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DATA SHEET
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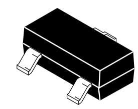
NPN Darlington Transistor

BCV27

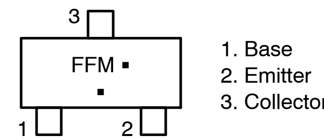


SOT−23
CASE 318

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



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

(Note: Microdot may be in either location)

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.

ORDERING INFORMATION

Device	Package	Shipping
BCV27	SOT−23 (Pb−Free, Halide 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 Specification Brochure, BRD8011/D.

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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Publication Order Number:
BCV27/D

TYPICAL CHARACTERISTICS

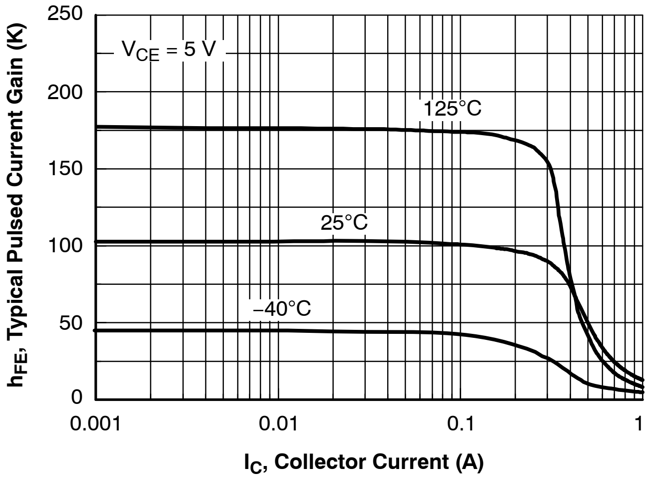

Figure 1. Typical Pulsed Current Gain vs. Collector Current

