

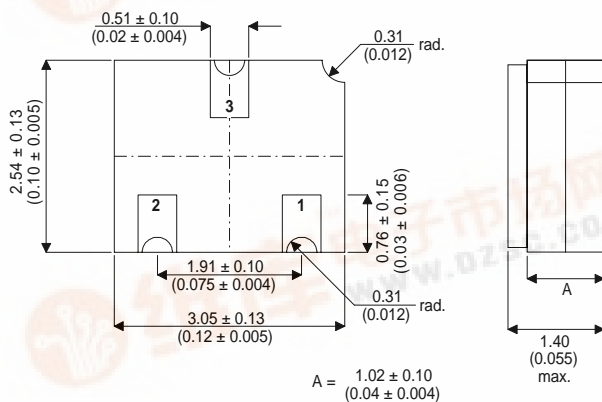


2N3209CSM

HIGH SPEED, PNP, SWITCHING TRANSISTOR IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

MECHANICAL DATA

Dimensions in mm (inches)



Underside View

- PAD 1 Base
- PAD 2 Emitter
- PAD 3 Collector

**SOT23 CERAMIC (CSM)
LCC1 PACKAGE**

FEATURES

- SILICON PLANAR EPITAXIAL PNP TRANSISTOR
- HERMETIC CERAMIC SURFACE MOUNT PACKAGE (SOT23 COMPATIBLE)
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- HIGH SPEED SATURATED SWITCHING

APPLICATIONS:

For high reliability general purpose applications requiring small size and low weight devices.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V _{CB0}	Collector – Base Voltage	-20V
V _{CEO}	Collector – Emitter Voltage	-20V
V _{EBO}	Emitter – Base Voltage	-4V
I _C	Collector Current	-200mA
P _D	Total Device Dissipation	300mW
P _D	Derate above 50°C	2.20mW / °C
R _{ja}	Thermal Resistance Junction to Ambient	420°C / W
T _j	Max Junction Temperature	200°C
T _{stg}	Storage Temperature	-55 to 200°C



ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO(sus)}^*$ Collector – Emitter Sustaining Voltage	$I_C = 10mA$	-20			V
$V_{(BR)CBO}^*$ Collector – Base Breakdown Voltage	$I_C = 10\mu A$	-20			V
$V_{(BR)EBO}^*$ Emitter – Base Breakdown Voltage	$I_E = 10\mu A$ $I_C = 0$	-4			V
I_{CES}^* Collector Cut-off Current	$V_{CE} = 10V$ $V_{BE} = 0$			80	nA
	$V_{CE} = 10V$ $V_{BE} = 0$ $T_C = 125^{\circ}C$			10	μA
$V_{CE(sat)}^*$ Collector – Emitter Saturation Voltage	$I_C = 10mA$ $I_B = 1mA$			0.15	V
	$I_C = 30mA$ $I_B = 3mA$			0.20	
	$I_C = 100mA$ $I_B = 10mA$			0.60	
$V_{BE(sat)}^*$ Base – Emitter Saturation Voltage	$I_C = 10mA$ $I_B = 1mA$	0.78		0.98	V
	$I_C = 30mA$ $I_B = 3mA$	0.85		1.2	
	$I_C = 100mA$ $I_B = 10mA$			1.7	
h_{FE}^* DC Current Gain	$I_C = 10mA$ $V_{CE} = 0.3V$	25			—
	$I_C = 30mA$ $V_{CE} = 0.5V$	30		120	
	$I_C = 100mA$ $V_{CE} = 1V$	15			
	$I_C = 30mA$ $V_{CE} = 0.5V$	12			

$T_{amb} = -55^{\circ}C$

* Pulse test $t_p = 300\mu s$, $\delta \leq 2\%$

DYNAMIC CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f_T Transition Frequency	$I_C = 30mA$ $V_{CE} = 10V$ $f = 100MHz$	400			MHz
C_{EBO} Capacitance	$V_{EB} = 0.5V$ $I_C = 0$ $f = 1.0MHz$			6.0	pF
C_{CBO} Input Capacitance	$V_{CB} = 5V$ $I_E = 0$ $f = 1.0MHz$			5.0	pF

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_{on} Turn-on Time	$V_{CC} = 2V$ $I_C = 30mA$ $I_{B1} = 1.5mA$			60	ns
t_{off} Turn-off Time	$V_{CC} = 2V$ $I_C = 30mA$ $I_{B1} = I_{B2} = 1.5mA$			90	ns