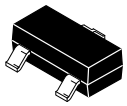
NPN Darlington Transistor

BCV27

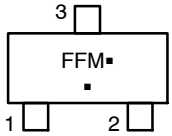


SOT−23
CASE 318

Description

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

MARKING DIAGRAM



1. Base
2. Emitter
3. Collector

FF = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 4 of this data sheet.

ABSOLUTE MAXIMUM RATINGS

(T_A = 25 °C unless otherwise noted.) (Notes 1, 2)

Symbol	Parameter	Value	Unit
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

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady−state limits. **onsemi** should be consulted on applications involving pulsed or low−duty−cycle operations.

THERMAL CHARACTERISTICS

(T_A = 25 °C unless otherwise noted.) (Note 3)

Symbol	Parameter	Max	Unit
P_D	Total Device Dissipation	350	mW
	Derate Above 25°C	2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction−to−Ambient	357	°C/W

3. PCB size: FR−4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted.)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{(BR)CEO}$	Collector−Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	30	−	−	V
$V_{(BR)CBO}$	Collector−Base Breakdown Voltage	I_C = 10 μA, I_E = 0	40	−	−	V
$V_{(BR)EBO}$	Emitter−Base Breakdown Voltage	I_E = 100 nA, I_C = 0	10	−	−	V
I_{CBO}	Collector Cut−Off Current	V_{CB} = 30 V, I_E = 0	−	−	0.1	μA
I_{EBO}	Emitter Cut−Off Current	V_{EB} = 10 V, I_C = 0	−	−	0.1	μA
h_{FE}	DC Current Gain	I_C = 1.0 mA, V_{CE} = 5.0 V	4000	−	−	
		I_C = 10 mA, V_{CE} = 5.0 V	10000	−	−	
		I_C = 100 mA, V_{CE} = 5.0 V	20000	−	−	
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = 100 mA, I_B = 0.1 mA	−	−	1.0	V
V_{BE}(sat)	Base−Emitter Saturation Voltage	I_C = 100 mA, I_B = 0.1 mA	−	−	1.5	V
f_T	Current Gain − Bandwidth Product	I_C = 30 mA, V_{CE} = 5.0 V, f = 100 MHz	−	220	−	MHz
C_c	Collector Capacitance	V_{CB} = 30 V, I_E = 0, f = 1.0 MHz	−	3.5	−	pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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TYPICAL CHARACTERISTICS