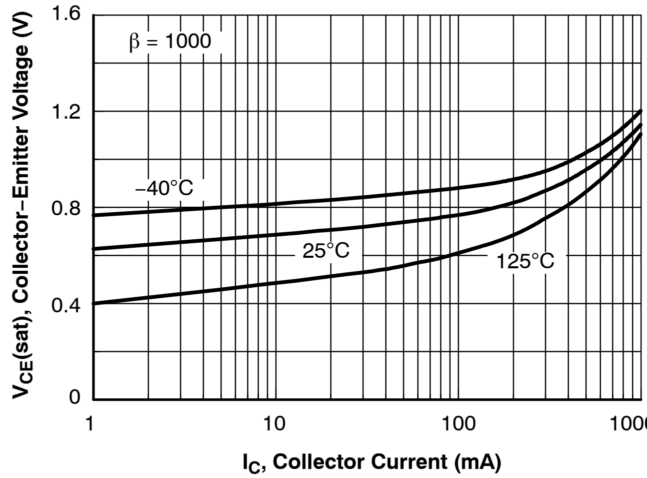

Figure 2. Collector−Emitter Saturation Voltage vs. Collector Current

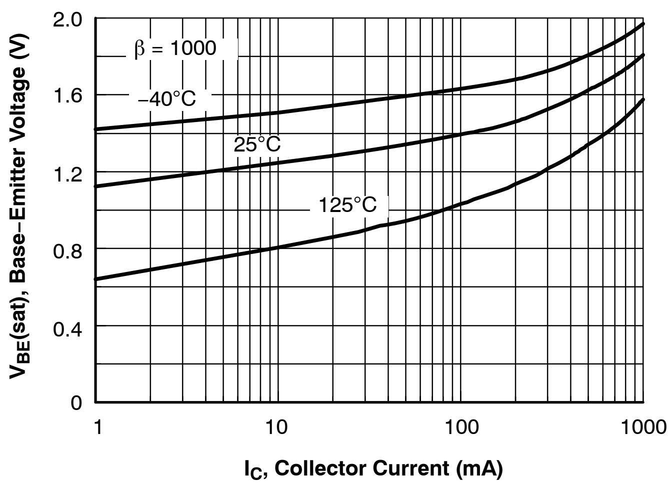

Figure 3. Base−Emitter Saturation Voltage vs. Collector Current

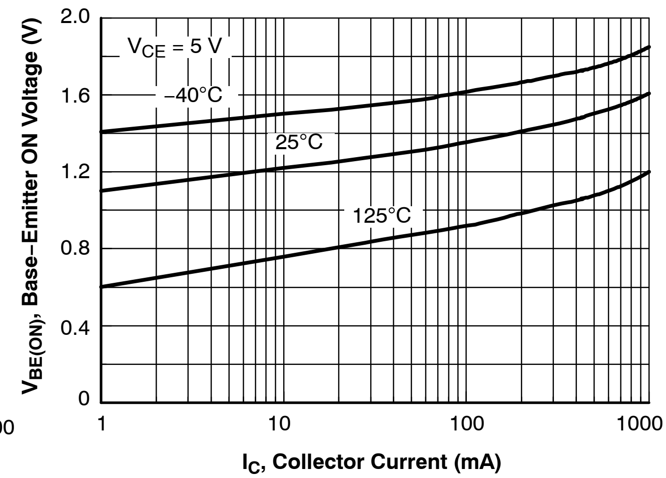

Figure 4. Base Emitter On Voltage vs. Collector Current

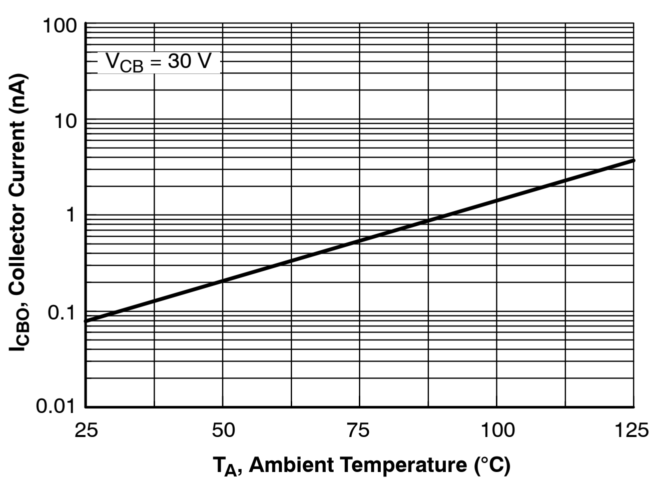

Figure 5. Collector Cut−Off Current vs. Ambient Temperature

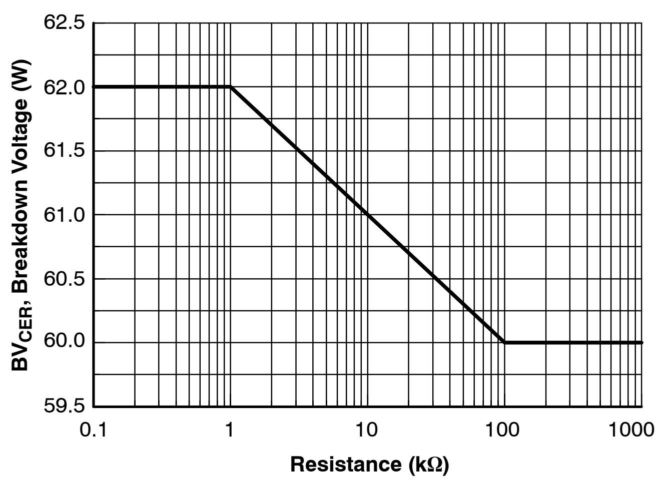

Figure 6. Collector−Emitter Breakdown Voltage with Resistance Between Emitter−Base

TYPICAL CHARACTERISTICS (Continued)

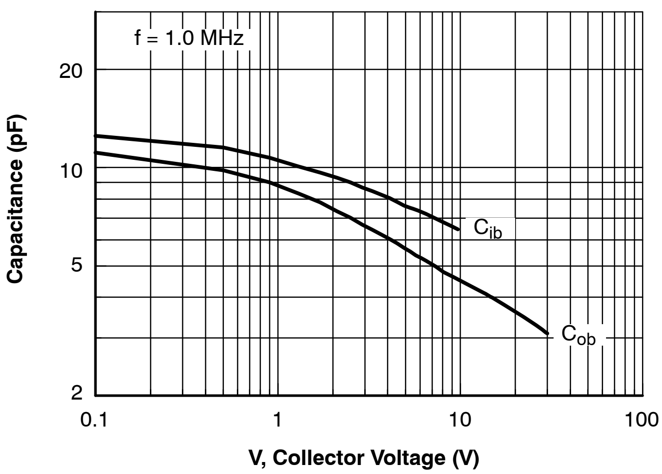

Figure 7. Input and Output Capacitance vs. Reverse Voltage

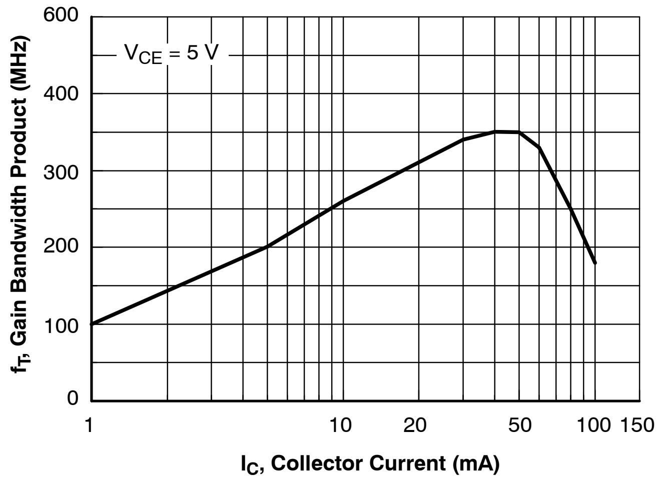

Figure 8. Gain Bandwidth Product vs. Collector Current

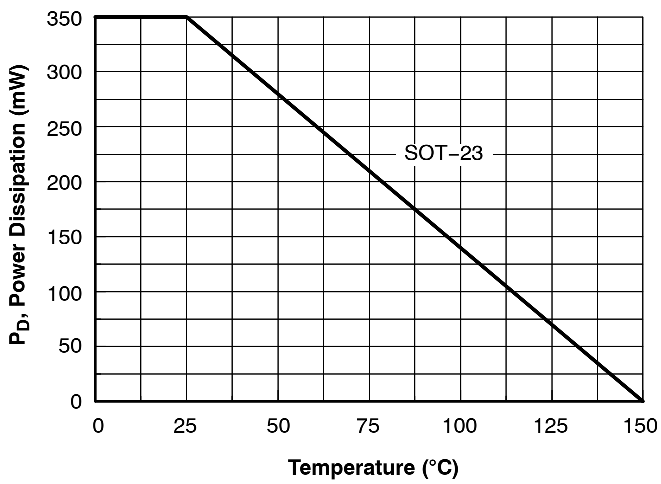

Figure 9. Power Dissipation vs. Ambient Temperature

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