

# LINEAR SYSTEMS

*Linear Integrated Systems*

## IT124

### SUPER-BETA MONOLITHIC DUAL NPN TRANSISTORS

#### FEATURES

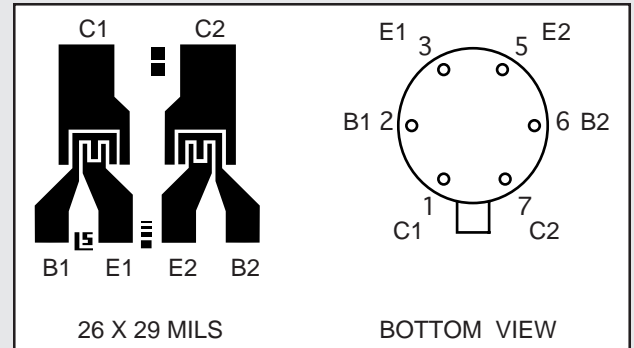
Direct Replacement for Intersil IT124

Pin for Pin Compatible

#### ABSOLUTE MAXIMUM RATINGS NOTE 1

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

$I_C$	Collector-Current	10mA
<b>Maximum Temperatures</b>		
Storage Temperature Range		$-65^\circ\text{C}$ to $+200^\circ\text{C}$
Operating Junction Temperature		$+150^\circ\text{C}$
<b>Maximum Power Dissipation</b>		<b>ONE SIDE      BOTH SIDES</b>
Device Dissipation @ Free Air		250mW      500mW
Linear Derating Factor		2.3mW/ $^\circ\text{C}$ 4.3mW/ $^\circ\text{C}$



