LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

IT120A IT120 IT121 IT122

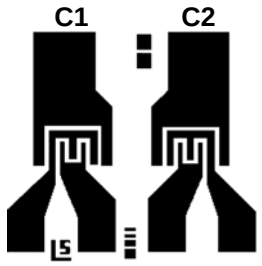
MONOLITHIC DUAL NPN TRANSISTORS

FEATURES
Direct Replacement for Intersil IT120 Series Pin for Pin Compatible

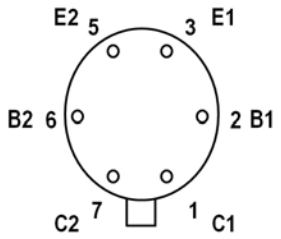
ABSOLUTE MAXIMUM RATINGS NOTE 1
(T_A= 25°C unless otherwise noted)

I_C	Collector-Current	10mA
Maximum Temperatures		
Storage Temperature Range		-65°C to +150°C
Operating Temperature Range		-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



26 X 29 MILS



TOP VIEW

ELECTRICAL CHARACTERISTICS T_A= 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	IT120A	IT120	IT121	IT122		UNITS	CONDITIONS	
BV_{CBO}	Collector to Base Voltage	45	45	45	45	MIN.	V	I_C = 10µA	I_E = 0A
BV_{CEO}	Collector to Emitter Voltage	45	45	45	45	MIN.	V	I_C = 10µA	I_B = 0A
BV_{EBO}	Emitter-Base Breakdown Voltage	6.2	6.2	6.2	6.2	MIN.	V	I_E = 10µA	I_C = 0A **NOTE 2**
BV_{CCO}	Collector to Collector Voltage	60	60	60	60	MIN.	V	I_{CCO} = 10µA	$I_B = I_E$ = 0A
h_{FE}	DC Current Gain	200	200	80	80	MIN.		I_C = 10µA	V_{CE} = 5V
		225	225	100	100	MIN.		I_C = 1.0mA	V_{CE} = 5V
V_{CE}(SAT)	Collector Saturation Voltage	0.5	0.5	0.5	0.5	MAX.	V	I_C = 0.5mA	I_B = 0.05mA
I_{EBO}	Emitter Cutoff Current	1	1	1	1	MAX.	nA	I_C = 0	V_{EB} = 3V
I_{CBO}	Collector Cutoff Current	1	1	1	1	MAX.	nA	I_E = 0	V_{CB} = 45V
C_{OBO}	Output Capacitance[3]	2	2	2	2	MAX.	pF	I_E = 0	V_{CB} = 5V
C_{C1C2}	Collector to Collector Capacitance[3]	2	2	2	2	MAX.	pF	V_{CC} = 0	
I_{C1C2}	Collector to Collector Leakage Current	±500	±500	±500	±500	MAX.	nA	V_{CCO} = ±60V	$I_B = I_E$ = 0A
f_T	Current Gain Bandwidth Product[3]	220	220	180	180	MIN.	MHz	I_C = 1mA	V_{CE} = 5V
NF	Narrow Band Noise Figure[3]	3	3	3	3	MAX.	dB	I_C = 100µA BW = 200Hz, R_G = 10 KΩ f=1KHz	V_{CE} = 5V

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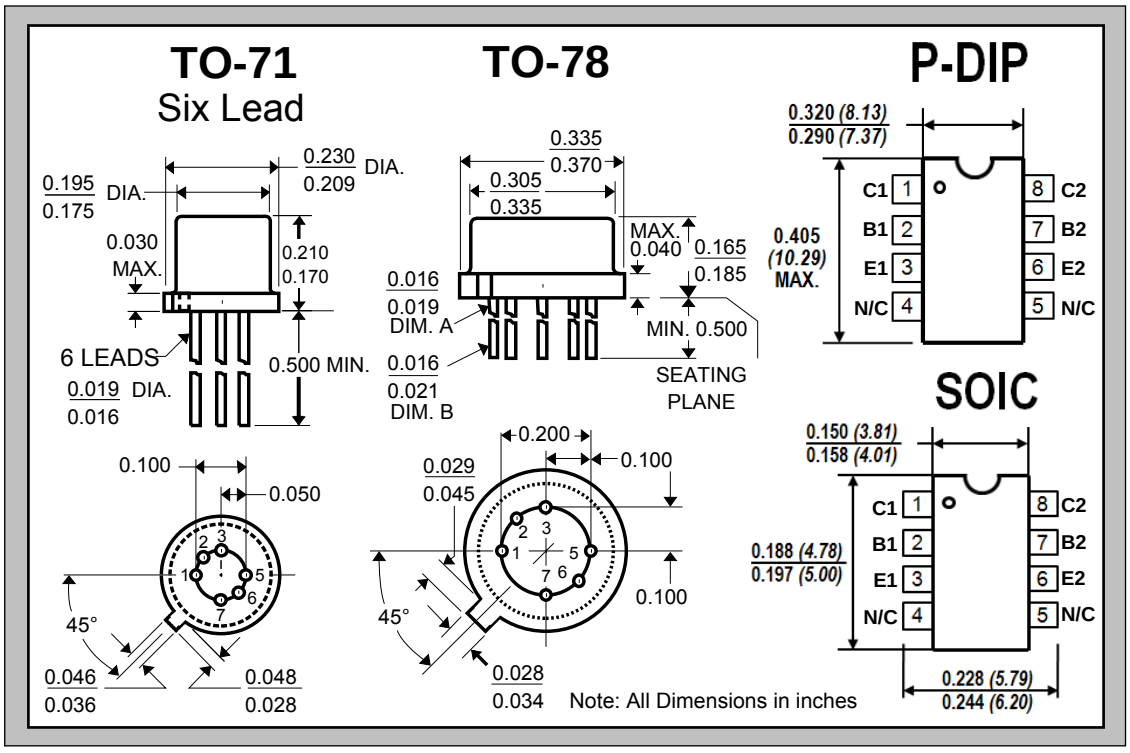
MATCHING CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	IT120A	IT120	IT121	IT122		UNITS	CONDITIONS
$\lvert V_{BE1}-V_{BE2}\rvert$	Base Emitter Voltage Differential	1	2	3	5	MAX.	mV	I_C = 10 µA V_{CE} = 5V
$\Delta\lvert (V_{BE1}-V_{BE2})\rvert/\Delta T$	Base Emitter Voltage Differential Change with Temperature[3]	3	5	10	20	MAX.	µV/°C	I_C = 10 µA V_{CE} = 5V T = -55°C to +125°C
$\lvert I_{B1}-I_{B2}\rvert$	Base Current Differential	2.5	5	25	25	MAX.	nA	I_C = 10 µA V_{CE} = 5V



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 Integrated Systems (LIS) is a 25-year-old, third-generation precision semiconductor company providing high-quality discrete components. Expertise brought to LIS 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.