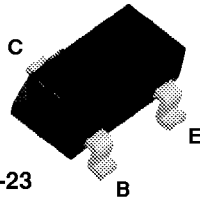


BCV27



SOT-23
Mark: FF

NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at collector currents to 1.0 A. Sourced from Process 05.

Absolute Maximum Ratings* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	30	V
V_{CBO}	Collector-Base Voltage	40	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current - Continuous	1.2	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
		*BCV27	
P_D	Total Device Dissipation Derate above 25°C	350	mW
		2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

* Device mounted on FR-4 PCB 40 mm X 40 mm X 1.5 mm.

NPN Darlington Transistor

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10 \text{ mA}, I_B = 0$	30			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \text{ } \mu\text{A}, I_E = 0$	40			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \text{ nA}, I_C = 0$	10			V
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 30 \text{ V}, I_E = 0$			0.1	μA
I_{EBO}	Emitter-Cutoff Current	$V_{EB} = 10 \text{ V}, I_C = 0$			0.1	μA

ON CHARACTERISTICS

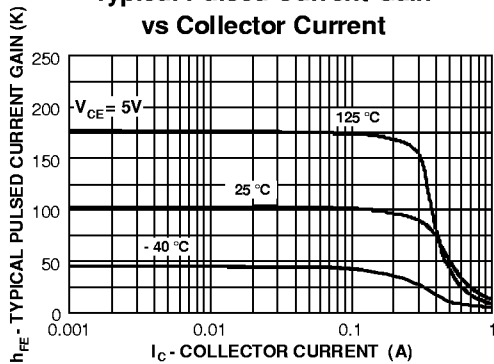
h_{FE}	DC Current Gain	$I_C = 1.0 \text{ mA}, V_{CE} = 5.0 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V}$ $I_C = 100 \text{ mA}, V_{CE} = 5.0 \text{ V}$	4,000 10,000 20,000			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}$			1.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}$			1.5	V

SMALL SIGNAL CHARACTERISTICS

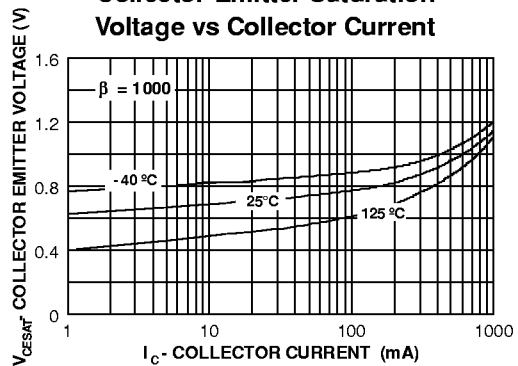
f_T	Current Gain - Bandwidth Product	$I_C = 30 \text{ mA}, V_{CE} = 5.0 \text{ V},$ $f = 100 \text{ MHz}$		220		MHz
C_C	Collector Capacitance	$V_{CB} = 30 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		3.5		pF

Typical Characteristics

Typical Pulsed Current Gain vs Collector Current

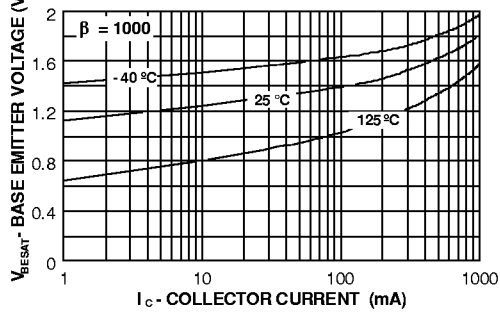


Collector-Emitter Saturation Voltage vs Collector Current

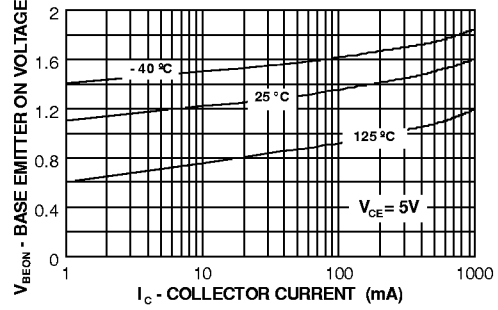


Typical Characteristics (continued)

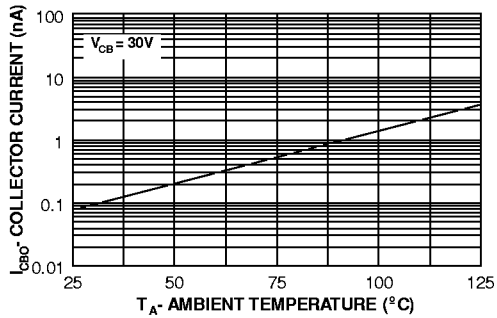
Base-Emitter Saturation Voltage vs Collector Current



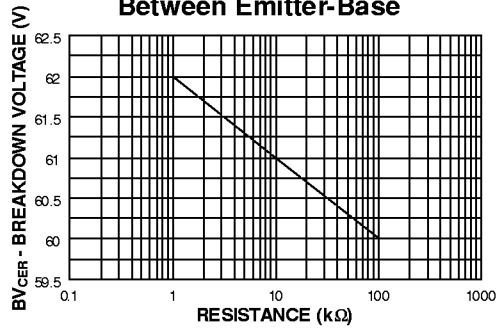
Base Emitter ON Voltage vs Collector Current



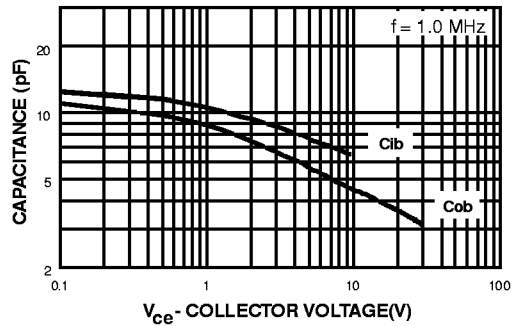
Collector-Cutoff Current vs Ambient Temperature



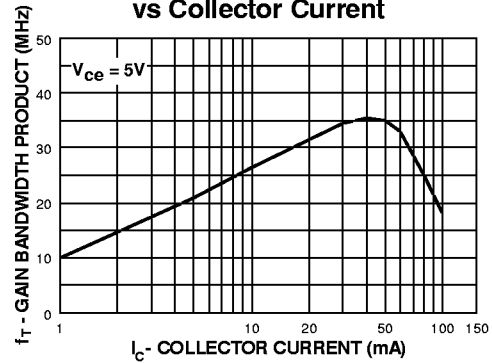
Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base



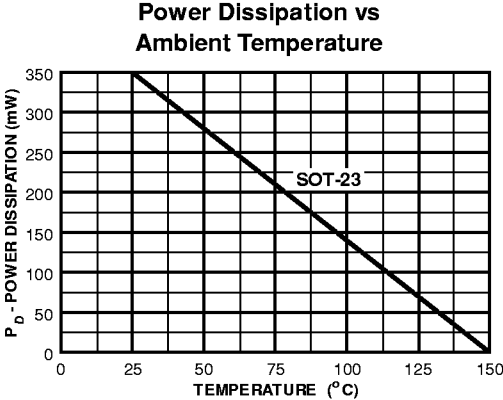
Input and Output Capacitance vs Reverse Voltage



Gain Bandwidth Product vs Collector Current



Typical Characteristics (continued)



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Definition of Terms

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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.