-emitter voltage	V_{CEO}		50	V
Collector current	I_C	Per unit	400	mA
Input voltage	V_{IN}		10	V
Allowable power dissipation	$P_d \text{ max}$		1.5	W
Operating temperature	T_{opr}		-20 to +75	$^\circ C$
Storage temperature	T_{stg}		-55 to +150	$^\circ C$

Allowable Operating Ranges at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply voltage	V_{CC}		4	5	8	V
Collector current	I_C	$V_{CC}=5V, \text{Duty} \leq 25\%$			400	mA
(per unit)		$V_{CC}=5V, \text{Duty} \leq 100\%$			140	mA
Input high-level voltage	V_{INH}	$I_C(\text{LEAK})=50\mu A$	$V_{CC}-0.5$		V_{CC}	V
Input low-level voltage	V_{INL}	$I_C=0.35A$	0		$V_{CC}-3.5$	V

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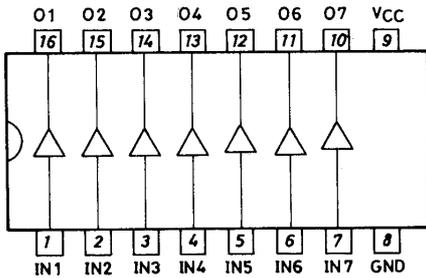
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LB1710

Electrical Characteristics at $T_a = 25^\circ\text{C}$

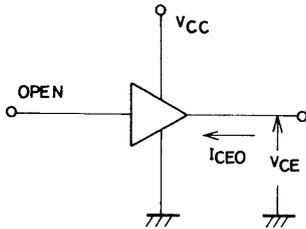
Parameter	Symbol	Conditions	Test Circuit	Ratings			Unit
				min	typ	max	
Collector-to-emitter cutoff current	I_{CEO}	$I_{IN}=0\text{A}$, $V_{CC}=5\text{V}$, $V_{CE}=50\text{V}$	1			100	μA
Collector-to-emitter saturation voltage	$V_{CE(sat)1}$	$V_{IN}=2\text{V}$, $V_{CC}=5\text{V}$, $I_C=0.35\text{A}$	2		1.2	2.0	V
Collector-to-emitter saturation voltage	$V_{CE(sat)2}$	$V_{IN}=2\text{V}$, $V_{CC}=5\text{V}$, $I_C=0.2\text{A}$	2		1.0	1.6	V
Input current (ON-state)	$I_{IN(ON)}$	$V_{IN}=1.5\text{V}$, $V_{CC}=5\text{V}$	3			-0.58	mA
Input current (OFF-state)	$I_{IN(OFF)}$	$V_{IN}=10\text{V}$ (7ch), $V_{CC}=0\text{V}$	4			100	μA
Input voltage	$V_{IN(ON)}$	$V_{CC}=5\text{V}$, $I_C=0.35\text{A}$	5	0		1.5	V
Current drain (ON-state)	$I_{CC(ON)}$	$V_{IN}=1.5\text{A}$, $V_{CC}=5\text{V}$	6			3	mA
Current drain (OFF-state)	$I_{CC(OFF)}$	$I_{IN}=0\text{A}$ (7ch), $V_{CC}=5\text{V}$	6			100	μA

