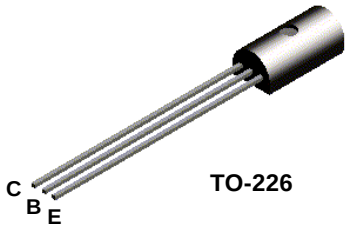
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

TN6705A



TO-226

NPN General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 1.2 A. Sourced from Process 38. See TN6715A for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	45	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	1.5	A
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		TN6705a	
P_D	Total Device Dissipation Derate above 25°C	1.0 8.0	W mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	50	°C/W

NPN General Purpose Amplifier
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 10 mA, I_B = 0	45		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100 mA, I_E = 0	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 1.0 mA, I_C = 0	5.0		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 60 V, I_E = 0		0.1	µA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 5.0 V, I_C = 0		0.1	µA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 2.0 V, I_C = 50 mA V_{CE} = 2.0 V, I_C = 250 mA V_{CE} = 2.0 V, I_C = 500 mA	40 40 25	 250	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 500 mA, I_B = 50 mA I_C = 1.0 A, I_B = 100 mA		0.5 1.0	V V
$V_{BE(on)}$	Base-Emitter On Voltage	V_{CE} = 2.0 V, I_C = 1.0 A		1.5	V
SMALL SIGNAL CHARACTERISTICS					
C_{cb}	Collector-Base Capacitance	V_{CB} = 10 V, f = 1.0 MHz		30	pF
h_{fe}	Small-Signal Current Gain	I_C = 50 mA, V_{CE} = 5.0 V, f = 20 MHz	2.5	20	

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%