

LINEAR SYSTEMS

Improved Standard Products®

IT124 SUPER-BETA MONOLITHIC DUAL NPN TRANSISTOR

FEATURES

Direct Replacement for Intersil IT124
Pin for Pin Compatible

ABSOLUTE MAXIMUM RATINGS NOTE 1 (T_A = 25°C unless otherwise noted)

I_C Collector-Current 10mA

Maximum Temperatures

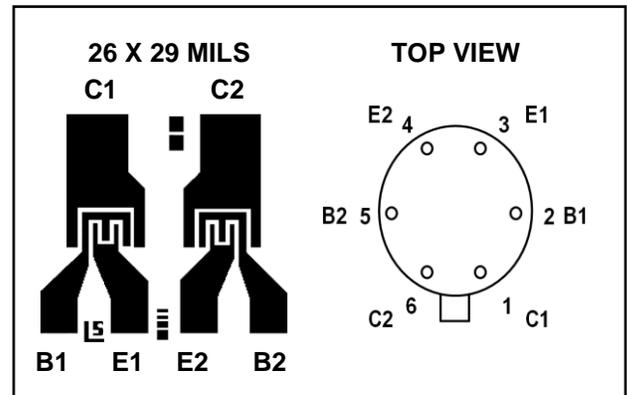
Storage Temperature Range -65°C to +150°C

Operating Junction Temperature -55°C to +150°C

Maximum Power Dissipation ONE SIDE BOTH SIDES

Device Dissipation T_A=25°C 250mW 500mW

Linear Derating Factor 2.3mW/°C 4.3W/°C

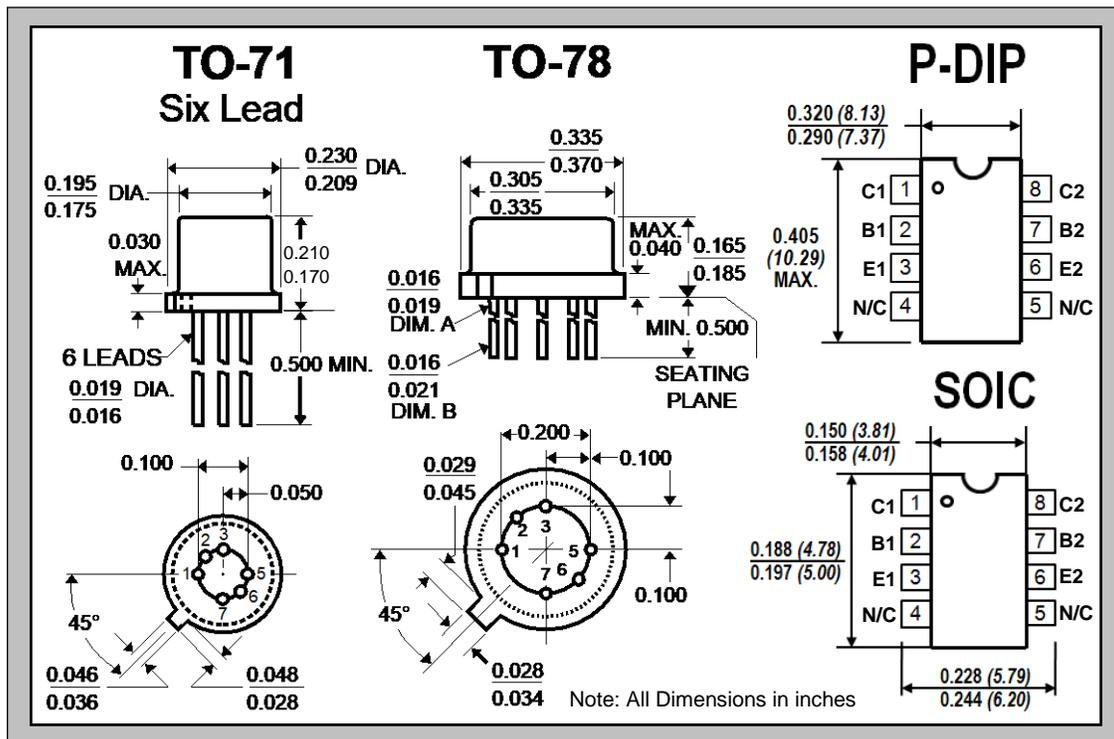


ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	IT124		UNITS	CONDITIONS
BV _{CB0}	Collector-Base Breakdown Voltage	2	MIN.	V	I _C = 10μA I _E = 0A
BV _{CE0}	Collector to Emitter Voltage	2	MIN.	V	I _C = 10μA I _B = 0A
BV _{EB0}	Emitter-Base Breakdown Voltage	6.2	MIN.	V	I _E = 10μA I _C = 0A NOTE 2
BV _{CC0}	Collector to Collector Voltage	50	MIN.	V	I _{CC0} = 10μA I _B = I _E = 0A
h _{FE}	DC Current Gain	1500	MIN.		I _C = 1μA V _{CE} = 1V
h _{FE}	DC Current Gain	1500	MIN.		I _C = 10μA V _{CE} = 1V
V _{CE(SAT)}	Collector Saturation Voltage	0.5	MAX.	V	I _C = 1mA I _B = 0.1mA
I _{CB0}	Collector Cutoff Current	100	MAX.	pA	I _E = 0 V _{CB} = 1V
I _{EB0}	Emitter Cutoff Current	100	MAX.	pA	I _C = 0 V _{EB} = 3V
C _{OBO}	Output Capacitance ³	2	MAX.	pF	I _E = 0 V _{CB} = 1V
C _{C1C2}	Collector to Collector Capacitance ³	2	MAX.	pF	V _{CC} = 0
I _{C1C2}	Collector to Collector Leakage Current	±500	MAX.	nA	V _{CC0} = ±50V I _B = I _E = 0A
f _T	Current Gain Bandwidth Product ³	100	MIN.	MHz	I _C = 100μA V _{CE} = 1V
NF	Narrow Band Noise Figure ³	3	MAX.	dB	I _C = 10μA V _{CE} = 3V R _G = 10 KΩ f = 1KHz BW = 200Hz

MATCHING CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	IT124		UNITS	CONDITIONS
$ V_{BE1}-V_{BE2} $	Base Emitter Voltage Differential	2	TYP.	mV	$I_C = 10 \mu A$ $V_{CE} = 1V$
		5	MAX.	mV	
$\Delta V_{BE1}-V_{BE2} / \Delta T$	Base Emitter Voltage Differential Change with Temperature ³	5	TYP.	$\mu V/^\circ C$	$I_C = 10 \mu A$ $V_{CE} = 1V$ $T = -55^\circ C$ to $+125^\circ C$
		15	MAX.	$\mu V/^\circ C$	
$ 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 μA .
3. Not a production test.

Linear Systems, established in 1987, is a third-generation precision semiconductor company providing high-quality discrete components. Expertise brought to Linear Systems is based on processes and products developed at Amelco, Union Carbide, Intersil and Micro Power Systems by company President John H. Hall. Hall, a protégé of Silicon Valley legend Dr. Jean Hoerni, was the director of IC Development at Union Carbide, co-founder and vice president of R&D at Intersil, and founder/president of Micro Power Systems.