Monolithic Digital IC



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 $Ta = 25^{\circ}C$

Package Dimensions

unit:mm



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	Pd max		1.15	W
Input voltage	VIN	Per unit	-0.7 to +45	V
Collector current	ΙC	Per unit	500	mA
Junction temperature	Tj		125	°C
Operating temperature	Topr		-20 to +80	°C
Storage temperature	Tstg		-40 to +125	°C

* : The substrate is connected to emitter.

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Allowable Operating Ranges at $Ta = 25^{\circ}C$

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

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

Parameter	Symbol	Conditions	Test circuit	Ratings			Linit
				min	typ	max	
Collector-base voltage	V _{CBO}	I _C =50μA : LB1287	A	30			V
		I _C =50µA : LB1288	A	20			V
Collector-emitter voltage	V _{CEO}	I _C =100μA : LB1287	В	30			V
		I _C =100µA : LB1288	В	20			V
DC current gain	hFE	V _{CE} =5V, I _C =200mA	С	2000			
Collector-emitter saturation voltage	VCE(sat)	V _{in} =12V, I _{C=} 400mA	D			2.3	V
		V _{in} =9.5V, I _{C=} 300mA	D			1.8	V
		V _{in} =7.0V, I _{C=} 200mA	D			1.4	V
Input current	IIN	V _{in} =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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