Monolithic Dual PNP General Purpose Amplifier

calogic CORPORATION

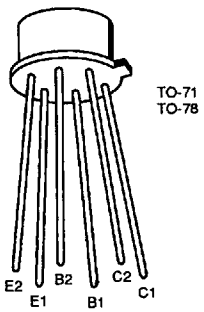
T-27-27

IT130 – IT132

FEATURES

- High h_{FE} at Low Current
- Low Output Capacitance
- Tight I_B Match
- Tight V_{BE} Tracking

PIN CONFIGURATION



4503

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise specified)

Collector-Base Voltage (Note 1) 45V
Collector-Emitter Voltage (Note 1) 45V
Emitter Base Voltage (Notes 1 and 2) 7V
Collector Current (Note 1) 50mA
Collector-Collector Voltage 60V
Storage Temperature Range ..... -65°C to +175°C
Operating Temperature Range ..... -55°C to +175°C
Lead Temperature (Soldering, 10sec) ..... +300°C

	TO-71		TO-78	
	One Side	Both Sides	One Side	Both Sides
Power Dissipation	200mW 1.3mW/°C	400mW 2.7mW/°C	250mW 1.7mW/°C	500mW 3.3mW/°C

NOTE: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ORDERING INFORMATION

Part	Package	Temperature Range
IT130A	Hermetic TO-78	-55°C to +175°C
IT130A/71	Hermetic TO-71	-55°C to +175°C
XIT130	Sorted Chips in Carriers	-55°C to +175°C
IT130	Hermetic TO-78	-55°C to +175°C
IT130/71	Hermetic TO-71	-55°C to +175°C
XIT130	Sorted Chips in Carriers	-55°C to +175°C
IT131	Hermetic TO-78	-55°C to +175°C
IT131/71	Hermetic TO-71	-55°C to +175°C
XIT131	Sorted Chips in Carriers	-55°C to +175°C
IT132	Hermetic TO-78	-55°C to +175°C
IT132/71	Hermetic TO-71	-55°C to +175°C
XIT132	Sorted Chips in Carriers	-55°C to +175°C

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

SYMBOL	PARAMETER	IT130A		IT130		IT131		IT132		UNITS	TEST CONDITIONS
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
h_{FE}	DC Current Gain	200		200		80		80			I_C = 10µA, V_{CE} = 5.0V
		225		225		100		100			I_C = 1.0mA, V_{CE} = 5.0V
		75		75		30		30			I_C = 10µA, V_{CE} = 5.0V, T_A = -55°C
V_{BE}(ON)	Emitter-Base On Voltage		0.7		0.7		0.7		0.7	V	I_C = 10µA, V_{CE} = 5.0V
V_{CE}(SAT)	Collector Saturation Voltage		0.5		0.5		0.5		0.5		I_C = 0.5mA, I_B = 0.05mA
I_{CBO}	Collector Cutoff Current		-1.0		-1.0		-1.0		-1.0	nA	I_E = 0, V_{CB} = 45V, T_A = +150°C
			-10		-10		-10		-10	µA	
I_{EBO}	Emitter Cutoff Current		-1.0		-1.0		-1.0		-1.0	nA	I_C = 0, V_{EB} = 5.0V
C_{ob}	Output Capacitance (Note 3)		2.0		2.0		2.0		2.0	pF	I_E = 0, V_{CB} = 5.0V
C_{ie}	Emitter Transition Capacitance (Note 3)		2.5		2.5		2 5		2.5		I_C = 0, V_{EB} = 0.5V
$C_{C_1-C_2}$	Collector to Collector Capacitance (Note 3)		4.0		4.0		4.0		4.0		V_{CC} = 0
I_{C_1}, C_2	Collector to Collector Leakage Current		10		10		10		10	nA	V_{CC} = ±60V
V_{CEO}(SUST)	Collector to Emitter Sustaining Voltage	-45		-45		-45		-45		V	I_C = 1 0mA, I_B = 0
GBW	Current Gain Bandwidth Product (Note 3)	5		5		4		4		MHz	I_C = 10µA, V_{CE} = 5V
		110		110		90		90			I_C = 1mA, V_{CE} = 5V
$\lvert V_{BE_1} - V_{BE_2} \rvert$	Base Emitter Voltage Differential		1		2		3		5	mV	I_C = 10µA, V_{CE} = 5.0V
$\lvert I_{B_1} - I_{B_2} \rvert$	Base Current Differential		2.5		5		25		25	nA	I_C = 10µA, V_{CE} = 5.0V
$\Delta(V_{BE_1} - V_{BE_2})/\Delta T$	Base-Emitter Voltage Differential Change with Temperature (Note 3)		3		5		10		20	µV/°C	T_A = -55°C to +125°C, I_C = 10µA, V_{CE} = 5.0V

NOTES: **1.** Per transistor.
2. The reverse base-to-emitter voltage must never exceed 7.0V, and the reverse base-to-emitter current must never exceed 10µA.
3. For design reference only, not 100% tested.