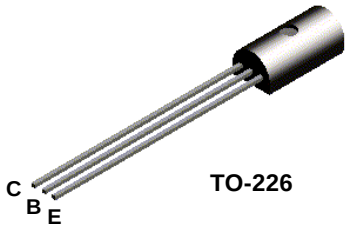
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

TN5415A



TO-226

PNP High Voltage Amplifier

This device is designed for use as high voltage drivers requiring collector currents to 100 mA. Sourced from Process 76. See MPSA92 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	200	V
V_{CBO}	Collector-Base Voltage	200	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Collector Current - Continuous	100	mA
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
		TN5415A	
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

PNP High Voltage 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 = 50 mA, I_B = 0	200		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100 µA, I_E = 0	200		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 100 µA, I_C = 0	4.0		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 175 V		50	µA
I_{CEX}	Collector Cutoff Current	V_{CE} = 200 V, V_{BE} = 1.5 V (rev)		50	µA
I_{CEO}	Collector Cutoff Current	V_{CE} = 150 V		50	µA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 4.0 V, I_C = 0		20	µA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 10 V, I_C = 50 mA	30	150	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 50 mA, I_B = 5.0 mA		2.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 50 mA, V_{CE} = 10 V		1.5	V
SMALL SIGNAL CHARACTERISTICS					
C_{ob}	Output Capacitance	V_{CB} = 10 V, f = 1.0 MHz		15	pF
C_{ib}	Input Capacitance	V_{EB} = 5.0 V, f = 1.0 MHz		75	pF
h_{fe}	Small-Signal Current Gain	I_C = 5.0 mA, V_{CE} = 10 V, f = 5.0 MHz I_C = 5.0 mA, V_{CE} = 10 V, f = 1.0 kHz	3.0 25		
$Re_{(hie)}$	Input Resistance	V_{CE} = 10 V, I_C = 5.0 mA		300	Ω
IS /$_b$	Safe Operating Area	V_{CE} = 100 V, t = 100 mS	100		mA

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