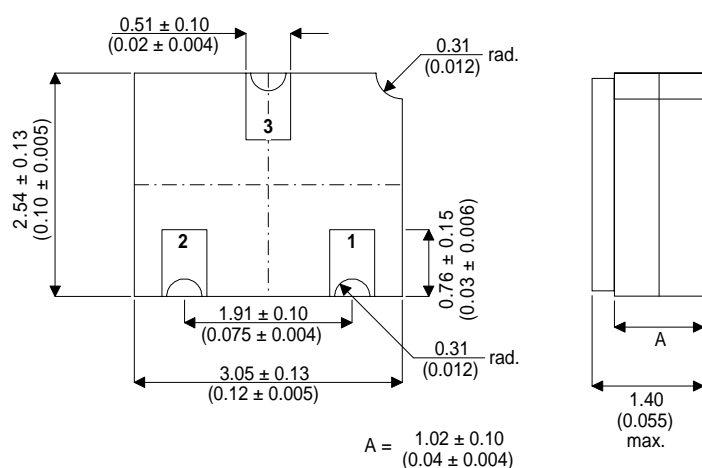


## HIGH SPEED, MEDIUM POWER, NPN SWITCHING TRANSISTOR IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

**MECHANICAL DATA**  
Dimensions in mm (inches)



**SOT23 CERAMIC  
(LCC1 PACKAGE)**

**Underside View**

PAD 1 – Base    PAD 2 – Emitter    PAD 3 – Collector

**FEATURES**

- SILICON PLANAR EPITAXIAL NPN TRANSISTOR
- HERMETIC CERAMIC SURFACE MOUNT PACKAGE (SOT23 COMPATIBLE)
- CECC SCREENING OPTIONS

**APPLICATIONS:**

Hermetically sealed surface mount version of the popular 2N2369A for high reliability / space applications requiring small size and low weight devices.

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

$V_{CBO}$	Collector – Base Voltage	40V
$V_{CEO}$	Collector – Emitter Voltage	15V
$V_{EBO}$	Emitter – Base Voltage	4.5V
$I_C$	Collector Current	200mA
$P_D$	Total Device Dissipation @ $T_A = 25^\circ\text{C}$	360mW
	Derate above $25^\circ\text{C}$	2.06mW / $^\circ\text{C}$
$P_D$	Total Device Dissipation @ $T_C = 25^\circ\text{C}$	680mW
	Derate above $25^\circ\text{C}$	6.85mW / $^\circ\text{C}$
$T_{STG}, T_J$	Operating and Storage Temperature Range	$-65$ to $+200^\circ\text{C}$

Semelab Plc 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.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CEO}^*$ Collector – Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $I_B = 0$	15			V
$V_{(BR)CBO}$ Collector – Base Breakdown Voltage	$I_C = 10\mu\text{A}$ $I_E = 0$	40			V
$V_{(BR)EBO}$ Emitter – Base Breakdown Voltage	$I_E = 10\mu\text{A}$ $I_C = 0$	4.5			V
$I_{CES}$ Collector – Emitter Cut-off Current	$V_{CE} = 20\text{V}$ $V_{BE} = 0$			0.40	$\mu\text{A}$
$I_{CBO}$ Collector – Base Cut-off Current	$V_{CB} = 20\text{V}$ $T_A = +150^\circ\text{C}$			30	
$V_{CE(sat)}^*$ Collector – Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 1\text{mA}$			0.20	V
	$T_A = +125^\circ\text{C}$			0.30	
	$I_C = 30\text{mA}$ $I_B = 3\text{mA}$			0.25	
$V_{BE(sat)}^*$ Base – Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 1\text{mA}$			0.70	V
	$T_A = +25^\circ\text{C}$			0.85	
	$T_A = +125^\circ\text{C}$			0.59	
	$T_A = -55^\circ\text{C}$			1.02	
	$I_C = 30\text{mA}$ $I_B = 3\text{mA}$			1.15	
$h_{FE}^*$ Current Gain	$I_C = 10\text{mA}$ $V_{CE} = 0.35\text{V}$			40	—
	$T_A = -55^\circ\text{C}$			20	
	$I_C = 30\text{mA}$ $V_{CE} = 0.4\text{V}$			30	
	$I_C = 10\text{mA}$ $V_{CE} = 1.0\text{V}$			120	
	$I_C = 100\text{mA}$ $V_{CE} = 1\text{V}$			20	
$f_T$ Transition Frequency	$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$			500	MHz
$C_{ob}$ Output Capacitance	$V_{CB} = 5\text{V}$ $I_E = 0$ $f = 140\text{kHz}$			4	pF
$t_s$ Storage Time	$I_C = 10\text{mA}$ $I_{B1} = I_{B2} = 10\text{mA}$			13	ns
$t_{on}$ Turn-On Time	$I_C = 10\text{mA}$ $V_{CC} = 3\text{V}$			12	
$t_{off}$ Turn-Off Time	$I_{B1} = 3\text{mA}$ $I_{B2} = 1.5\text{mA}$			18	

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