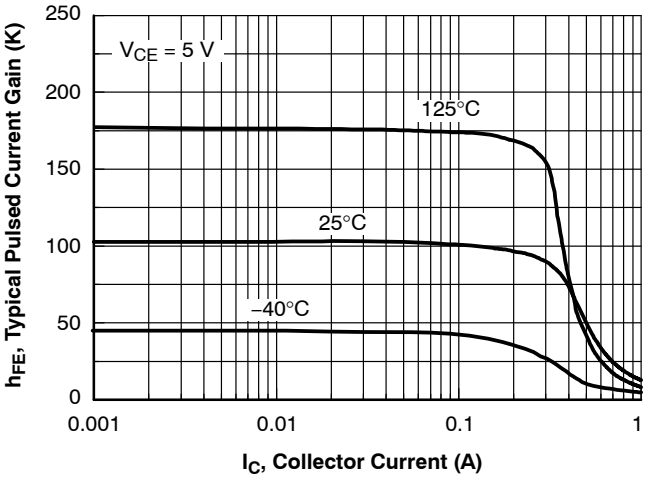


Figure 1. Typical Pulsed Current Gain vs. Collector Current

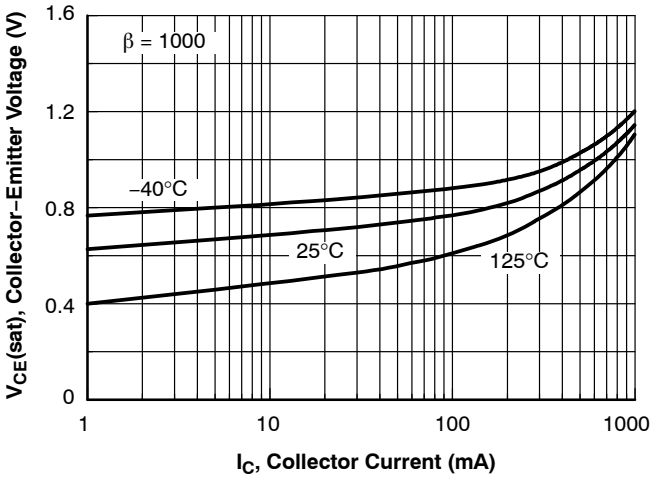


Figure 2. Collector−Emitter Saturation Voltage vs. Collector Current

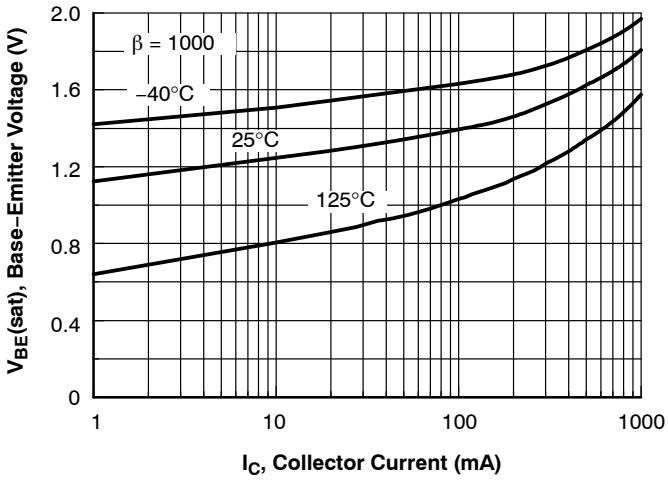


Figure 3. Base−Emitter Saturation Voltage vs. Collector Current

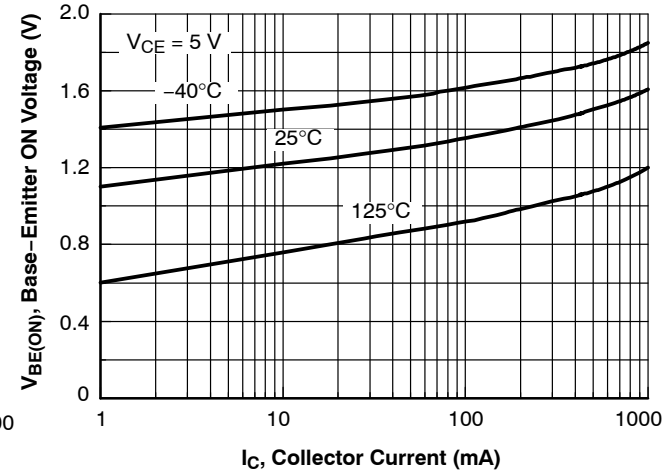


Figure 4. Base Emitter On Voltage vs. Collector Current

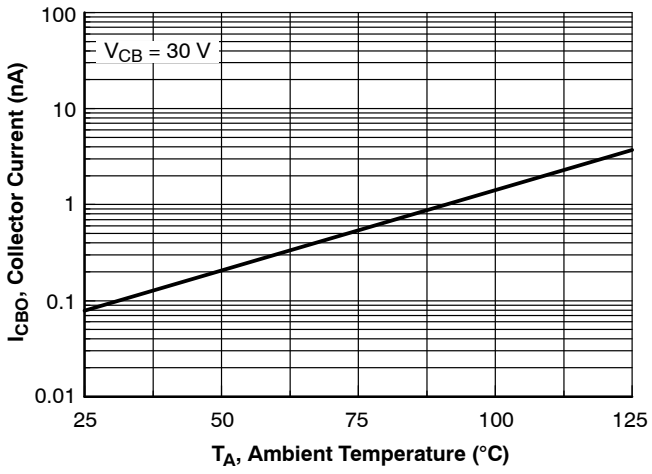


Figure 5. Collector Cut−Off Current vs. Ambient Temperature

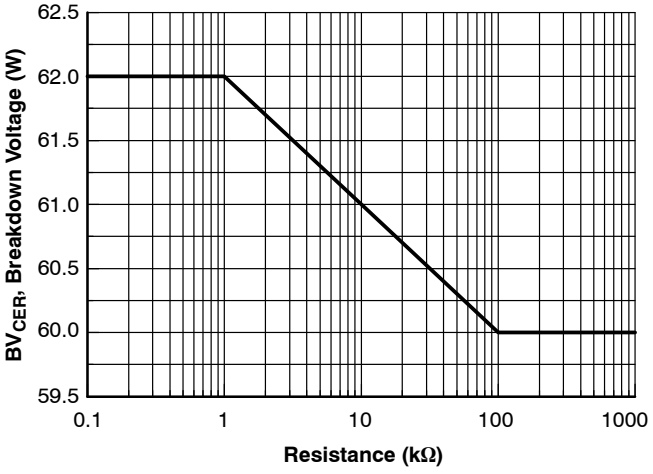


Figure 6. Collector−Emitter Breakdown Voltage with Resistance Between Emitter−Base

