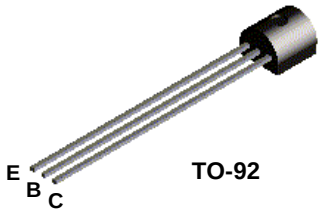
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

BCX79



TO-92

PNP General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 300 mA. Sourced from Process 68. See PN200A for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	45	V
V_{CES}	Collector-Base Voltage	45	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	500	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
		BCX79	
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

PNP 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
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 1.0 μA, I_C = 0	5.0		V
I_{CEX}	Collector Cutoff Current	V_{CE} = 45 V, V_{BE} = 0.2 V, T_A = +100 °C		20	μA
I_{CES}	Collector Cutoff Current	V_{CE} = 45 V, I_E = 0, V_{CE} = 45 V, I_E = 0, T_A = +125 °C		10 2.5	nA μA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 4.0 V, I_C = 0		20	nA
ON CHARACTERISTICS					
h_{FE}	DC Current Gain	V_{CE} = 5.0 V, I_C = 2.0 mA V_{CE} = 1.0 V, I_C = 10 mA V_{CE} = 1.0 V, I_C = 100 mA	120 80 40	630 1,000	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 100 mA, I_B = 2.5 mA		0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 100 mA, I_B = 2.5 mA		1.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	V_{CE} = 5.0 V, I_C = 2.0 mA V_{CE} = 1.0 V, I_C = 100 mA	0.6	0.7 0.9	V V
SMALL SIGNAL CHARACTERISTICS					
C_{cb}	Collector-Base Capacitance	V_{CB} = 10 V, f = 1.0 MHz		4.5	pF
C_{eb}	Emitter-Base Capacitance	V_{EB} = 0.5 V, f = 1.0 MHz		15	pF
h_{ie}	Input Impedance	I_C = 2.0 mA, V_{CE} = 5.0 V, f = 1.0 kHz	1.6	8.5	kΩ
h_{oe}	Output Admittance	I_C = 2.0 mA, V_{CE} = 5.0 V, f = 1.0 kHz		100	μmhos
NF	Noise Figure	V_{CE} = 5.0 V, I_C = 0.2 mA, R_S = 2.0 kΩ, f = 1.0 kHz		6.0	dB
SWITCHING CHARACTERISTICS					
t_{on}	Turn-on Time	V_{CC} = 10 V, I_C = 10 mA, V_{BB} = 3.6 V, I_{B1} = I_{B2} = 1.0 mA		150	ns
t_{on}	Turn-on Time	V_{CC} = 10 V, I_C = 100 mA, V_{BB} = 5.0 V, I_{B1} = I_{B2} = 10 mA		150	ns
t_{off}	Turn-off Time	V_{CC} = 10 V, I_C = 10 mA, V_{BB} = 3.6 V, I_{B1} = I_{B2} = 1.0 mA		800	ns
t_{off}	Turn-off Time	V_{CC} = 10 V, I_C = 100 mA, V_{BB} = 5.0 V, I_{B1} = I_{B2} = 10 mA		800	ns