Pin Assignment and Equivalent Circuit Block Diagram

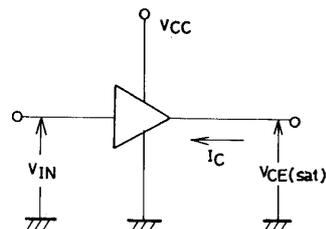


Test Circuits

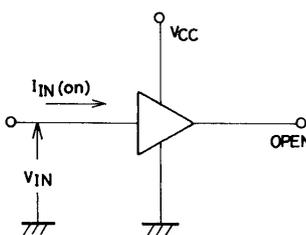
Test Circuit 1



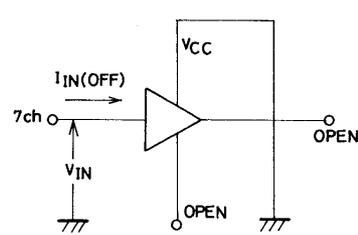
Test Circuit 2



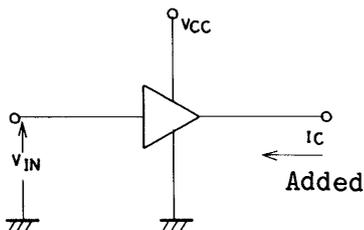
Test Circuit 3



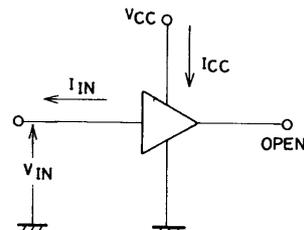
Test Circuit 4



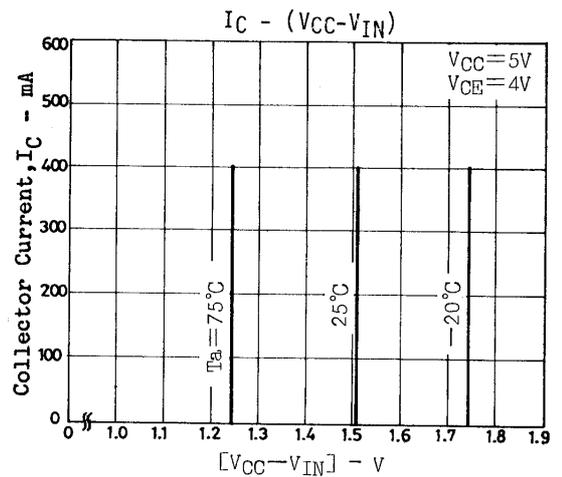
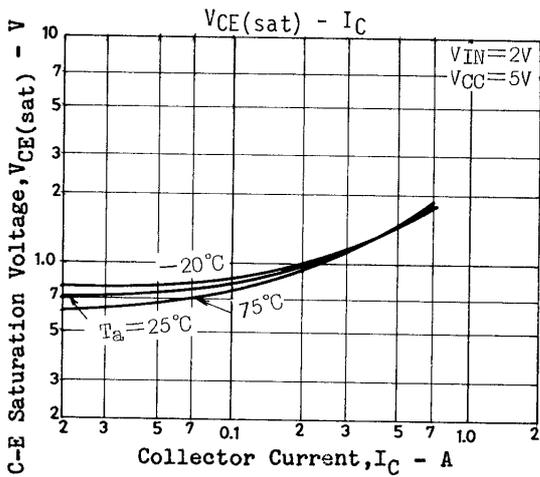
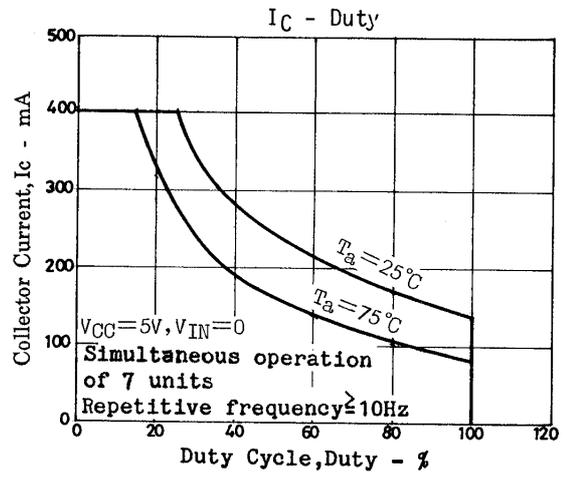
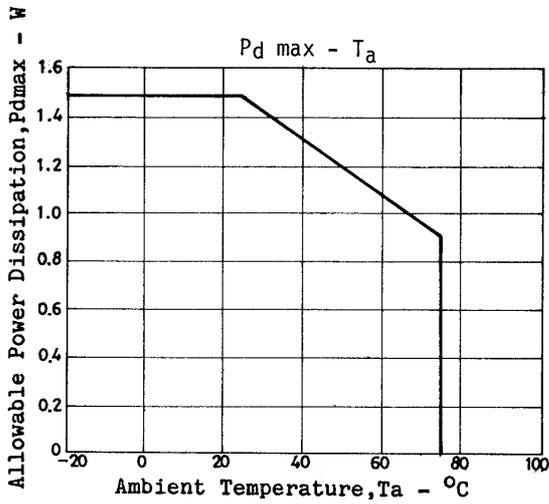
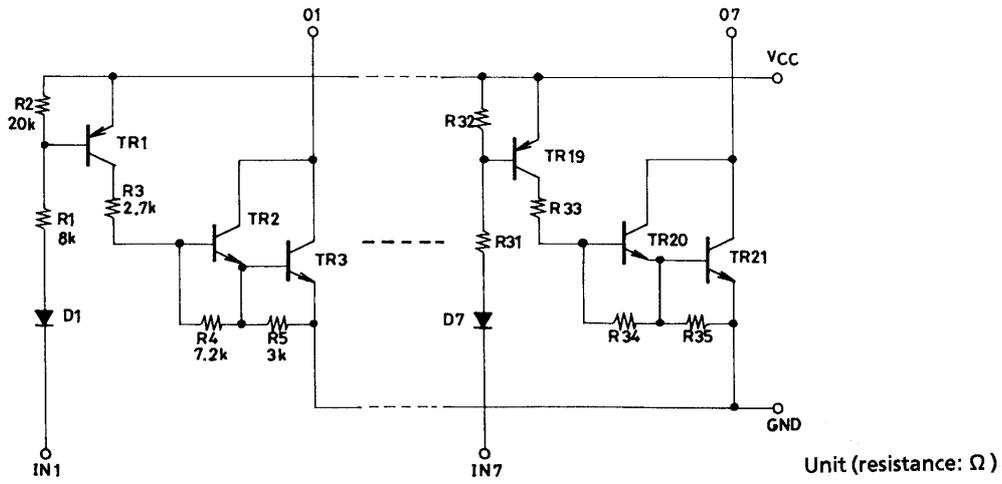
Test Circuit 5



Test Circuit 6



Equivalent Circuit



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