

# LINEAR SYSTEMS

Linear Integrated Systems

## IT120A IT120 IT121 IT122 MONOLITHIC DUAL NPN TRANSISTORS

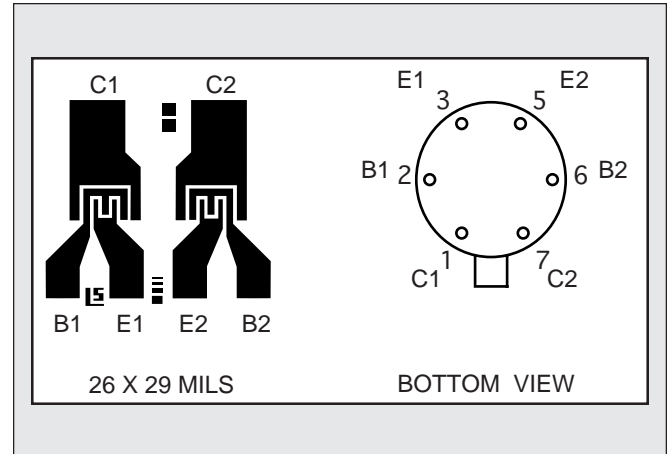
### FEATURES

Direct Replacement for Intersil IT120 Series  
Pin for Pin Compatible

### ABSOLUTE MAXIMUM RATINGS NOTE 1

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

$I_C$	Collector Current	10mA
<b>Maximum Temperatures</b>		
Storage Temperature Range		-65°C to +200°C
Operating Temperature Range		-55°C to +150°C
<b>Maximum Power Dissipation</b>	<b>ONE SIDE</b>	<b>BOTH SIDES</b>
Device Dissipation @ Free Air	250mW	500mW
Linear Derating Factor	2.3mW/°C	4.3mW/°C



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

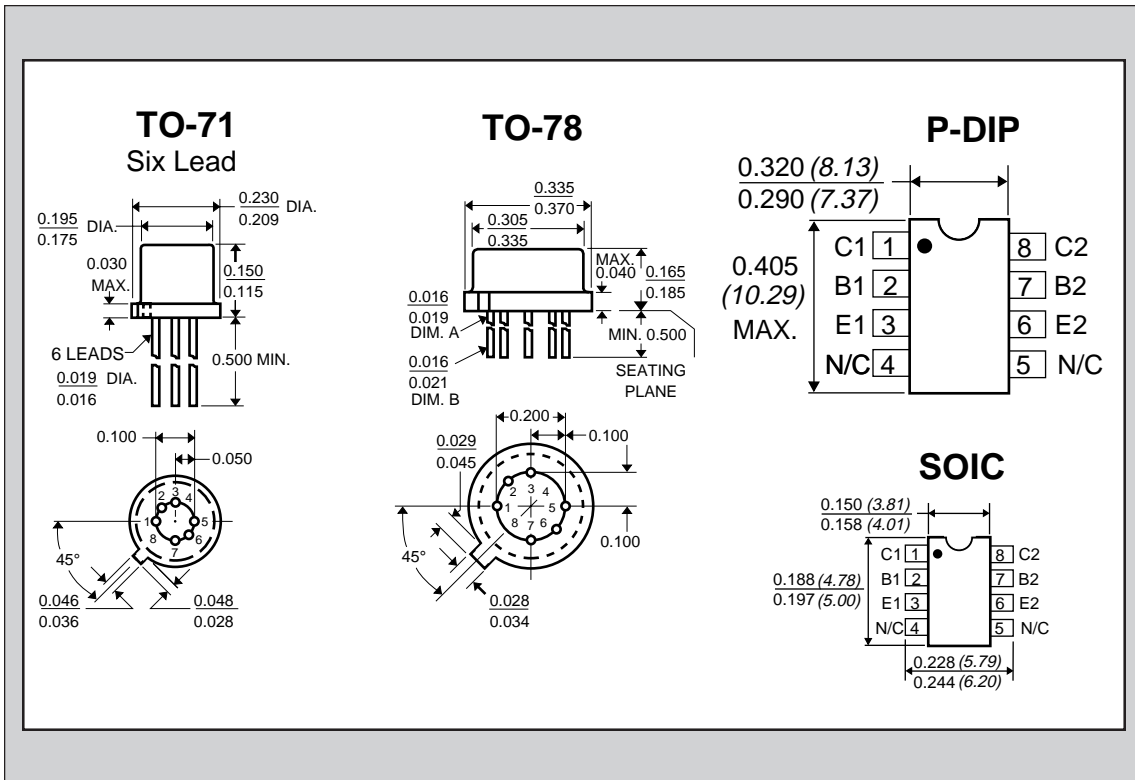
SYMBOL	CHARACTERISTICS	IT120A	IT120	IT121	IT122	UNITS	CONDITIONS
$BV_{CBO}$	Collector to Base Voltage	45	45	45	45	MIN. V	$I_C = 10\mu\text{A}$ $I_E = 0$
$BV_{CEO}$	Collector to Emitter Voltage	45	45	45	45	MIN. V	$I_C = 10\mu\text{A}$ $I_B = 0$
$BV_{EBO}$	Emitter-Base Breakdown Voltage	6.2	6.2	6.2	6.2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

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

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



**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  $\mu A$ .