



# LB1287, 1288

## Darlington Transistor Array

### Overview

These ICs have circuit configuration of 5-unit Darlington transistor array consisting of NPN transistors and are capable of causing small input current to provide large current drive. They can be advantageously incorporated in equipment because the specially designed 14-pin DIP makes such equipment more compact.

### Features

- Large maximum drive current : 400mA
- Large allowable power dissipation : 1.15W
- Wide range of operating supply voltage.  
LB1287 5 to 30V, LB1288 5 to 20V
- Wide range of operating temperature.  
-20 to +80°C
- Large current-amplification factor : 2000 or more

### Applications

- Various types of driver (relay, solenoid, motor, etc.).
- Display segment or digit driver (LED, lamp).
- Interface to MOS or bipolar logic IC.
- Power amplification of pulse (fan-out extension, etc.).

### Specifications

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

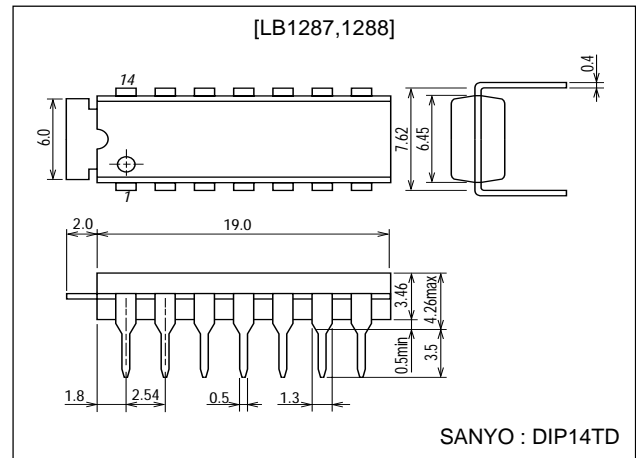
Parameter	Symbol	Conditions	Ratings	Unit
Collector-base voltage	$V_{CBO}$	LB1287	30	V
		LB1288	20	V
Collector-emitter voltage	$V_{CEO}^*$	LB1287	-0.7 to +30	V
		LB1288	-0.7 to +20	V
Allowable power dissipation	$P_d \text{ max}$		1.15	W
Input voltage	$V_{IN}$	Per unit	-0.7 to +45	V
Collector current	$I_C$	Per unit	500	mA
Junction temperature	$T_J$		125	°C
Operating temperature	$T_{opr}$		-20 to +80	°C
Storage temperature	$T_{stg}$		-40 to +125	°C

\* : The substrate is connected to emitter.

### Package Dimensions

unit:mm

3004A-DIP14TD



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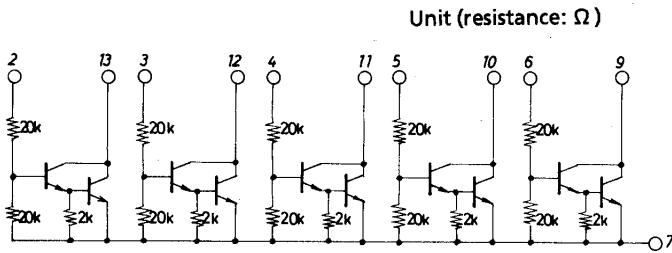
## Allowable Operating Ranges at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V <sub>CC</sub>	LB1287	5 to 30	V
		LB1288	5 to 20	V
Collector current	I <sub>cop1</sub>	Turning ON 5 units simultaneously, Ta=80°C, 20% duty	280	mA
	I <sub>cop2</sub>	Turning ON 5 units simultaneously, Ta=80°C, 50% duty	150	mA
	I <sub>cop3</sub>	Turning ON 5 units simultaneously, Ta=80°C, DC	100	mA

## Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Test circuit	Ratings			Unit
				min	typ	max	
Collector-base voltage	V <sub>CBO</sub>	I <sub>C</sub> =50μA : LB1287	A	30			V
		I <sub>C</sub> =50μA : LB1288	A	20			V
Collector-emitter voltage	V <sub>CEO</sub>	I <sub>C</sub> =100μA : LB1287	B	30			V
		I <sub>C</sub> =100μA : LB1288	B	20			V
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =200mA	C	2000			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	V <sub>in</sub> =12V, I <sub>C</sub> =400mA	D			2.3	V
		V <sub>in</sub> =9.5V, I <sub>C</sub> =300mA	D			1.8	V
		V <sub>in</sub> =7.0V, I <sub>C</sub> =200mA	D			1.4	V
Input current	I <sub>IN</sub>	V <sub>in</sub> =17V	E		0.8		mA

