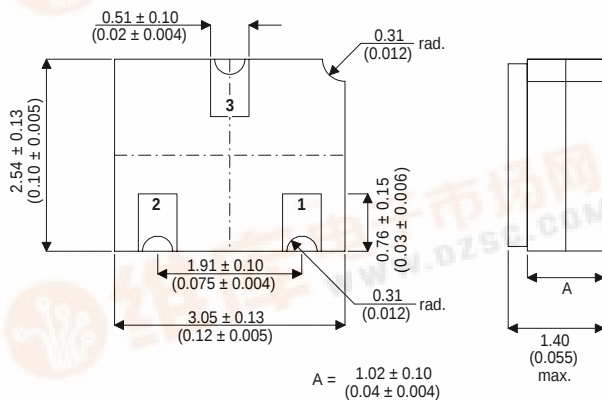


2N930CSM

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

MECHANICAL DATA

Dimensions in mm (inches)



FEATURES

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

SOT23 CERAMIC (LCC1 PACKAGE)

Underside View

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

APPLICATIONS:

Hermetically sealed surface mount version of the popular 2N930 for high reliability 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	45V
V_{CEO}	Collector – Emitter Voltage	45V
V_{EBO}	Emitter – Base Voltage	5V
I_C	Collector Current	30mA
P_D	Total Device Dissipation @ $T_A = 25^\circ\text{C}$	500mW
	Derate above 25°C	2.85mW / $^\circ\text{C}$
P_D	Total Device Dissipation @ $T_C = 25^\circ\text{C}$	1.16W
	Derate above 25°C	12mW / $^\circ\text{C}$
	Operating and Storage Temperature Range	-65 to $+175^\circ\text{C}$



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	$I_C = 10\text{mA}$ $I_B = 0$	45			V
$V_{(BR)CBO}$ Collector – Base Breakdown Voltage	$I_C = 10\mu\text{A}$ $I_E = 0$	80			
$V_{(BR)EBO}$ Emitter – Base Breakdown Voltage	$I_E = 10\mu\text{A}$ $I_C = 0$	5			
I_{CBO} Collector – Base Cut-off Current	$V_{CE} = 5\text{V}$ $I_B = 0$			2	nA
	$V_{CB} = 45\text{V}$ $I_E = 0$			10	
	$V_{CE} = 45\text{V}$ $V_{BE} = 0$			10	
I_{EBO} Emitter – Base Cut-off Current	$V_{BE} = 5\text{V}$ $I_C = 0$			10	nA
$V_{CE(sat)}^*$ Collector – Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 0.5\text{mA}$			1	V
$V_{BE(sat)}^*$ Base – Emitter Saturation Voltage		0.7		0.9	
h_{FE} DC Current Gain	$V_{CE} = 10\text{V}$ $I_C = 500\mu\text{A}$	150			—
	$V_{CE} = 10\text{V}$ $I_C = 10\text{mA}^*$			600	
f_T Current Gain Bandwidth Product	$I_C = 500\mu\text{A}$ $V_{CE} = 5\text{V}$ $f = 30\text{MHz}$	30			MHz
C_{ob} Output Capacitance	$I_E = 0$ $V_{CB} = 5\text{V}$ $f = 1\text{MHz}$			8	pF
h_{ib} Input Impedance	$I_E = 1\text{mA}$ $V_{CB} = 5\text{V}$ $f = 1\text{kHz}$	25		32	Ω
h_{rb} Voltage Feedback Ratio				600	$\times 10^{-6}$
h_{ob} Output Admittance				1	μmhos
h_{fe} Small Signal Current Gain	$V_{CE} = 5\text{V}$ $I_C = 0$ $f = 1\text{MHz}$	150		600	—
NF Noise Figure	$V_{CE} = 5\text{V}$ $I_C = 10\mu\text{A}$ $R_S = 10\text{k}\Omega$ $f = 10\text{Hz to } 15.7\text{kHz}$			3	dB

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