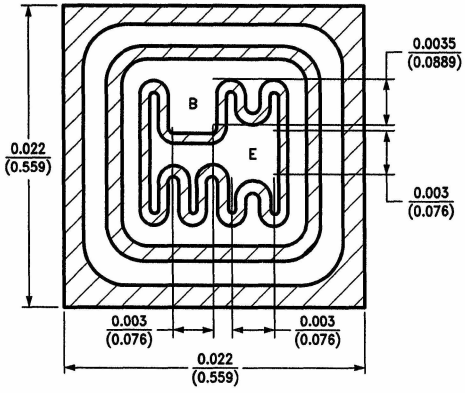
National Semiconductor

Process 74
PNP High Voltage



TL/G/10038–40

DESCRIPTION

Process 74 is a non-overlay, double-diffused, silicon epitaxial device. Complement to Process 16.

APPLICATION

This device was designed as a general purpose amplifier and switch for applications requiring high voltages.

PRINCIPAL DEVICE TYPES

TO-92 EBC: 2N5401

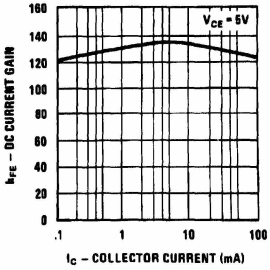
TO-236: MMBT5401

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

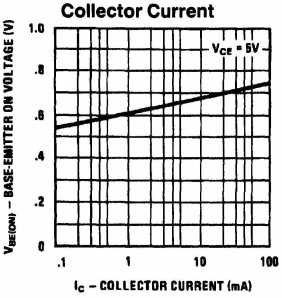
Symbol	Conditions	Min	Typ	Max	Units
f_T	I_C = 10 mA, V_{CE} = 10V, f = 100 MHz	100	160		MHz
C_{ob}	V_{CB} = 10V, f = 1 MHz		6	10	pF
h_{FE}	I_C = 1 mA, V_{CE} = 5V I_C = 10 mA, V_{CE} = 5V I_C = 50 mA, V_{CE} = 5V	40 50 20	120	250	
$V_{BE(SAT)}$	I_C = 50 mA, I_B = 5 mA			0.95	V
$V_{CE(SAT)}$	I_C = 50 mA, I_B = 5 mA			0.50	V
BV_{CEO}	I_C = 1 mA	120			V
BV_{CBO}	I_C = 10 μA	140			V
BV_{EBO}	I_E = 10 μA	6			V
I_{CBO}	V_{CB} = 100V			100	nA
I_{EBO}	V_{EB} = 4V			100	nA
$P_{D(max)}$ TO-92 TO-236	 T_A = 25°C T_C = 25°C	 600 350			 mW mW

Process 74

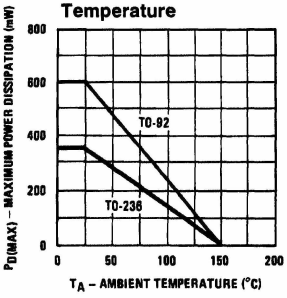
DC Current Gain vs Collector Current



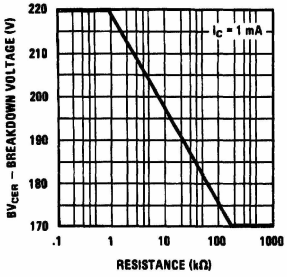
Base-Emitter ON Voltage vs Collector Current



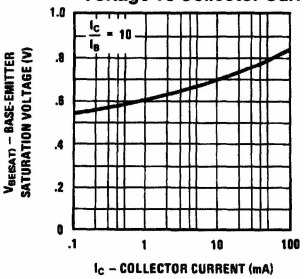
Maximum Power Dissipation vs Ambient Temperature



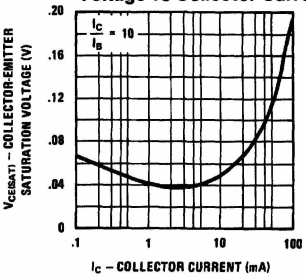
Collector-Emitter Breakdown Voltage with Resistance Between Base-Emitter



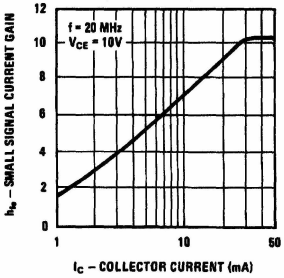
Base-Emitter Saturation Voltage vs Collector Current



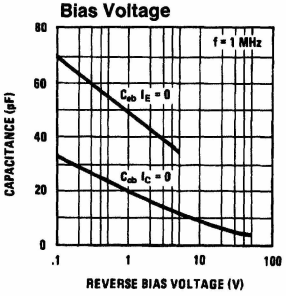
Collector-Emitter Saturation Voltage vs Collector Current



Small Signal Current Gain vs Collector Current



Input and Output Capacitance vs Reverse Bias Voltage



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