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ON Semiconductor
BF421ZL1

For any questions, you can email us directly:
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BF421, BF423

High Voltage Transistors

PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

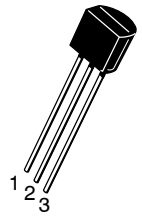
Rating	Symbol	BF421	BF423	Unit
Collector − Emitter Voltage	V_{CEO}	−300	−250	Vdc
Collector − Base Voltage	V_{CBO}	−300	−250	Vdc
Emitter − Base Voltage	V_{EBO}	−5.0		Vdc
Collector Current − Continuous	I_C	−500		mAdc
Collector Current − Peak	I_{CM}	100		mA
Total Device Dissipation (Note 1) @ T_A = 25°C 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

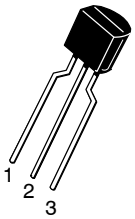
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	150	°C/W
Thermal Resistance, Junction−to−Lead	$R_{\theta JL}$	68	°C/W

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

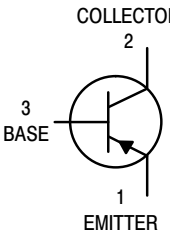


STRAIGHT LEAD
BULK PACK

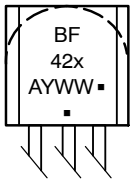


BENT LEAD
TAPE & REEL
AMMO PACK

TO−92
CASE 29
STYLE 14



MARKING DIAGRAM



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
BF421ZL1G	TO−92 (Pb−Free)	2000/Ammo Pack
BF423G	TO−92 (Pb−Free)	5000 Units/Box
BF423ZL1G	TO−92 (Pb−Free)	2000/Ammo Pack

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

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%.

