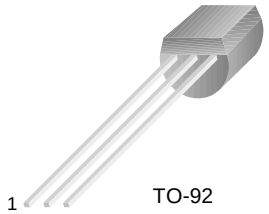
FAIRCHILD
SEMICONDUCTOR®

2N7051

NPN Darlington Transistor

- This device designed for applications requiring extremely high gain at collector currents to 1.0A and high breakdown voltage.
- Sourced from Process 06.
- See 2N7052 for Characteristics.



TO-92

1. Emitter 2. Collector 3. Base

NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Ratings	Units
V_{CEO}	Collector-Emitter Voltage	100	V
V_{CBO}	Collector-Base Voltage	100	V
V_{EBO}	Emitter-Base Voltage	12	V
I_C	Collector Current	1.5	A
T_J, T_{STG}	Storage Temperature	-55 ~ 150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1. These rtings 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						
BV_{CEO}	Collector-Emitter Breakdown Voltage *	I_C = 1.0mA, I_B = 0	100			V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100μA, I_B = 0	100			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 1.0mA, I_C = 0	12			V
I_{CBO}	Collector Cut-off Current	V_{CB} = 80V, I_E = 0			0.1	μA
I_{CES}		V_{CE} = 80V, I_E = 0			0.2	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 7.0V, I_C = 0			0.1	μA
On Characteristics *						
h_{FE}	DC Current Gain	V_{CE} = 5.0V, I_C = 100mA V_{CE} = 5.0V, I_C = 1.0A	10,000 1,000		 20,000	
V_{CE} (sat)	Collector-Emitter Saturation Voltage	I_C = 100mA, I_B = 0.1mA			1.5	V
V_{BE} (sat)	Base-Emitter Saturation Voltage	I_C = 100mA, V_{BE} =5.0V			2.0	V
Small Signal Characteristics						
f_T	Transition Frequency	I_C = 100mA, V_{CE} =5.0V	200			MHz
h_{fe}	Small Signal Current Gain	V_{CE} =5.0V, I_C = 100mA, f = 20MHz	10		100	

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 1.0%

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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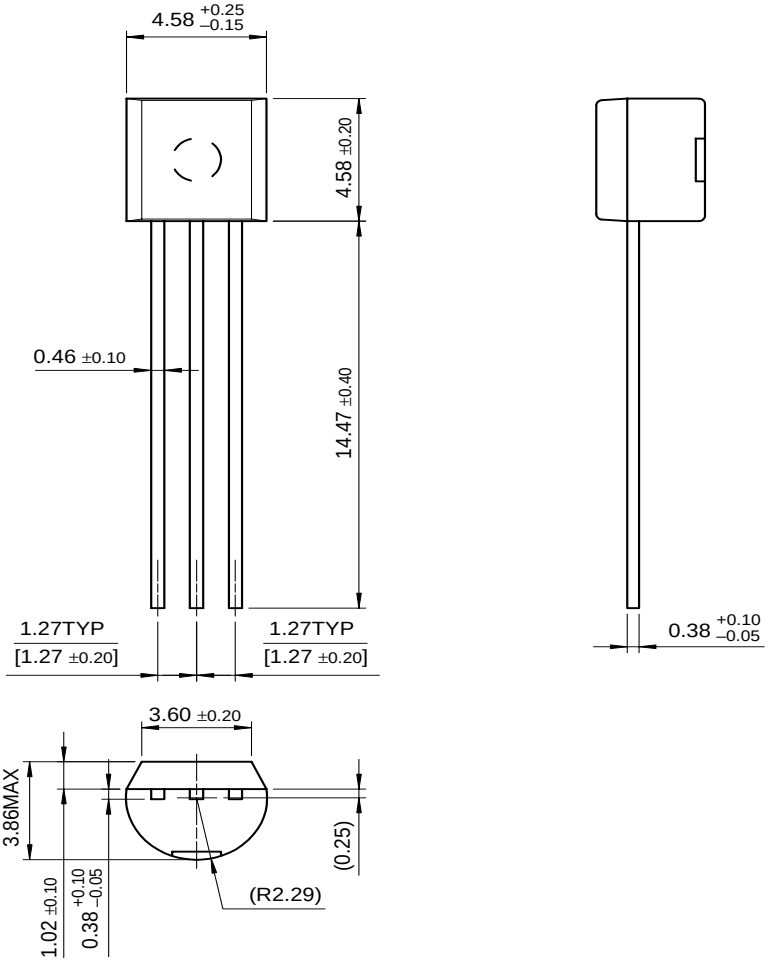

Dimensions in Millimeters

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CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
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Definition of Terms

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