#### ELECTRICAL CHARACTERISTICS @ $25^\circ\text{C}$ (unless otherwise noted)

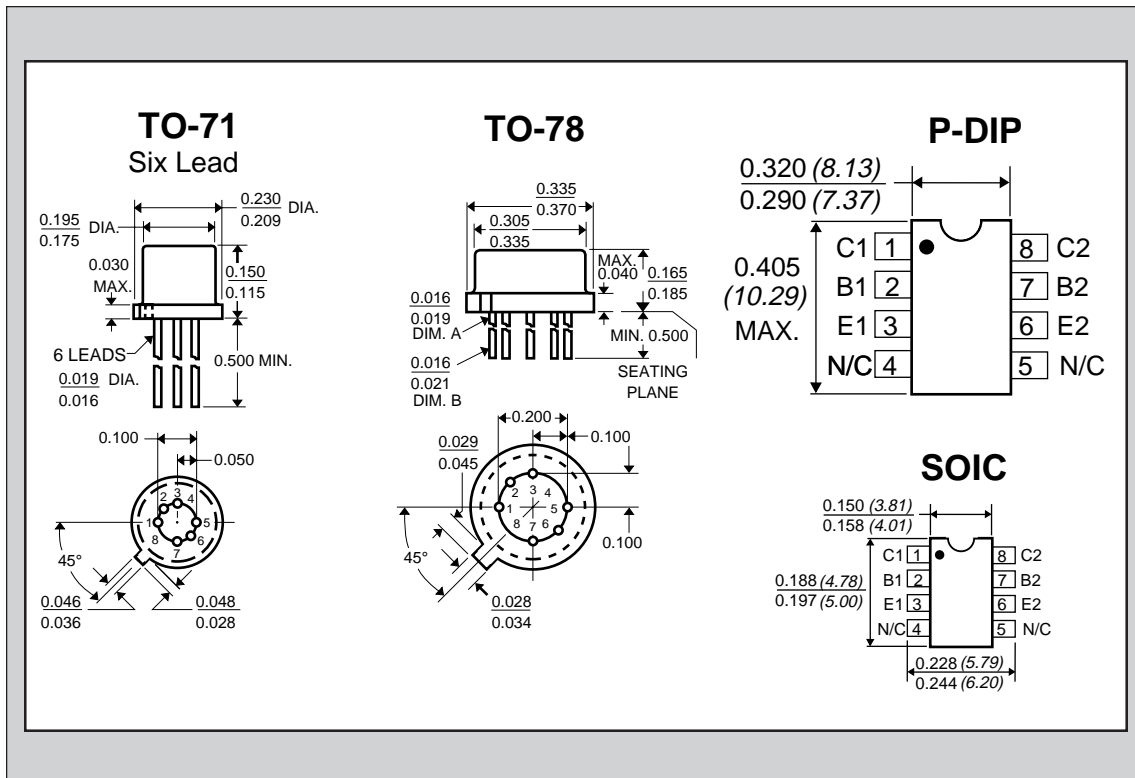
SYMBOL	CHARACTERISTICS	IT124		UNITS	CONDITIONS
$BV_{CBO}$	Collector-Base Breakdown Voltage	2	MIN.	V	$I_C = 10\mu\text{A}$ $I_E = 0$
$BV_{CEO}$	Collector to Emitter Voltage	2	MIN.	V	$I_C = 10\mu\text{A}$ $I_B = 0$
$BV_{EBO}$	Emitter-Base Breakdown Voltage	6.2	MIN.	V	$I_E = 10\mu\text{A}$ $I_C = 0$ <b>NOTE 2</b>
$BV_{CCO}$	Collector to Collector Voltage	100	MIN.	V	$I_C = 10\mu\text{A}$ $I_E = 0$
$h_{FE}$	DC Current Gain	1500	MIN.		$I_C = 1\mu\text{A}$ $V_{CE} = 1\text{V}$
$h_{FE}$	DC Current Gain	1500	MIN.		$I_C = 10\mu\text{A}$ $V_{CE} = 1\text{V}$
$V_{CE(SAT)}$	Collector Saturation Voltage	0.5	MAX.	V	$I_C = 1\text{mA}$ $I_B = 0.1\text{mA}$
$I_{CBO}$	Collector Cutoff Current	100	MAX.	pA	$I_E = 0$ $V_{CB} = 1\text{V}$
$I_{EBO}$	Emitter Cutoff Current	100	MAX.	pA	$I_C = 0$ $V_{EB} = 3\text{V}$
$C_{OBO}$	Output Capacitance	2	MAX.	pF	$I_E = 0$ $V_{CB} = 1\text{V}$
$C_{C1C2}$	Collector to Collector Capacitance	2	MAX.	pF	$V_{CC} = 0$
$I_{C1C2}$	Collector to Collector Leakage Current	250	MAX.	pA	$V_{CC} = \pm 50\text{V}$
$f_T$	Current Gain Bandwidth Product	100	MIN.	MHz	$I_C = 100\mu\text{A}$ $V_{CE} = 1\text{V}$
NF	Narrow Band Noise Figure	3	MAX.	dB	$I_C = 10\mu\text{A}$ $V_{CE} = 3\text{V}$ $R_G = 10\text{K}\Omega$ $f = 1\text{KHz}$ $BW = 200\text{Hz}$

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**MATCHING CHARACTERISTICS @ 25°C** (unless otherwise noted)

SYMBOL	CHARACTERISTICS	IT124		UNITS	CONDITIONS
$ V_{BE1} - V_{BE2} $	Base Emitter Voltage Differential	2 5	TYP. MAX.	mV mV	$I_C = 10 \mu A$ $V_{CE} = 1V$
$\Delta(V_{BE1} - V_{BE2})/\Delta T$	Base Emitter Voltage Differential Change with Temperature	5 15	TYP. MAX.	$\mu V/^{\circ}C$ $\mu V/^{\circ}C$	$I_C = 10 \mu A$ $V_{CE} = 1V$ $T = -55^{\circ}C$ to $+125^{\circ}C$
$ I_{B1} - I_{B2} $	Base Current Differential	0.6	MAX.	nA	$I_C = 10 \mu A$ $V_{CE} = 1V$



**NOTES:**

1. These ratings are limiting values above which the serviceability of any semiconductor 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 10  $\mu A$ .