LINEAR SYSTEMS

LS124
MONOLITHIC DUAL NPN TRANSISTOR

micross

Linear Systems replaces discontinued Intersil IT124

The LS124 is a monolithic pair of 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 LS124 is a direct replacement for discontinued Intersil IT124.

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

(See Packaging Information).

LS124 Features:

- Very high gain
- Tight matching
- Low Output Capacitance

FEATURES	
Direct Replacement for INTERSIL LS124	
HIGH GAIN	h_{FE} ≥ 1500 @ 1 AND 10µA
LOW OUTPUT CAPACITANCE	≤ 2.0pF
V_{BE} tracking	≤ 5.0µV°C

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	10mA

MATCHING CHARACTERISTICS @ 25°C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$\|V_{BE1} - V_{BE2}\|$	Base Emitter Voltage Differential	--	2	5	mV	I_C = 10µA, V_{CE} = 1V
$\Delta\|(V_{BE1} - V_{BE2})\| / \Delta T$	Base Emitter Voltage Differential Change with Temperature	--	5	15	µV/°C	I_C = 10µA, V_{CE} = 1V T_A = -55°C to +125°C
$\|I_{B1} - I_{B2}\|$	Base Current Differential	--	--	0.6	nA	I_C = 10µA, V_{CE} = 1V

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV_{CBO}	Collector to Base Voltage	2	--	--	V	I_C = 10µA, I_E = 0
BV_{CEO}	Collector to Emitter Voltage	2	--	--	V	I_C = 10µA, I_B = 0
BV_{EBO}	Emitter-Base Breakdown Voltage	6.2	--	--	V	I_E = 10µA, I_C = 0 [2]
BV_{CCO}	Collector to Collector Voltage	100	--	--	V	I_C = 10µA, I_E = 0
h_{FE}	DC Current Gain	1500	--	--		I_C = 1µA, V_{CE} = 1V
		1500	--	--		I_C = 10µA, V_{CE} = 1V
V_{CE}(SAT)	Collector Saturation Voltage	--	--	0.5	V	I_C = 1mA, I_B = 0.1mA
I_{EBO}	Emitter Cutoff Current	--	--	100	pA	I_C = 0, V_{EB} = 3V
I_{CBO}	Collector Cutoff Current	--	--	100	pA	I_E = 0, V_{CB} = 1V
C_{OBO}	Output Capacitance	--	--	2	pF	I_E = 0, V_{CB} = 1V
C_{C1C2}	Collector to Collector Capacitance	--	--	2	pF	V_{CC} = 0V
I_{C1C2}	Collector to Collector Leakage Current	--	--	10	nA	V_{CC} = ±50V
f_T	Current Gain Bandwidth Product	100	--	--	MHz	I_C = 100µA, V_{CE} = 1V
NF	Narrow Band Noise Figure	--	--	3	dB	I_C = 10µA, V_{CE} = 3V, BW=200Hz, R_G= 10KΩ, 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.

Available Packages:

LS124 in P-DIP
LS124 available as bare die

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Please contact Micross for full package and die dimensions:

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

P-DIP (Top View)