

## Linear Systems Log Conformance Monolithic Dual NPN

The LS3250A is a monolithic pair of NPN transistors mounted in a single TO-71 package. The monolithic dual chip design reduces parasitics and is ideal for use in tracking applications.

The hermetically sealed TO-71 is well suited for hi-rel and harsh environment applications.

(See Packaging Information).

### LS3250A Features:

- Tight matching
- Low Output Capacitance

### FEATURES

TIGHT MATCHING	$\leq 2\text{mV}$
THERMAL TRACKING	$\leq 3\mu\text{V}/^\circ\text{C}$
<b>ABSOLUTE MAXIMUM RATINGS</b> <sup>1</sup> @ 25°C (unless otherwise noted)	
<b>Maximum Temperatures</b>	
Storage Temperature	-65°C to +150°C
Operating Junction Temperature	-55°C to +150°C
<b>Maximum Power Dissipation</b>	
Continuous Power Dissipation	TBD
<b>Maximum Currents</b>	
Collector Current	50mA
<b>Maximum Voltages</b>	
Collector to Collector Voltage	80V

### MATCHING CHARACTERISTICS @ 25°C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$ V_{BE1} - V_{BE2} $	Base Emitter Voltage Differential	--	--	2	mV	$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$
$\Delta (V_{BE1} - V_{BE2}) /\Delta T$	Base Emitter Voltage Differential Change with Temperature	--	-	3	$\mu\text{V}/^\circ\text{C}$	$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$ $T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$
$ I_{B1} - I_{B2} $	Base Current Differential	--	--	10	nA	$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$
$ \Delta(I_{B1} - I_{B2}) /\Delta T$	Base Current Differential Change with Temperature	--	--	0.5	$\text{nA}/^\circ\text{C}$	$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$ $T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$
$h_{FE1}/h_{FE2}$	DC Current Gain Differential	--	--	10	%	$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$

### ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
$V_{CBO}$	Collector to Base Voltage	45	--	--	V	$I_C = 10\text{mA}, I_E = 0$
$V_{CEO}$	Collector to Emitter Voltage	45	--	--	V	$I_C = 10\mu\text{A}, I_B = 0$
$V_{EBO}$ <sup>2</sup>	Emitter-Base Breakdown Voltage	6.2	--	--	V	$I_E = 10\mu\text{A}, I_C = 0$
$V_{CCO}$	Collector to Collector Voltage	80	--	--	V	$I_C = 10\mu\text{A}, I_E = 0$
$h_{FE}$	DC Current Gain	150	--	--		$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$
		120	--	--		$I_C = 100\mu\text{A}, V_{CE} = 5\text{V}$
		100	--	--		$I_C = 1\text{mA}, V_{CE} = 5\text{V}$
$V_{CE(SAT)}$	Collector Saturation Voltage	--	--	0.25	V	$I_C = 100\text{mA}, I_B = 10\text{mA}$
$I_{EBO}$	Emitter Cutoff Current	--	--	0.2	nA	$I_C = 0\text{A}, V_{CB} = 3\text{V}$
$I_{CBO}$	Collector Cutoff Current	--	--	0.2	nA	$I_E = 0\text{A}, V_{CB} = 20\text{V}$
$C_{OBO}$	Output Capacitance	--	--	2	pF	$I_E = 0\text{A}, V_{CB} = 10\text{V}$
$I_{C1C2}$	Collector to Collector Leakage Current	--	--	1	nA	$V_{CC} = \pm 80\text{V}$
$f_T$	Current Gain Bandwidth Product	--	--	600	MHz	$I_C = 1\text{mA}, V_{CE} = 5\text{V}$
NF	Narrow Band Noise Figure	--	--	3	dB	$I_C = 100\mu\text{A}, V_{CE} = 5\text{V}, \text{BW} = 200\text{Hz}, R_B = 10\Omega, f = 1\text{KHz}$

Notes:

1. Absolute Maximum ratings are limiting values above which serviceability 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 $\mu\text{A}$ .



Available Packages:

LS3250A in TO-71  
LS3250A available as bare die

Please contact Micross for full package and die dimensions:

Email: [chipcomponents@micross.com](mailto:chipcomponents@micross.com)  
Web: [www.micross.com/distribution.aspx](http://www.micross.com/distribution.aspx)

TO-71 (Bottom View)

