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2N404 Germanium PNP Transistor Medium Speed Switch TO5 Type Package

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Collector-Base Voltage, V_{CBO}	-25V
Emitter-Base Voltage, V_{EBO}	-12V
Collector-Emitter Voltage (Note 1), V_{CE}	-24V
Collector Current, I_C	100mA
Total Device Dissipation, P_D	
$T_A = +25^\circ\text{C}$	150mW
$T_A = +55^\circ\text{C}$	75mW
$T_A = +71^\circ\text{C}$	35mW
Storage Temperature Range, T_{stg}	-65° to +100°C

Note 1. Reach through voltage.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

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

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ 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}	$f = 2\text{mcs}$	-	-	20	pF
Stored Base Charge	QSB	$I_B = 1\text{mA}, I_C = -10\text{mA}$	-	-	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	-	$\times 10^{-4}$
Forward Current Transfer Ratio	h_{fe}		-	86	-	
Input Impedance	h_{ie}		-	450	-	Ω

