

Linear Systems replaces discontinued Intersil IT124

The IT124 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 IT124 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).

IT124 Features:

- Very high gain
- Tight matching
- Low Output Capacitance

FEATURES

Direct Replacement for INTERSIL IT124

HIGH GAIN $h_{FE} \geq 1500 @ 1 \text{ AND } 10\mu\text{A}$

LOW OUTPUT CAPACITANCE $\leq 2.0\text{pF}$

V_{BE} tracking $\leq 5.0\text{mV}/^\circ\text{C}$

ABSOLUTE MAXIMUM RATINGS¹
@ 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 | $I_C = 10\mu\text{A}, V_{CE} = 1\text{V}$ |
| $\Delta (V_{BE1} - V_{BE2}) / \Delta T$ | Base Emitter Voltage Differential Change with Temperature | -- | 5 | 15 | $\mu\text{V}/^\circ\text{C}$ | $I_C = 10\mu\text{A}, V_{CE} = 1\text{V}$ $T_A = -55^\circ\text{C to } +125^\circ\text{C}$ |
| $ I_{B1} - I_{B2} $ | Base Current Differential | -- | -- | 0.6 | nA | $I_C = 10\mu\text{A}, V_{CE} = 1\text{V}$ |

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

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

Notes:

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

Available Packages:

IT124 in P-DIP
IT124 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)

