ELECTRONICS, INC.
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2N404A
Germanium PNP Transistor
Medium Speed Switch
TO5 Type Package

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Collector–Base Voltage, V_{CBO} . . . . . –40V
Emitter–Base Voltage, V_{EBO} . . . . . –25V
Collector–Emitter Voltage (Note 1), V_{CE} . . . . . –35V
Collector Current, I_C 150mA
Total Device Dissipation, P_D
T_A = +25°C 150mW
T_A = +55°C 90mW
T_A = +71°C 60mW
Storage Temperature Range, T_{stg} . . . . . –65° to +100°C
Note 1. Reach through voltage.

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = –20μA		–40	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = –20μA		–25	–	–	V
Reach Through Voltage	V_{RT}			–35	–	–	V
Collector Cutoff Current	I_{CBO}	V_{CB} = –12V		–	–	–5	μA
			T_A = +80°C	–	–	–90	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 2.5V		–	–	–2.5	μA
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_B = 0.4mA, I_C = –12mA		–	–	–0.15	V
		I_B = 1mA, I_C = 24mA		–	–	–0.2	V
Base Input Voltage	V_{BE}	I_B = 0.4mA, I_C = –12mA		–	–	–0.35	V
		I_B = 1mA, I_C = 24mA		–	–	–0.4	V

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
High Frequency Characteristics						
Alpha Cutoff Frequency	f_{hfb}		4	–	–	mcs
Collector Capacitance	C_{ob}	f = 2mcs	–	–	20	pF
Stored Base Charge	QSB	I_B = 1mA, I_C = –10mA	–	–	1400	pcb
Base Spreading Resistance	r'b		–	100	–	Ω
Input Resistance	h_{ie}		–	2700	–	Ω
Noise Figure	NF	1kc, 1 cycle wide	–	3.5	–	dB
Low Frequency Characteristics (Common Emitter)						
Output Admittance	h_{oe}		–	400	–	μmhos
Voltage Feedback Ratio	h_{re}		–	8.4	–	$x10^{-4}$
Forward Current Transfer Ratio	h_{fe}		–	86	–	
Input Impedance	h_{ie}		–	450	–	Ω