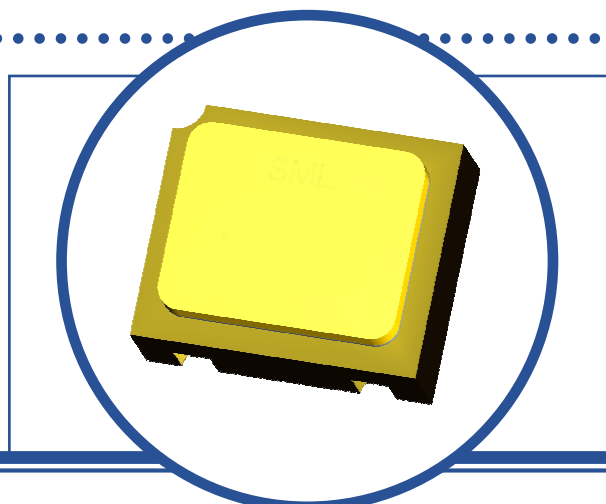


# SILICON NPN TRANSISTOR

## 2N3700CSM

- High Voltage, Medium Power Silicon Planar NPN Transistor
- Hermetic Ceramic Surface Mount Package (SOT23 Compatible)
- High Reliability Screening Options Available
- CECC and Space Quality Level Options



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

$V_{CBO}$	Collector – Base Voltage	140V
$V_{CEO}$	Collector – Emitter Voltage	80V
$V_{EBO}$	Emitter – Base Voltage	7.0V
$I_C$	Continuous Collector Current	1.0A
$P_D$	Total Power Dissipation at $T_A = 25^\circ\text{C}$ Derate Above $T_A = 25^\circ\text{C}$	0.5W 2.9mW/ $^\circ\text{C}$
$T_J$	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.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient			350	$^\circ\text{C/W}$

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



# SILICON NPN TRANSISTOR

## 2N3700CSM

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

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 30\text{mA}$ $I_B = 0$	80			V
$I_{EBO}$	Emitter-Base Cut-Off Current	$V_{EB} = 7.0\text{V}$ $I_C = 0$			10	$\mu\text{A}$
		$V_{EB} = 5.0\text{V}$ $I_C = 0$			10	nA
$I_{CES}$	Collector-Emitter Cut-Off Current	$V_{CE} = 90\text{V}$			10	nA
		$T_A = 150^\circ\text{C}$			5	$\mu\text{A}$
$I_{CBO}$	Collector-Base Cut-Off Current	$V_{CB} = 140\text{V}$ $I_E = 0$			10	nA
$h_{FE}^{(1)}$	DC Current Gain	$I_C = 0.10\text{mA}$ $V_{CE} = 10\text{V}$	50			
		$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$	90			
		$I_C = 150\text{mA}$ $V_{CE} = 10\text{V}$	100		300	
		$T_A = -55^\circ\text{C}$	40			
		$I_C = 500\text{mA}$ $V_{CE} = 10\text{V}$	50			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			0.2	V
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			0.5	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			1.1	

### DYNAMIC CHARACTERISTICS

$ h_{fel} $	Magnitude of Small-Signal Short-Circuit Current Gain	$I_C = 50\text{mA}$ $V_{CE} = 10\text{V}$ $f = 20\text{MHz}$	4	5	20	
$h_{fe}$	Small-Signal Short-Circuit Current Gain	$I_C = 1.0\text{mA}$ $V_{CE} = 5.0\text{V}$ $f = 1.0\text{KHz}$	80		400	
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			12	pF
$C_{ibo}$	Input Capacitance	$V_{EB} = 0.5\text{V}$ $I_C = 0$ $f = 1.0\text{MHz}$			60	pF

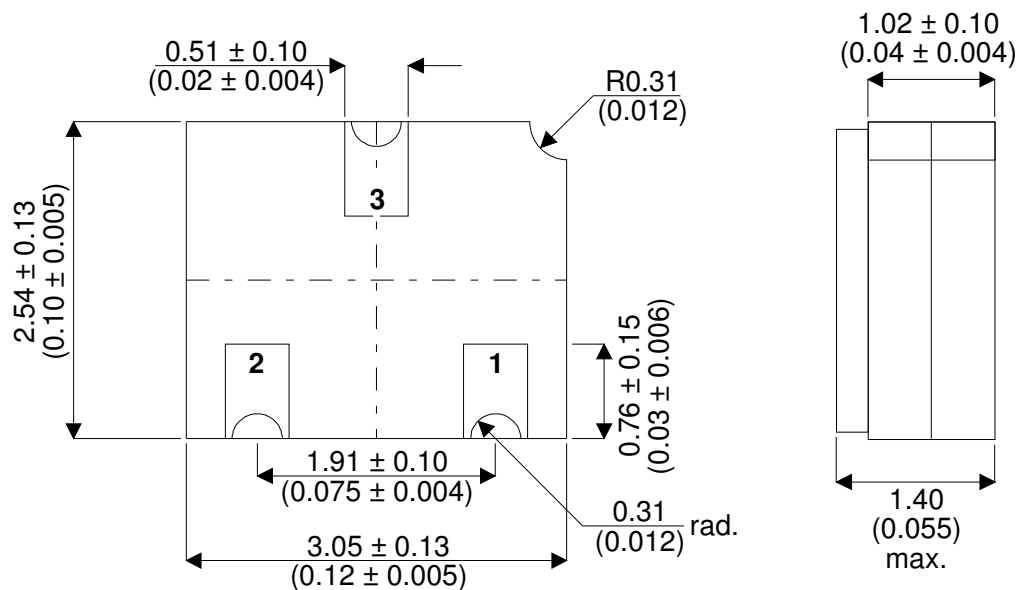
#### Notes

(1) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

# SILICON NPN TRANSISTOR 2N3700CSM

## MECHANICAL DATA

Dimensions in mm (inches)



### LCC1 (Underside View)

Pad 1 - Base

Pad 2 - Emitter

Pad 3 - Collector