BF421, BF423

High Voltage Transistors

PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Packages are Available*

MAXIMUM RATINGS

Rating	Symbol	BF421	BF423	Unit
Collector−Emitter Voltage	V_{CEO}	−300	−250	Vdc
Collector−Base Voltage	V_{CBO}	−300	−250	Vdc
Emitter−Base Voltage	V_{EBO}	−5.0		Vdc
Collector Current − Continuous	I_C	−50		mAdc
Collector Current − Peak	I_{CM}	100		mA
Total Device Dissipation (Note 1) @ T_A = 25°C Derate above 25°C	P_D	830 6.6		mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150		°C

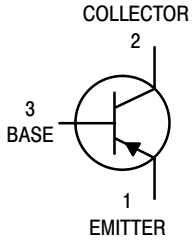
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	150	°C/W
Thermal Resistance, Junction−to−Lead	$R_{\theta JL}$	68	°C/W

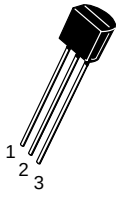
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. Mounted on a FR4 board with 200 mm^2 of 1 oz copper and lead length of 5 mm.

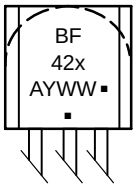
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



MARKING DIAGRAM



TO−92
CASE 29
STYLE 14



BF42x = Device Code
x = 1 or 3
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping
BF421ZL1	TO−92	2000/Ammo Pack
BF421ZL1G	TO−92 (Pb−Free)	2000/Ammo Pack
BF423	TO−92	5000 Units/Box
BF423G	TO−92 (Pb−Free)	5000 Units/Box
BF423ZL1	TO−92	2000/Ammo Pack
BF423ZL1G	TO−92 (Pb−Free)	2000/Ammo Pack

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector−Emitter Breakdown Voltage (Note 1) (I_C = −1.0 mAdc, I_B = 0)	BF421 BF423	$V_{(BR)CEO}$	 −300 −250	 − −	Vdc
Collector−Base Breakdown Voltage (I_C = −100 μAdc, I_E = 0)	BF421 BF423	$V_{(BR)CBO}$	 −300 −250	 − −	Vdc
Emitter−Base Breakdown Voltage (I_E = −100 μAdc, I_C = 0)	BF421 BF423	$V_{(BR)EBO}$	 −5.0 −5.0	 − −	Vdc
Collector Cutoff Current (V_{CB} = −200 Vdc, I_E = 0)	BF421 BF423	I_{CBO}	 − −	 −0.01 −	μAdc
Emitter Cutoff Current (V_{EB} = −5.0 Vdc, I_C = 0)	BF421 BF423	I_{EBO}	 − −	 −100 −	nAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = −25 mA, V_{CE} = −20 Vdc)	BF421 BF423	h_{FE}	 50 50	 − −	−
Collector−Emitter Saturation Voltage (I_C = −20 mAdc, I_B = −2.0 mAdc)		$V_{CE(sat)}$	−	−0.5	Vdc
Base−Emitter Saturation Voltage (I_C = −20 mA, I_B = −2.0 mA)		$V_{BE(sat)}$	−	−2.0	Vdc
SMALL−SIGNAL CHARACTERISTICS					
Current−Gain − Bandwidth Product (I_C = −10 mAdc, V_{CE} = −10 Vdc, f = 20 MHz)		f_T	60	−	MHz
Common Emitter Feedback Capacitance (V_{CB} = −30 Vdc, I_E = 0, f = 1.0 MHz)		C_{re}	−	2.8	pF

