

# SILICON EPITAXIAL NPN TRANSISTOR

## 2N4912

- Low Saturation Voltage Transistor In A Hermetic Metal Package
- Designed For Driver Circuits, Switching and Amplifier Applications
- Screening Options Available



### ABSOLUTE MAXIMUM RATINGS ( $T_C = 25^\circ\text{C}$ unless otherwise stated)

$V_{CBO}$	Collector - Base Voltage	80V
$V_{CEO}$	Collector - Emitter Voltage	80V
$V_{EBO}$	Emitter – Base Voltage	5V
$I_C$	Continuous Collector Current	1.0A
$I_B$	Base Current	1.0A
$P_D$	Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	25W 0.143W/ $^\circ\text{C}$
$T_J$	Junction Temperature Range	-65 to $+200^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-65 to $+200^\circ\text{C}$

### THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case			7	$^\circ\text{C}/\text{W}$

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

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $I_B = 0$	80			V
$I_{CEO}$	Collector-Emitter Cut-Off Current	$V_{CE} = 40\text{V}$ $I_B = 0$			0.5	mA
$I_{CEX}$	Collector-Emitter Cut-Off Current	$V_{CE} = 80\text{V}$ $V_{BE} = -1.5\text{V}$			0.1	
		$V_{CE} = 80\text{V}$ $V_{BE} = -1.5\text{V}$ $T_C = 150^\circ\text{C}$			1.0	
$I_{EBO}$	Emitter-Base Cut-Off Current	$V_{EB} = 5\text{V}$ $I_C = 0$			1.0	
$I_{CBO}$	Collector-Base Cut-Off Current	$V_{CB} = 80\text{V}$ $I_E = 0$			0.1	
$V_{BE}^*$	Base-Emitter Voltage	$I_C = 1.0\text{A}$ $V_{CE} = 1.0\text{V}$			1.3	V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 1.0\text{A}$ $I_B = 100\text{mA}$			0.6	
$V_{BE(sat)}^*$	Base-Emitter Saturated Voltage	$I_C = 1.0\text{A}$ $I_B = 100\text{mA}$			1.3	
$h_{FE}^*$	Forward-current transfer ratio	$I_C = 50\text{mA}$ $V_{CE} = 1.0\text{V}$	40			
		$I_C = 500\text{mA}$ $V_{CE} = 1.0\text{V}$	20		100	
		$I_C = 1.0\text{A}$ $V_{CE} = 1.0\text{V}$	10			

## DYNAMIC CHARACTERISTICS

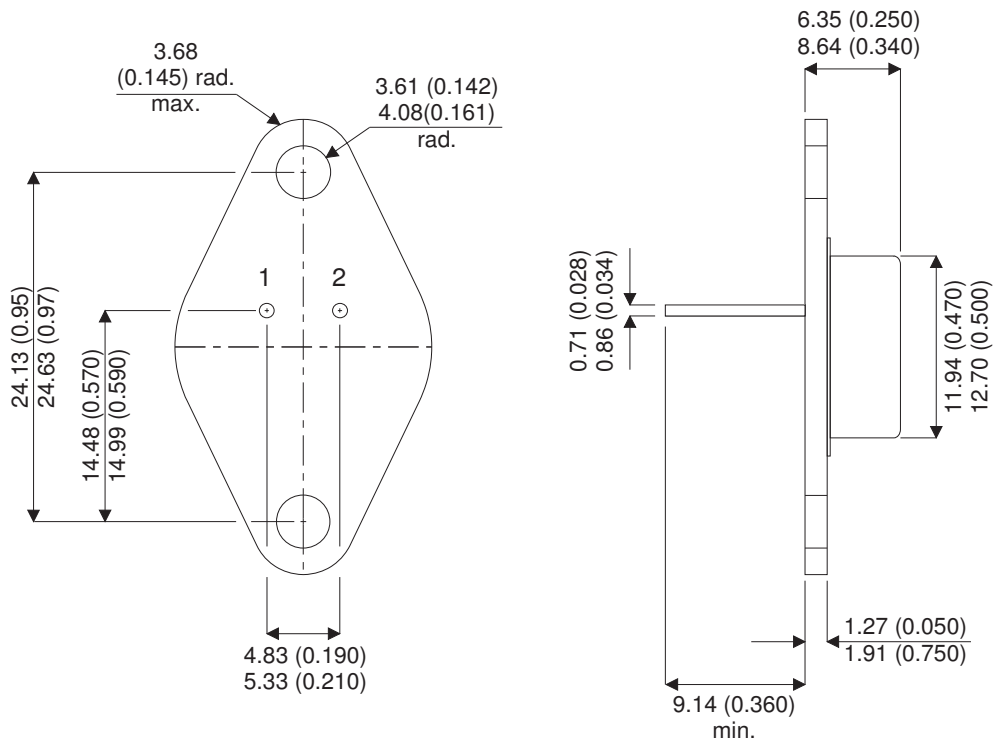
$f_T$	Transition Frequency	$I_C = 250\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{MHz}$	3.0	22		MHz
$h_{fe}$	Small-Signal Current Gain	$I_C = 250\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{KHz}$	25	70		
$C_{obo}$	Output Capacitance	$I_E = 0$ $V_{CB} = 10\text{V}$ $f = 1.0\text{MHz}$		45	100	pF

\* Pulse Test:  $t_p = 300\mu\text{s}$ ,  $\delta \leq 2\%$

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## Mechanical Data

Dimensions in mm (inches)



## TO66 (TO-213AA)

Pin 1 - Base

Pin 2 - Emitter

Case - Collector