

## 2N2891

## SILICON NPN TRANSISTOR

- $V_{(BR)CEO} = 80V$  (Min).
- Hermetic TO-39 Metal Package.
- Ideally Suited For Low Frequency Large Signal Applications (High Voltage).
- Screening Options Available

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ unless otherwise stated)

$V_{CBO}$	Collector – Base Voltage	100V
$V_{CEO}$	Collector – Emitter Voltage	80V
$V_{EBO}$	Emitter – Base Voltage	5V
$I_C$	Continuous Collector Current	3A
$I_{CM}$	Peak Collector Current	5A
$I_B$	Base Current	0.5A
$P_D$	Total Power Dissipation at $T_A = 25^\circ C$	0.8W
	Derate Above $25^\circ C$	4.57mW/ $^\circ C$
$P_D$	Total Power Dissipation at $T_C = 25^\circ C$	5W
	Derate Above $25^\circ C$	28.6mW/ $^\circ C$
$T_J$	Junction Temperature Range	-65 to +200 $^\circ C$
$T_{stg}$	Storage Temperature Range	-65 to +200 $^\circ C$

### THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	218.75	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance, Junction To Case	35	$^\circ C/W$

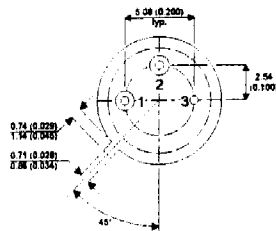
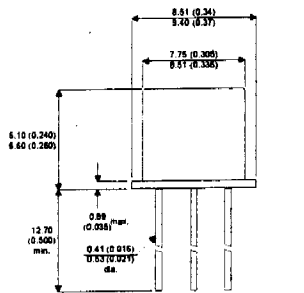


**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $I_B = 0$	80			V
$V_{(BR)CBO}^{(1)}$	Collector-Base Breakdown Voltage	$I_C = 0.1\text{mA}$ $I_E = 0$	100			V
$I_{CEO}$	Collector Cut-Off Current	$V_{CE} = 60\text{V}$ $I_B = 0$			50	$\mu\text{A}$
$I_{CEX}$	Collector Cut-Off Current	$V_{CE} = 60\text{V}$ $V_{BE} = -2\text{V}$			0.1	$\mu\text{A}$
		$T_A = 150^\circ\text{C}$			100	
		$V_{CE} = 90\text{V}$ $V_{BE} = -2\text{V}$			100	
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 5\text{V}$ $I_C = 0$			10	$\mu\text{A}$
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 100\text{mA}$ $V_{CE} = 2\text{V}$	35			V
		$I_C = 1.0\text{A}$ $V_{CE} = 2\text{V}$	50		150	
		$I_C = 2\text{A}$ $V_{CE} = 5\text{V}$	40			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 1.0\text{A}$ $I_B = 100\text{mA}$			0.5	V
		$I_C = 2\text{A}$ $I_B = 200\text{mA}$			0.75	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 1.0\text{A}$ $I_B = 100\text{mA}$			1.2	V
		$I_C = 2\text{A}$ $I_B = 200\text{mA}$			1.3	

**DYNAMIC CHARACTERISTICS**

$h_{fe}$	Small-Signal Current Gain	$I_C = 50\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{KHz}$	50		350	
$f_T$	Transition Frequency	$I_C = 200\text{mA}$ $V_{CE} = 10\text{V}$ $f = 20\text{MHz}$	30			MHz
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$		70	100	pF
$t_{on}$	Turn-On Time	$I_C = 1.0\text{A}$ $V_{CC} = 20\text{V}$ $I_{B1} = 50\text{mA}$			0.3	$\mu\text{s}$
$t_{off}$	Turn-Off Time	$I_C = 1.0\text{A}$ $V_{CC} = 20\text{V}$ $I_{B1} = 50\text{mA}$ $I_{B2} = -50\text{mA}$			1.5	



**TO-39 (TO-205AD) METAL PACKAGE**  
Underside View

Pin 1 - Emitter      Pin 2 - Base      Pin 3 - Collector