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TYPICAL CHARACTERISTICS (Continued)

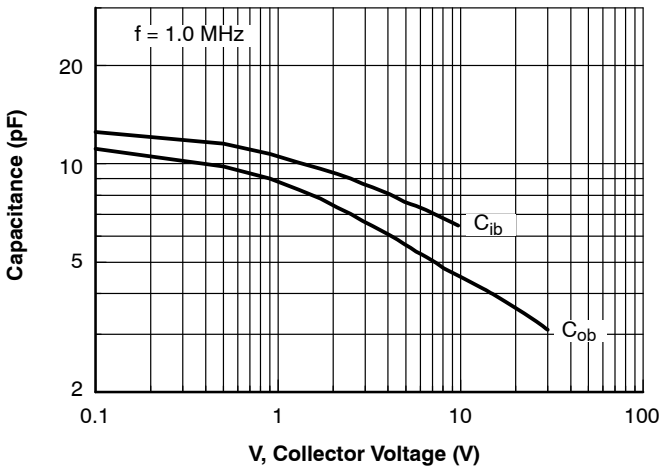


Figure 7. Input and Output Capacitance vs. Reverse Voltage

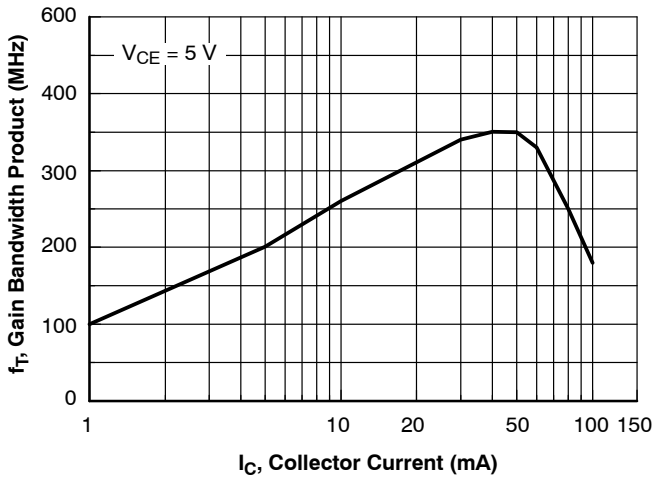


Figure 8. Gain Bandwidth Product vs. Collector Current

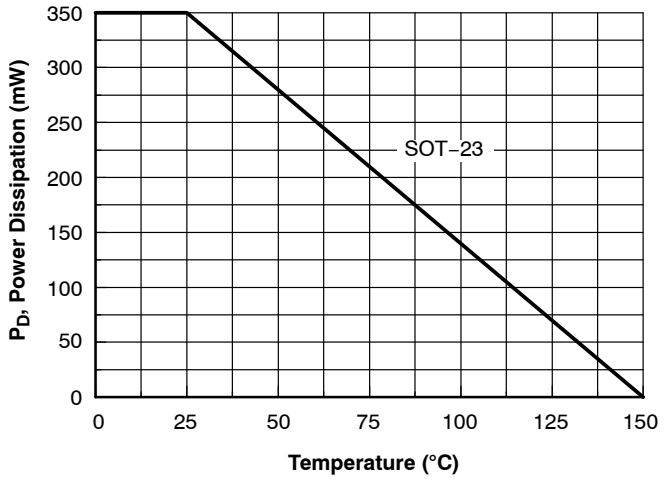


Figure 9. Power Dissipation vs. Ambient Temperature

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ORDERING INFORMATION

Device	Specific Marking Code	Package	Shipping†
BCV27 BCV27-NC	FF	SOT-23 (Pb-Free)	3,000 / Tape & Reel

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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REVISION HISTORY

Revision	Description of Changes	Date
5	Added “-NC” OPNs to order table.	11/10/2026

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

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