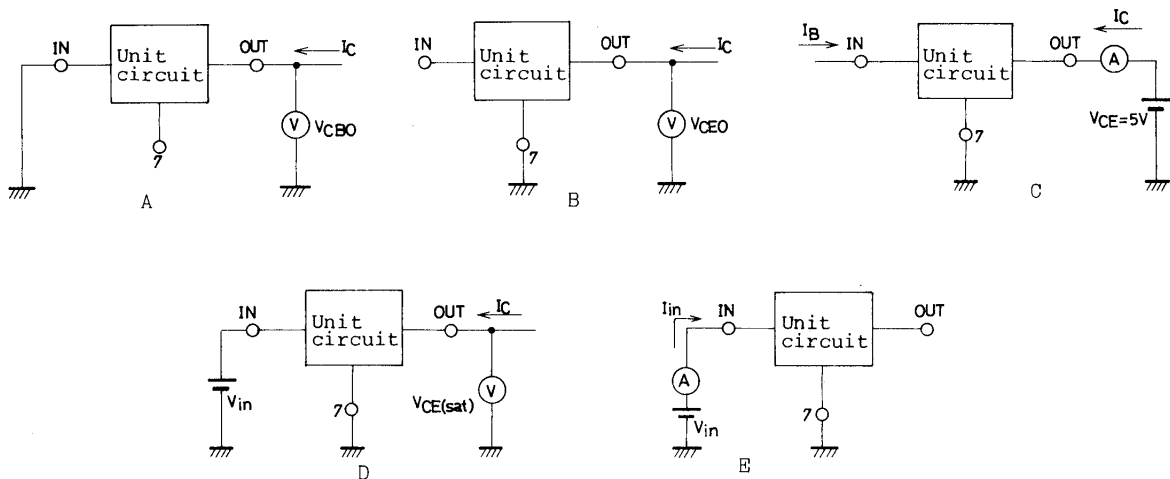
## Equivalent Circuit



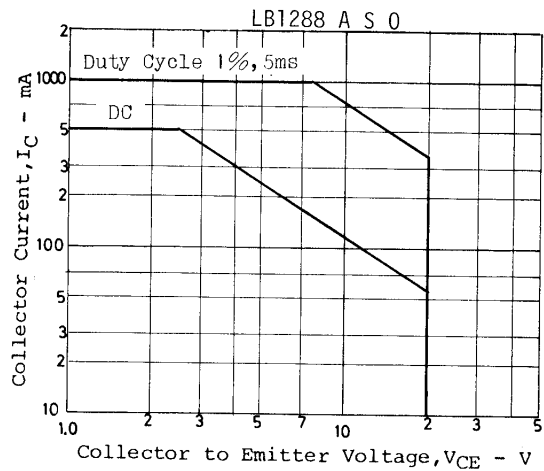
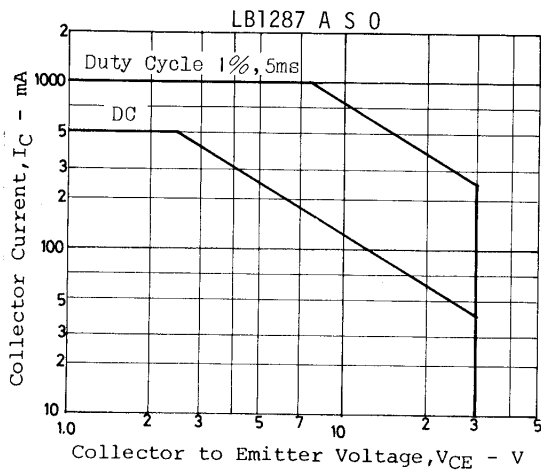
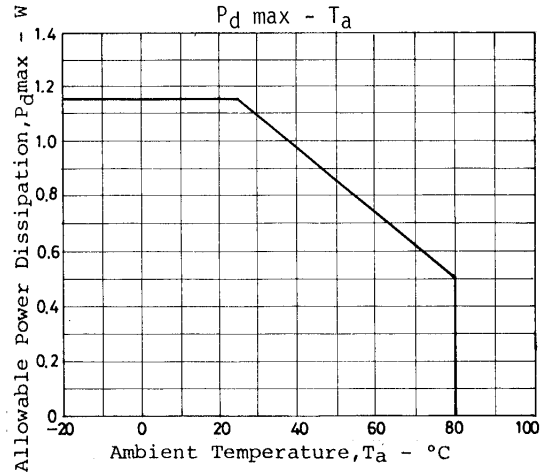
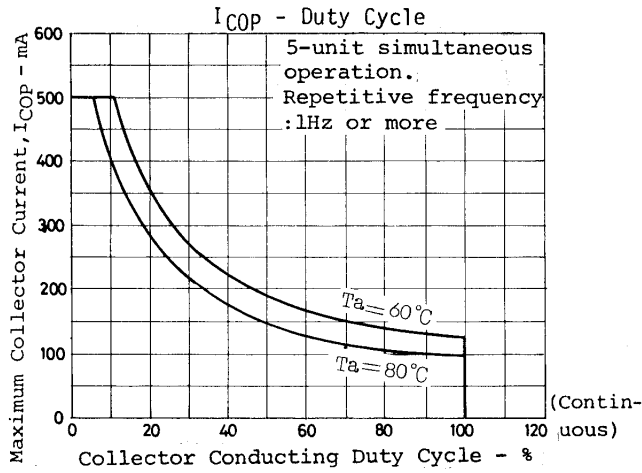
Note 1. pins 1, 8, 14 : NC

Note 2. The substrate is connected to pin 7.

## Test Circuit



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