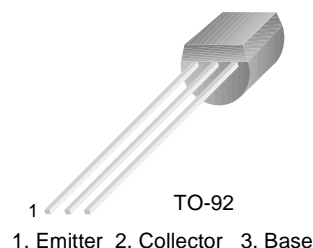


## BSR50

### NPN Darlington Transistor

- This device designed for applications requiring extremely high gain at collector currents to 0.5A.
- Sourced from Process 06.



### NPN Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Ratings	Units
$V_{CEO}$	Collector-Emitter Voltage	45	V
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	1.5	A
$T_J, T_{STG}$	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

#### Electrical Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

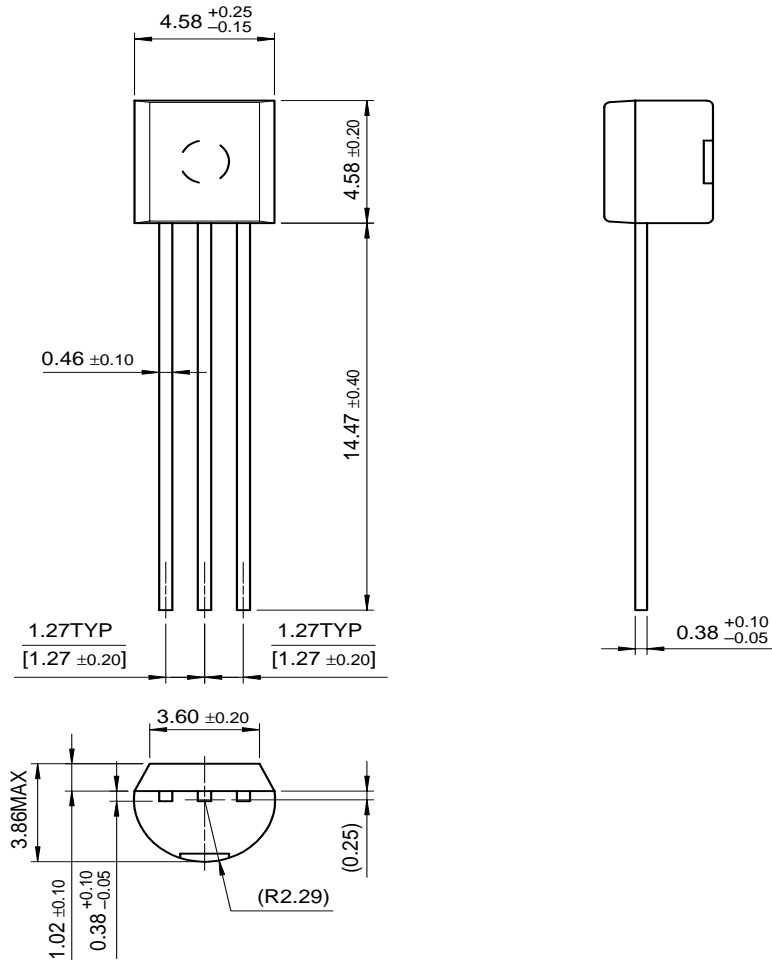
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CEO}$	Collector-Emitter Breakdown Voltage *	$I_C = 10\text{mA}, I_B = 0$	45			V
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_B = 0$	60			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	5			V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 45\text{V}, I_E = 0$			50	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 4.0\text{V}, I_C = 0$			50	nA
$h_{FE}$	DC Current Gain	$V_{CE} = 10\text{V}, I_C = 150\text{mA}$ $V_{CE} = 10\text{V}, I_C = 0.5\text{A}$	1,000 2,000			
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C = 500\text{mA}, I_B = 500\mu\text{A}$ $I_C = 1.0\text{A}, I_B = 4.0\text{mA}$			1.3 1.6	V
$V_{BE}(\text{sat})$	Base-Emitter Saturation Voltage	$I_C = 500\text{mA}, I_B = 500\mu\text{A}$ $I_C = 1.0\text{mA}, I_B = 4.0\text{mA}$			0.9 2.2	V

#### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

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

# Package Dimensions

## TO-92



Dimensions in Millimeters

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