1. Pulse Test: Pulse Width ≤ 300 μs; Duty Cycle ≤ 2.0%.

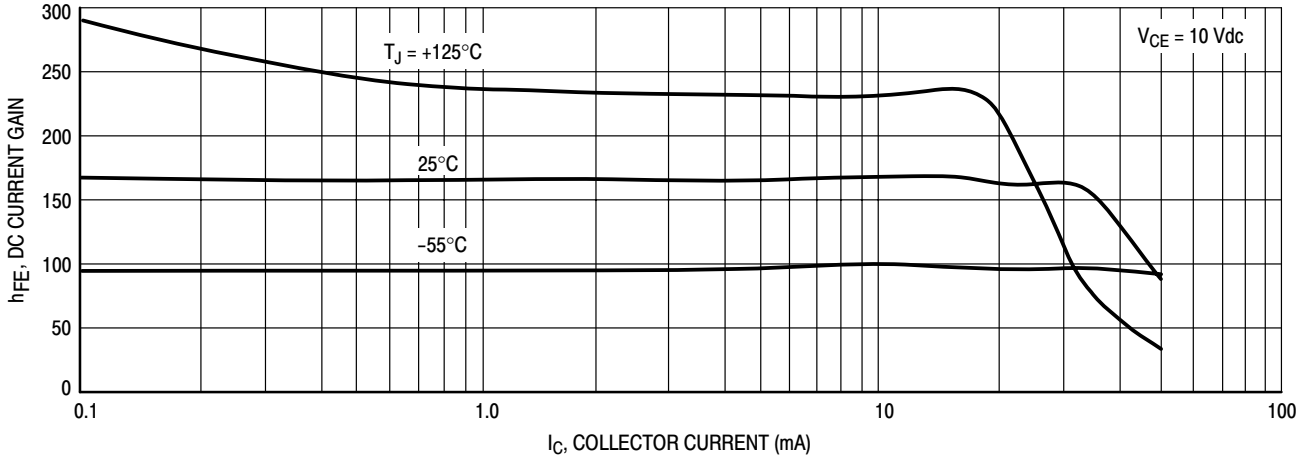


Figure 1. DC Current Gain

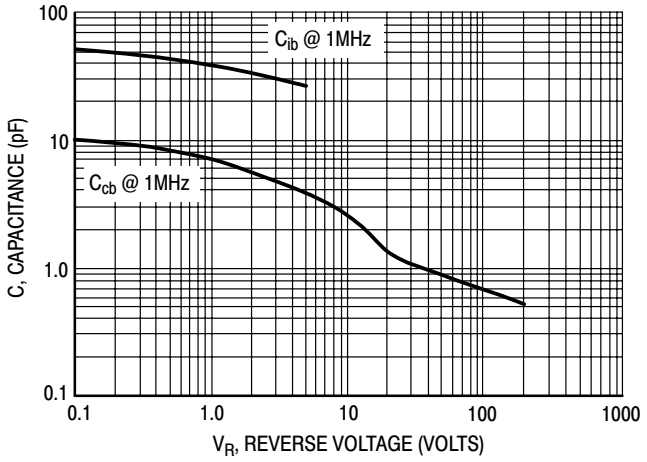


Figure 2. Capacitance

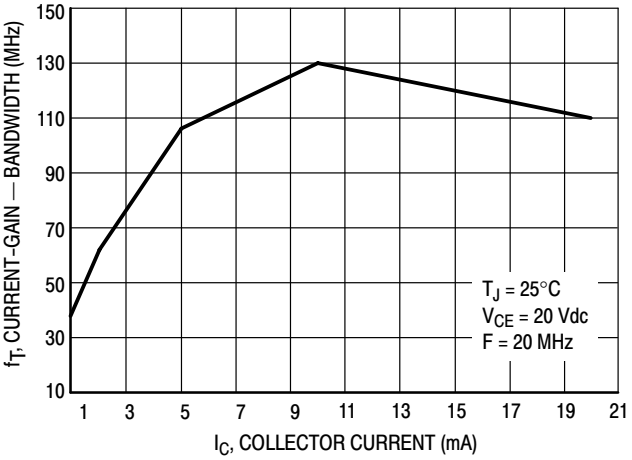
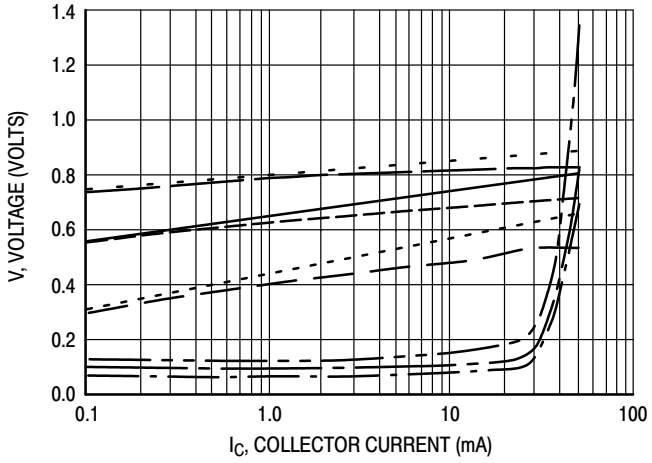


Figure 3. Current−Gain − Bandwidth



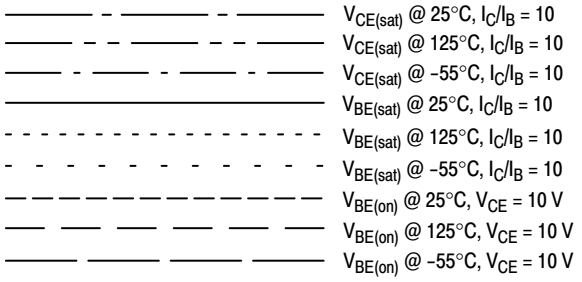
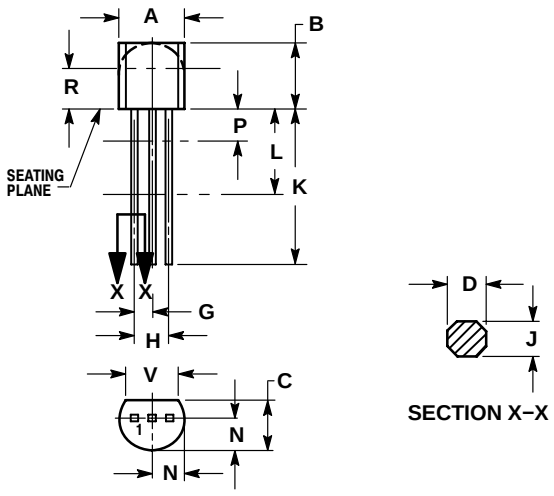


Figure 4. "ON" Voltages

PACKAGE DIMENSIONS

TO−92
(TO−226)
CASE 029−11
ISSUE AL



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 14:
PIN 1. EMITTER
2. COLLECTOR
3. BASE

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

BF421/D