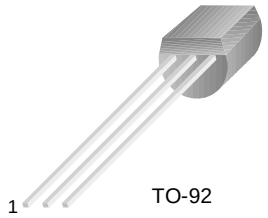
FAIRCHILD
SEMICONDUCTOR®

2N5306

NPN Darlington Transistor

- This device is designed for applications requiring extremely high current gain at currents to 1.0A.
- Sourced from process 05.
- See MPSA14 for characteristics.



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1. Emitter 2. Collector 3. Base

Absolute Maximum Ratings * T_A=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	25	V
V_{CBO}	Collector-Base Voltage	25	V
V_{EBO}	Emitter-Base Voltage	12	V
I_C	Collector Current - Continuous	1.2	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ +150	°C

* 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.

Electrical Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	I_C = 10mA, I_B = 0	25			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 0.1µA, I_E = 0	25			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 0.1µA, I_C = 0	12			V
I_{CBO}	Collector Cutoff Current	V_{CB} = 25V, I_E = 0 V_{CB} = 25V, I_E = 0, T_a = 100°C			0.1 20	µA µA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 12V, I_C = 0			0.1	µA
On Characteristics *						
h_{FE}	DC Current Gain	V_{CE} = 5.0V, I_C = 2.0mA V_{CE} = 5.0V, I_C = 100mA	7,000 20,000		70,000	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 200mA, I_B = 0.2mA			1.4	V
V_{BE}(sat)	Base-Emitter Saturatin Voltage	I_C = 200mA, I_B = 0.2mA			1.6	V
V_{BE}(on)	Base-Emitter On Voltage	I_C = 200mA, V_{CE} = 5.0V			1.5	V
Small Signal Characteristics						
C_{cb}	Collector-Base Capacitance	V_{CB} = 10V, f = 1.0MHz			10	pF
h_{fe}	Small-Signal Current Gain	I_C = 2.0mA, V_{CE} = 5.0V, f = 1.0KHz I_C = 2.0mA, V_{CE} = 5.0V, f = 10MHz	7000 6.0			

* Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2.0%

Thermal Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

Package Dimensions

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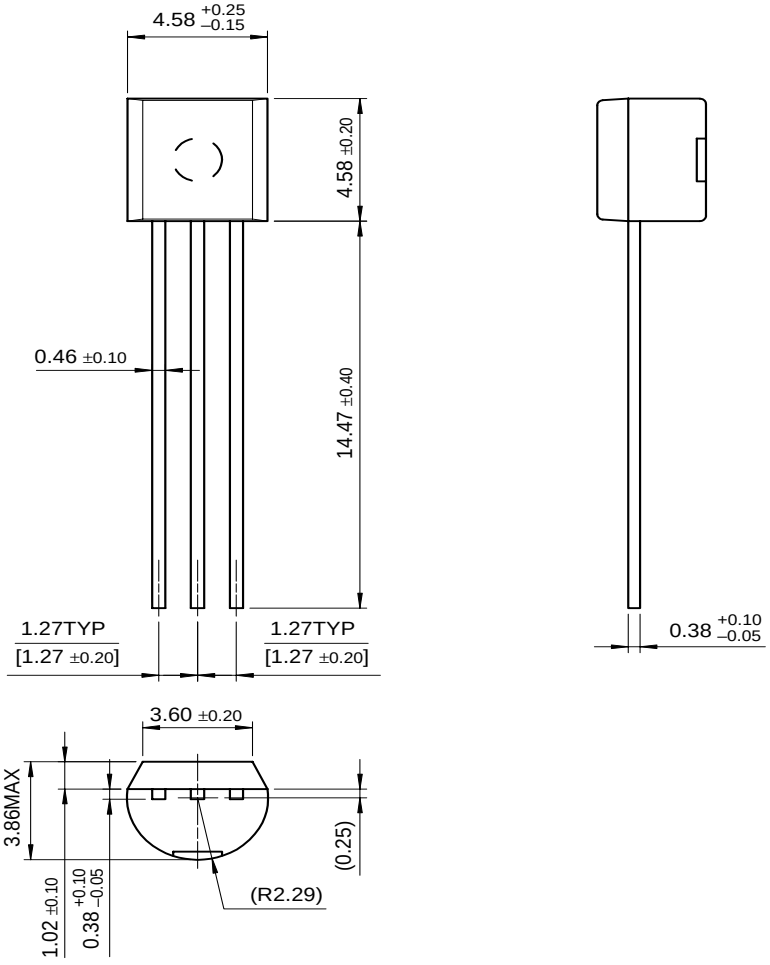

Dimensions in Millimeters

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CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
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