LINEAR SYSTEMS

LS301
MONOLITHIC DUAL
NPN TRANSISTOR

micross

Linear Systems High Voltage Super-Beta Monolithic Dual NPN

The LS301 is a monolithic pair of high voltage Super-Beta NPN transistors mounted in a single P-DIP package. The monolithic dual chip design reduces parasitics and gives better performance while ensuring extremely tight matching.

The 8 Pin P-DIP provides ease of manufacturing, and the symmetrical pinout prevents improper orientation.

(See Packaging Information).

LS301 Features:

- Very high gain
- Tight matching
- Low Output Capacitance

FEATURES	
HIGH GAIN	$h_{FE} \geq 2000$ @ 1µA TYP.
LOW OUTPUT CAPACITANCE	$C_{OBO} \leq 2.0$pF
TIGHT V_{BE} MATCHING	$\lvert V_{BE1} - V_{BE2} \rvert = 0.2$mV TYP.
HIGH f_t	100MHz

ABSOLUTE MAXIMUM RATINGS [1]
@ 25°C (unless otherwise noted)

Maximum Temperatures	
Storage Temperature	-65°C to +200°C
Operating Junction Temperature	-55°C to +150°C
Maximum Power Dissipation	
Continuous Power Dissipation (One side)	250mW
Continuous Power Dissipation (Both sides)	500mW
Linear Derating factor (One side)	2.3mW/°C
Linear Derating factor (Both sides)	4.3mW/°C
Maximum Currents	
Collector Current	5mA

MATCHING CHARACTERISTICS @ 25°C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$\lvert V_{BE1} - V_{BE2} \rvert$	Base Emitter Voltage Differential	--	0.2	1	mV	$I_C = 10\mu A$, $V_{CE} = 5V$
$\Delta\lvert(V_{BE1} - V_{BE2})\rvert / \Delta T$	Base Emitter Voltage Differential Change with Temperature	--	1	5	µV/°C	$I_C = 10\mu A$, $V_{CE} = 5V$ $T_A = -55°C$ to $+125°C$
$\lvert I_{B1} - I_{B2} \rvert$	Base Current Differential	--	0.5	1	nA	$I_C = 10\mu A$, $V_{CE} = 5V$
h_{FE1}/h_{FE2}	DC Current Gain Differential	--	5	--	%	$I_C = 10\mu A$, $V_{CE} = 5V$

Click To Buy

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV_{CBO}	Collector to Base Voltage	18	--	--	V	$I_C = 10\mu A$, $I_E = 0$
BV_{CEO}	Collector to Emitter Voltage	18	--	--	V	$I_C = 10\mu A$, $I_B = 0$
BV_{EBO}	Emitter-Base Breakdown Voltage	6.2	--	--	V	$I_E = 10\mu A$, $I_C = 0$ [2]
BV_{CCO}	Collector to Collector Voltage	100	--	--	V	$I_C = 10\mu A$, $I_E = 0$
h_{FE}	DC Current Gain	--	2000	--		$I_C = 1\mu A$, $V_{CE} = 5V$
		2000	--	--		$I_C = 10\mu A$, $V_{CE} = 5V$
		--	2000	--		$I_C = 500\mu A$, $V_{CE} = 5V$
$V_{CE}(SAT)$	Collector Saturation Voltage	--	--	0.5	V	$I_C = 1mA$, $I_B = 0.1mA$
I_{EBO}	Emitter Cutoff Current	--	--	0.2	pA	$I_C = 0$, $V_{EB} = 3V$
I_{CBO}	Collector Cutoff Current	--	--	100	pA	$I_E = 0$, $V_{CB} = 10V$
C_{OBO}	Output Capacitance	--	--	2	pF	$I_E = 0$, $V_{EB} = 1V$
C_{C1C2}	Collector to Collector Capacitance	--	--	2	pF	$V_{CC} = 0V$
I_{C1C2}	Collector to Collector Leakage Current	--	--	0.5	nA	$V_{CC} = \pm 80V$
f_T	Current Gain Bandwidth Product	100	--	--	MHz	$I_C = 200\mu A$, $V_{CE} = 5V$
NF	Narrow Band Noise Figure	--	--	3	dB	$I_C = 10\mu A$, $V_{CE} = 3V$, BW=200Hz, $R_G = 10K\Omega$, f = 1KHz

Notes:
1. Absolute Maximum ratings are limiting values above which serviceability may be impaired
2. The reverse base-to-emitter voltage must never exceed 6.2 volts; the reverse base-to-emitter current must never exceed 10µA.

micross

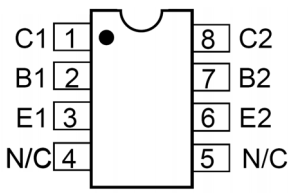
Available Packages:

LS301 in P-DIP
LS301 available as bare die

Please contact Micross for full package and die dimensions:

Email: chipcomponents@micross.com
Web: www.micross.com/distribution.aspx

P-DIP (Top View)



Information furnished by Linear Integrated Systems and Micross Components is believed to be accurate and reliable. However, no responsibility is assumed for its use; nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Linear Integrated Systems.