



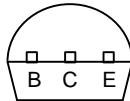
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2N5308

## 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

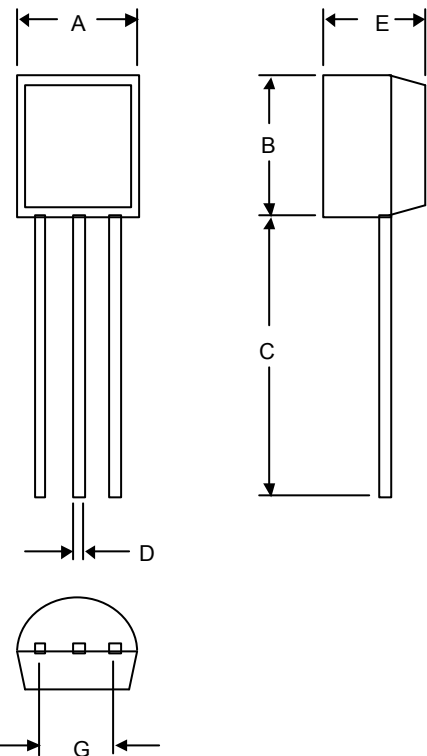
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ( $I_C=10\text{mA}$ , $I_E=0$ )	40	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=0.1\text{A}$ , $I_E=0$ )	40	---	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=0.1\text{A}$ , $I_C=0$ )	12	---	Vdc
$I_{CBO}$	Collector Cutoff Current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

### TO-92



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.170	.190	4.33	4.83	
B	.170	.190	4.30	4.83	
C	.550	.590	13.97	14.97	
D	.010	.020	0.36	0.56	
E	.130	.160	3.30	3.96	
G	.010	.104	2.44	2.64	

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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%