



Micro Commercial Components
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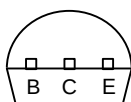
Fax: (818) 701-4939

2N3416

Features

- This device is designed for use as general purpose amplifiers and switches requiring collector currents to 300mA

Pin Configuration
Bottom View



NPN General Purpose Amplifier

Maximum Ratings*

Symbol	Rating	Rating	Unit
V_{CEQ}	Collector-Emitter Voltage	50	V
V_{CBO}	Collector-Base Voltage	50	V
V_{EBQ}	Emitter-Base Voltage	5.0	V
I_C	Collector Current, Continuous	500	mA
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Thermal Characteristics

Symbol	Rating	Max	Unit
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
R_{JC}	Thermal Resistance, Junction to Case	83.3	°C/W
R_{JA}	Thermal Resistance, Junction to Ambient	200	°C/W

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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OFF CHARACTERISTICS

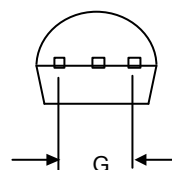
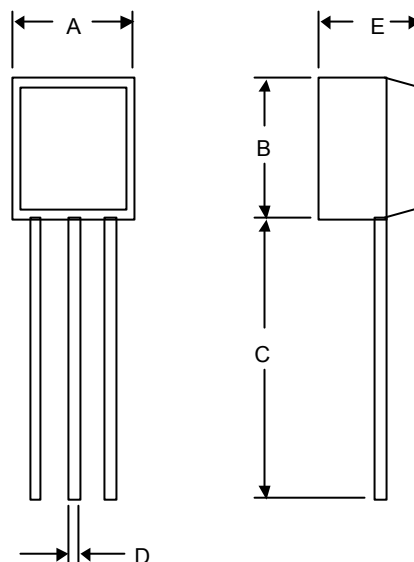
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ($I_C=10mA$, $I_E=0$)	50	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=10mA$, $I_E=0$)	50	---	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_E=10mA$, $I_C=0$)	5.0	---	Vdc
I_{CBO}	Collector Cutoff Current ($V_{CB}=25Vdc$, $I_E=0.4Vdc$) ($V_{CB}=18Vdc$, $I_E=0$, $T_A=100°C$)	---	100 15	nAdc uAdc
I_{EBO}	Emitter Cutoff Current ($V_{EB}=5.0Vdc$, $I_C=0$)	---	100	nAdc

* 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.

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DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.175	.185	4.45	4.70	
B	.175	.185	4.46	4.70	
C	.500	---	12.7	---	
D	.016	.020	0.41	0.63	
E	.135	.145	3.43	3.68	
G	.095	.105	2.42	2.67	

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Symbol	Parameter	Min	Max	Units
ON CHARACTERISTICS*				
h_{FE}	DC Current Gain ($V_{CE}=4.5Vdc$, $I_C=2.0mA$)	75	225	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=50mA$, $I_B=3.0mA$)	---	0.3	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ($I_C=150mA$, $I_B=15mA$)	0.6	1.3	Vdc
SMALL-SIGNAL CHARACTERISTICS				
h_{fe}	Small-Signal Current Gain ($I_C=2.0mA$, $V_{CE}=4.5Vdc$, $f=1.0KHz$)	75	---	---

* Pulse Test: Pulse Width<300us, Duty Cycle<2.0%