

IT130-IT132

IT130-IT132 Monolithic Dual PNP General Purpose Amplifier

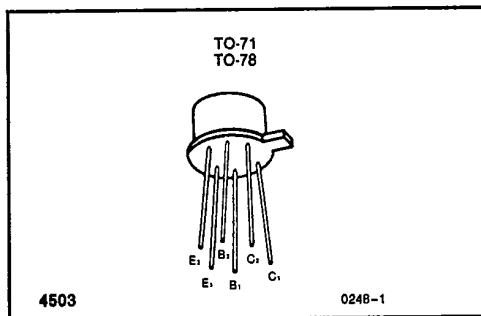


T-29-27

FEATURES

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

PIN CONFIGURATIONS



ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$ 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 $+175^\circ\text{C}$
Operating Temperature Range	-55°C to $+175^\circ\text{C}$
Lead Temperature (Soldering, 10sec)	$+300^\circ\text{C}$

TO-71		TO-78	
One Side	Both Sides	One Side	Both Sides
200mW	400mW	250mW	500mW

Power Dissipation $1.3\text{mW}/^\circ\text{C}$ $2.7\text{mW}/^\circ\text{C}$ $1.7\text{mW}/^\circ\text{C}$ $3.3\text{mW}/^\circ\text{C}$

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

TO-78	TO-71
IT130A	IT130A-TO71
IT130	IT130-TO71
IT131	IT131-TO71
IT132	IT132-TO71

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

Symbol	Parameter	Test Conditions	IT130A		IT130		IT131		IT132		Units
			Min	Max	Min	Max	Min	Max	Min	Max	
h_{FE}	DC Current Gain	$I_C = 10\mu\text{A}, V_{CE} = 5.0\text{V}$	200		200		80		80		
		$I_C = 1.0\text{mA}, V_{CE} = 5.0\text{V}$	225		225		100		100		
		$I_C = 10\mu\text{A}, V_{CE} = 5.0\text{V}, T_A = -55^\circ\text{C}$	75		75		30		30		
$V_{BE(ON)}$	Emitter-Base On Voltage	$I_C = 10\mu\text{A}, V_{CE} = 5.0\text{V}$		0.7		0.7		0.7		0.7	V
$V_{CE(SAT)}$	Collector Saturation Voltage	$I_C = 0.5\text{mA}, I_B = 0.05\text{mA}$		0.5		0.5		0.5		0.5	
I_{CBO}	Collector Cutoff Current	$I_E = 0, V_{CB} = 45\text{V}, T_A = +150^\circ\text{C}$		-1.0		-1.0		-1.0		-1.0	nA
				-10		-10		-10		-10	μA
I_{EBO}	Emitter Cutoff Current	$I_C = 0, V_{EB} = 5.0\text{V}$		-1.0		-1.0		-1.0		-1.0	nA
C_{ob} (Note 3)	Output Capacitance	$I_E = 0, V_{CB} = 5.0\text{V}$		2.0		2.0		2.0		2.0	pF
C_{te} (Note 3)	Emitter Transition Capacitance	$I_C = 0, V_{EB} = 0.5\text{V}$		2.5		2.5		2.5		2.5	
C_{C1-C2} (Note 3)	Collector to Collector Capacitance	$V_{CC} = 0$		4.0		4.0		4.0		4.0	

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NOTE: All typical values have been characterized but are not tested.

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IT130-IT132

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

Symbol	Parameter	Test Conditions	IT130A		IT130		IT131		IT132		Units
			Min	Max	Min	Max	Min	Max	Min	Max	
I_{C1-C2}	Collector to Collector Leakage Current	$V_{CC} = \pm 60\text{V}$		10		10		10		10	nA
$V_{CEC(SUST)}$	Collector to Emitter Sustaining Voltage	$I_C = 1.0\text{mA}, I_B = 0$	-45		-45		-45		-45		V
GBW	Current Gain Bandwidth Product (Note 3)	$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$	5		5		4		4		MHz
		$I_C = 1\text{mA}, V_{CE} = 5\text{V}$	110		110		90		90		
$ V_{BE1} - V_{BE2} $	Base Emitter Voltage Differential	$I_C = 10\mu\text{A}, V_{CE} = 5.0\text{V}$		1		2		3		5	mV
$ I_{B1} - I_{B2} $	Base Current Differential	$I_C = 10\mu\text{A}, V_{CE} = 5.0\text{V}$		2.5		5		25		25	nA
$\Delta(V_{BE1} - V_{BE2})/\Delta T$	Base-Emitter Voltage Differential Change with Temperature (Note 3)	$T_A = -55^\circ\text{C}$ to $+125^\circ\text{C}$ $I_C = 10\mu\text{A}, V_{CE} = 5.0\text{V}$		3		5		10		20	$\mu\text{V}/^\circ\text{C}$

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 10 μA .

3. For design reference only, not 100% tested.

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NOTE: All typical values have been characterized but are not tested.