

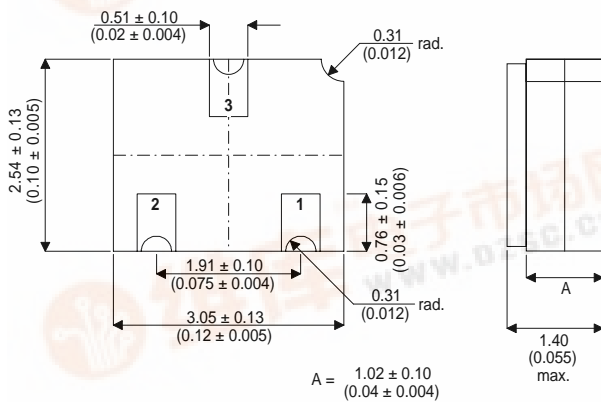


2N2369ACSM

**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**

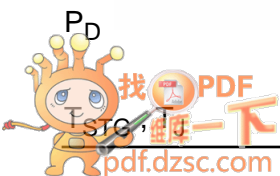
- SILICON PLANAR EPITAXIAL NPN TRANSISTOR
- HERMETIC CERAMIC SURFACE MOUNT PACKAGE (SOT23 COMPATIBLE)
- CECC SCREENING OPTIONS

**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)

$V_{CB0}$	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 / $^\circ\text{C}$
	Operating and Storage Temperature Range	-65 to +200 $^\circ\text{C}$



**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	$I_C = 10\text{mA}$	15			V
$V_{(BR)CBO}$ Collector – Base Breakdown Voltage	$I_C = 10\mu\text{A}$	40			V
$V_{(BR)EBO}$ Emitter – Base Breakdown Voltage	$I_E = 10\mu\text{A}$	4.5			V
$I_{CES}$ Collector – Emitter Cut-off Current	$V_{CE} = 20\text{V}$			0.40	$\mu\text{A}$
	$V_{CE} = 10\text{V}$			0.30	
	$T_A = +150^\circ\text{C}$			30	
$I_{CBO}$ Collector – Base Cut-off Current	$V_{CB} = 20\text{V}$			0.20	$\mu\text{A}$
	$T_A = +125^\circ\text{C}$			30	
$I_{EBO}$ Emitter – Base Cut-off Current	$V_{EB} = 4\text{V}$			0.25	$\mu\text{A}$
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 1\text{mA}$			0.20	V
	$T_A = +150^\circ\text{C}$			0.30	
	$I_C = 30\text{mA}$ $I_B = 3\text{mA}$			0.25	
	$I_C = 100\text{mA}$ $I_B = 10\text{mA}$			0.43	
$V_{BE(sat)}$ Base – Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 1\text{mA}$	$T_A = +25^\circ\text{C}$	0.70	0.85	V
		$T_A = +150^\circ\text{C}$	0.59		
		$T_A = -55^\circ\text{C}$		1.02	
	$I_C = 30\text{mA}$ $I_B = 3\text{mA}$			0.90	
	$I_C = 100\text{mA}$ $I_B = 10\text{mA}$			1.20	
$h_{FE^*}$ Current Gain	$I_C = 10\text{mA}$ $V_{CE} = 0.35\text{V}$		40	120	—
	$I_C = 30\text{mA}$ $V_{CE} = 0.40\text{V}$		30	120	
	$I_C = 10\text{mA}$ $V_{CE} = 1\text{V}$		40	120	
	$T_A = -55^\circ\text{C}$		20		
	$I_C = 100\text{mA}$ $V_{CE} = 1\text{V}$		20	120	
$ h_{fe} $ Magnitude of $h_{fe}$	$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$		5	10	—
$C_{ob}$ Output Capacitance	$V_{CB} = 5\text{V}$ $I_E = 0$ $f = 100\text{kHz to } 1\text{MHz}$			4	$\text{pF}$
$C_{ib}$ Input Capacitance	$V_{EB} = 0.5\text{V}$ $I_C = 0$ $f = 100\text{kHz to } 1\text{MHz}$			5	
$t_s$ Storage Time	$I_C = 10\text{mA}$ $I_{B1} = -I_{B2} = 10\text{mA}$			13	ns
$t_{on}$ Turn-On Time	$I_C = 10\text{mA}$			12	ns
$t_{off}$ Turn-Off Time	$I_{B1} = 3\text{mA}$ $I_{B2} = -1.5\text{mA}$			18	

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