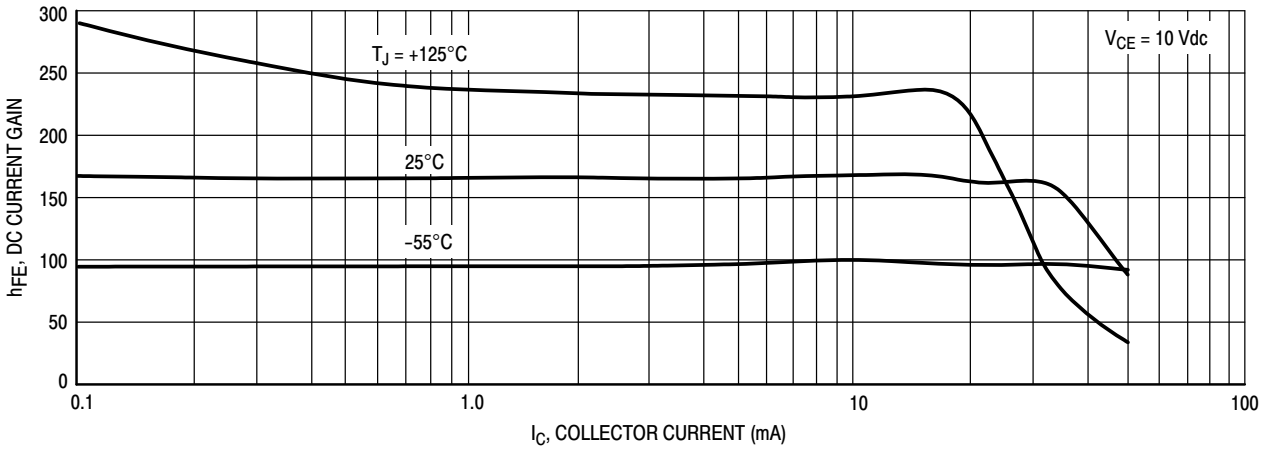


Figure 1. DC Current Gain

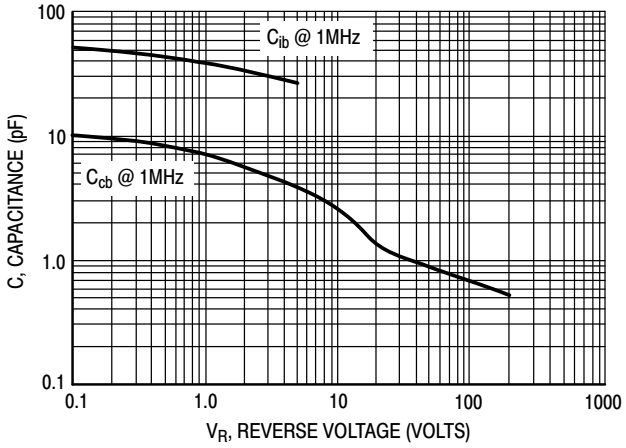


Figure 2. Capacitance

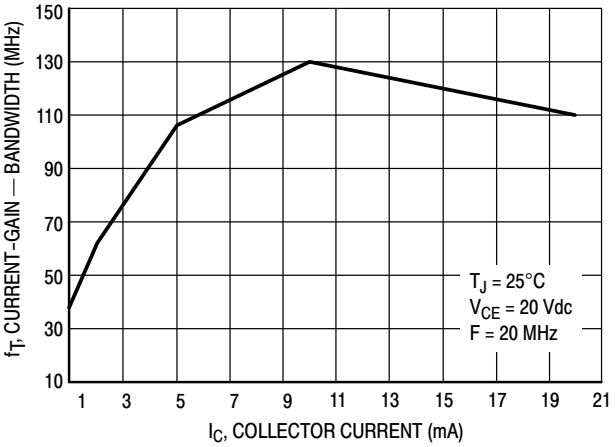
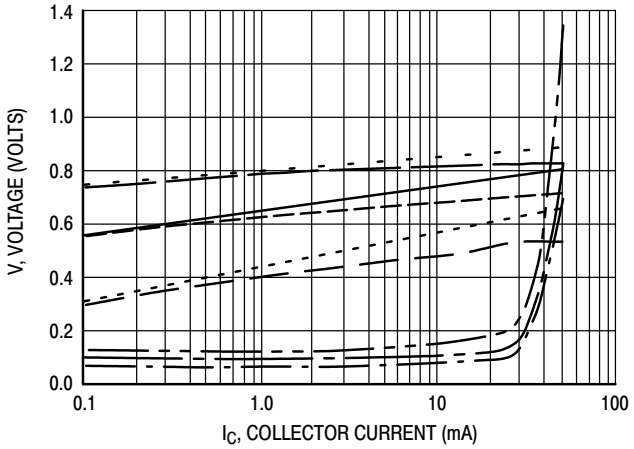


Figure 3. Current−Gain − Bandwidth



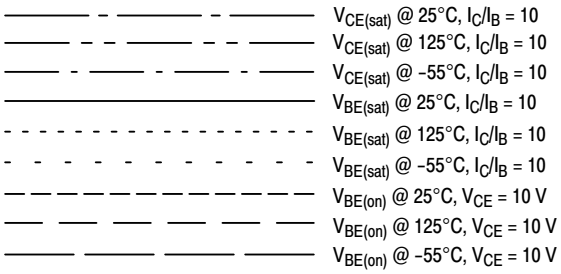


Figure 4. "ON" Voltages

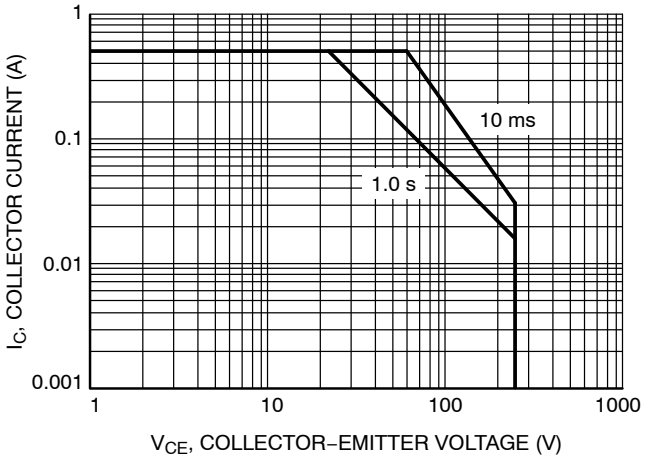
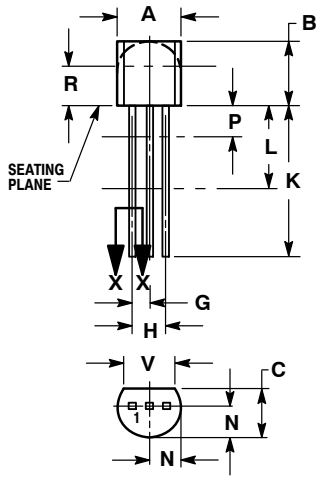


Figure 5. Safe Operating Area

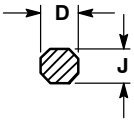
BF421, BF423

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 029−11
ISSUE AM



STRAIGHT LEAD
BULK PACK

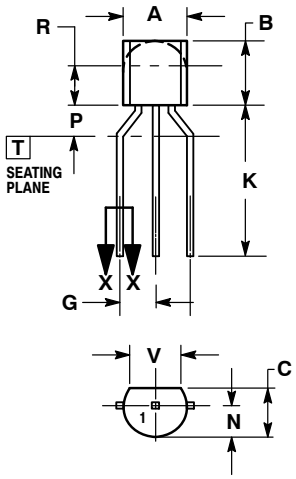


SECTION X−X

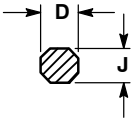
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	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



BENT LEAD
TAPE & REEL
AMMO PACK



SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	MILLIMETERS	
DIM	MIN	MAX
A	4.45	5.20
B	4.32	5.33
C	3.18	4.19
D	0.40	0.54
G	2.40	2.80
J	0.39	0.50
K	12.70	---
N	2.04	2.66
P	1.50	4.00
R	2.93	---
V	3.43	---

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BF421/D