



6-Unit, Darlington Transistor Array

Overview

Circuit structure of this IC is a 6-unit Darlington transistor array with NPN transistors. The IC is ideal for driving printers, relays, and lamps. Protective diodes guard against negative inputs. Thus it has advantages when designing circuits to drive printer-calculators that use display tubes, cash registers, and the like.

Features

- Ideal for 18-digit printers (because it has 6 units).
- Protective diodes are incorporated against negative inputs ($V_{IN} = -40$ to $+20V$).
- Ideal for printers, with 85-mA load current ($I_{OUT\ max} = 100mA$ DC).
- Spark-killer diodes accommodate L-loads.

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Output supply voltage	V_{OUT}		-0.3 to +22	V
Input supply voltage	V_{IN}		-40 to +20	V
Pin-8 supply voltage	V_8		-0.3 to +20	V
Output inflow current	I_{OUT}	Per unit	0 to 100	mA
Instantaneous output inflow current	I_{OP}	Per unit : duty \leq 10%, pulse width $<$ 20ms	0 to 150	mA
Spark killer diode forward current	$I_{F(s)}$	Per diode : duty \leq 10%, pulse width $<$ 20ms	0 to 150	mA
GND-pin outflow current	I_7		-700 to 0	mA
Pin-8 instantaneous outflow current	I_{8p}	duty \leq 10%, pulse width $<$ 20ms	-500 to 0	mA
Allowable power dissipation	$P_d\ max$		1.15	W
Junction temperature	T_j		125	$^{\circ}C$
Operating temperature	T_{opr}		-20 to +80	$^{\circ}C$
Storage temperature	T_{stg}		-40 to +125	$^{\circ}C$

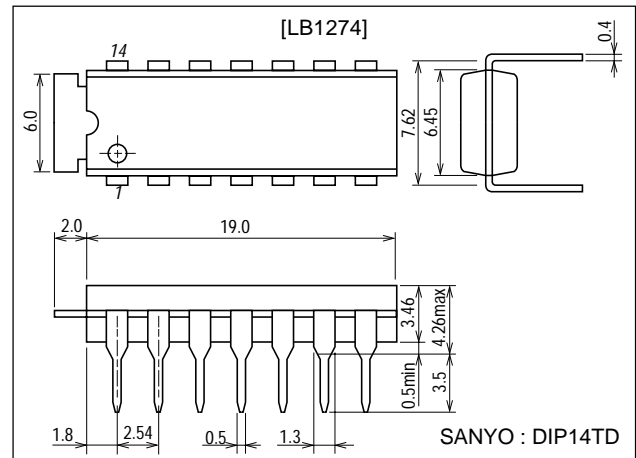
Allowable Operating Ranges at $T_a = 25^{\circ}C$, $pin7=0V$

Parameter	Symbol	Conditions	Ratings	Unit
Output supply voltage	V_{OUT}		22	V or less
Input high-level voltage	V_{IH}	output terminal current=100mA	9 to 20	V
Input low-level voltage	V_{IL}	output terminal current=100 μ A	-35 to +1	V
Load inductance	L_L	Protective diodes employed	100	mH or less

Package Dimensions

unit:mm

3004A-DIP14TD



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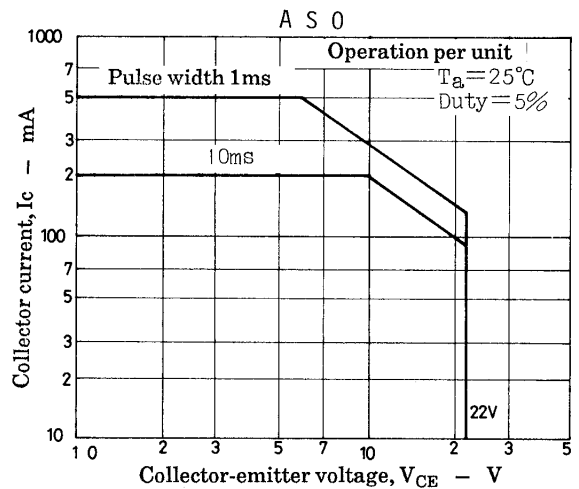
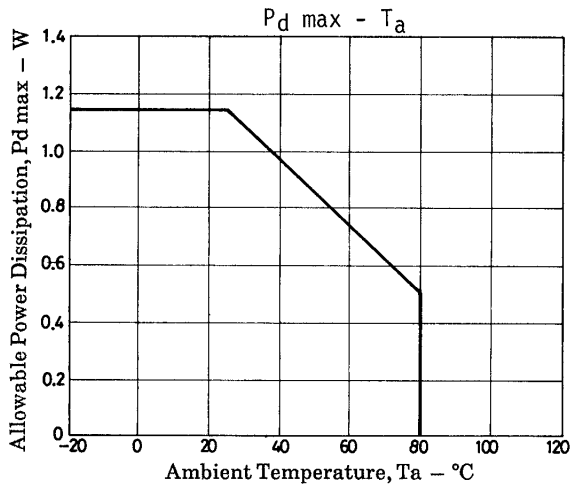
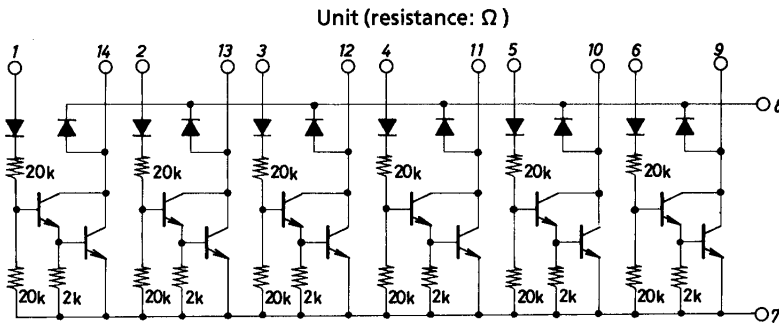
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Electrical Characteristics at $T_a = 25^\circ\text{C}$, pin7=0V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output voltage	V_{OUT1}	$V_{IN}=9.0\text{V}$, $I_{OUT}=150\text{mA}$			1.7	V
	V_{OUT2}	$V_{IN}=9.0\text{V}$, $I_{OUT}=100\text{mA}$			1.4	V
Output sustaining voltage	$V_{OUT(s)}$	$V_{IN}=\text{open}$, $I_{OUT}=150\text{mA}$, applied time $<10\mu\text{s}$	22			V
Output leakage current	I_{off}	$V_{IN}=1.0\text{V}$, $V_{OUT}=22\text{V}$			100	μA
Input current	I_{IN1}	$V_{IN}=18\text{V}$			1.8	mA
	I_{IN2}	$V_{IN}=9.0\text{V}$			0.8	mA
Output current	I_{OUT}	$I_{IN}=0.3\text{mA}$, $V_{OUT}=1.4\text{V}$	100			mA
Input leakage current	I_{leak}	$V_{IN}=-35\text{V}$	-10			μA
Spark killer diode leakage current	$I_{leak(s)}$	$V_{OUT}=0\text{V}$, pin8=20V			30	μA
Spark killer diode forward current	$V_F(s)$	$I_F(s)=150\text{mA}$			1.7	V

Equivalent Circuit



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