



Micro Commercial Components
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2N5308

Features

- This device is designed for applications requiring extremely high current gain at current to 1.0A

Pin Configuration
 Bottom View



NPN Darlington Transistor

Maximum Ratings*

Symbol	Rating	Rating	Unit
V_{CE0}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	40	V
V_{EBO}	Emitter-Base Voltage	12	V
I_C	Collector Current, Continuous	1.2	A
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

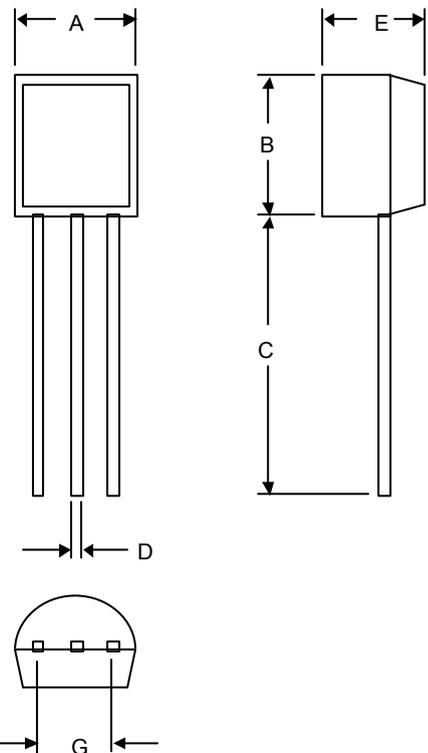
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ($I_C=10mA$, $I_E=0$)	40	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=0.1A$, $I_E=0$)	40	---	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_E=0.1A$, $I_C=0$)	12	---	Vdc
I_{CBO}	Collector Cutoff Current ($V_{CB}=40Vdc$, $I_E=0.4Vdc$) ($V_{CB}=40Vdc$, $I_E=0$, $T_A=100°C$)	---	0.1 20	μA μA
I_{EBO}	Emitter Cutoff Current ($V_{EB}=12Vdc$, $I_C=0$)	---	0.1	nA

* 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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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 ($V_{CE}=5.0Vdc, I_C=2.0mA$) ($V_{CE}=5.0Vdc, I_C=100mA$)	7000 20000	70000 ---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=200mA, I_B=0.2mA$)	---	1.4	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ($I_C=200mA, I_B=0.2mA$)	---	1.6	Vdc
$V_{BE(on)}$	Base-Emitter On Voltage ($I_C=200mA, V_{CE}=5.0Vdc$)	---	1.5	Vdc
SMALL-SIGNAL CHARACTERISTICS				
C_{cb}	Collector-Base Capacitance ($V_{CB}=10Vdc, f=1.0MHz$)	---	10	pF
h_{fe}	Small-Signal Current Gain ($I_C=2.0mA, V_{CE}=5.0Vdc, f=1.0KHz$) ($I_C=2.0mA, V_{CE}=5.0Vdc, f=10MHz$)	7000 6.0	--- ---	--- ---

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