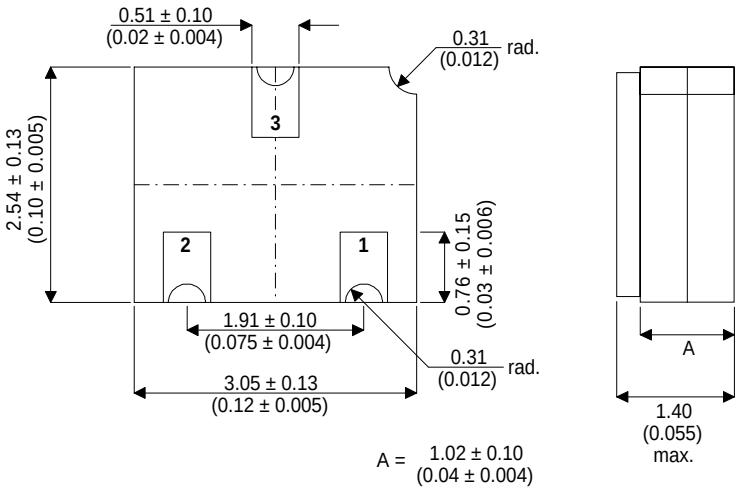
2N3906CSM

GENERAL PURPOSE PNP 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**
- **SPACE QUALITY LEVELS OPTIONS**
- **HIGH SPEED SATURATED SWITCHING**

APPLICATIONS:

Hermetically sealed surface mount version of the popular 2N3906 for high reliability / space applications requiring small size and low weight devices.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

V_{CBO}	Collector – Base Voltage (I_E = 0)		-40V
V_{CEO}	Collector – Emitter Voltage (I_B = 0)		-40V
V_{EBO}	Emitter – Base Voltage (I_C = 0)		-5V
I_C	Collector Current		-200mA
P_D	Total Device Dissipation	@ T_A =25°C	500mW
		Derate above 25°C	2.86mW / °C
P_D	Total Device Dissipation	@ T_C =25°C	1.16W
		Derate above 25°C	6.6mW / °C
T_{STG} , T_J	Operating and Storage Temperature Range		–55 to +150°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.

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Document Number 4283
Issue 1

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)CEO*}$	Collector – Emitter Breakdown Voltage	I_C = -1mA	I_B = 0	-40			V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	I_C = -10µA	I_E = 0	-40			
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	I_E = -10µA	I_C = 0	-5			
I_{CEX}	Collector – Emitter Cut-off Current	V_{CE} = -30V	V_{BE} = 3V			-50	nA
$V_{CE(sat)}$	Collector – Emitter Saturation Voltage	I_C = -10mA	I_B = -1mA			-0.25	V
		I_C = -50mA	I_B = -5mA			-0.40	
$V_{BE(sat)}$	Base – Emitter Saturation Voltage	I_C = -10mA	I_B = -1mA	-0.65		-0.85	V
		I_C = -50mA	I_B = -5mA			-0.95	
h_{FE*}	DC Current Gain	V_{CE} = -1V	I_C = -0.1mA	60			—
			I_C = -1mA	80			
			I_C = -10mA	100		300	
			I_C = -50mA	60			
			I_C = -100mA	30			

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

SMALL SIGNAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
f_t	Current Gain Bandwidth Product	V_{CE} = -20V f = 100MHz	I_C = -10mA	250			MHz
C_{ob}	Output Capacitance	V_{CB} = -5V f = 100kHz	I_E = 0			4.5	pF
h_{oe}	Output Admittance	V_{CE} = -10V I_C = -10mA f = 1kHz		100		400	µhmos
h_{fe}	Small Signal Current Gain			3		60	—
N_F	Noise Figure	V_{CE} = -5V f = 1kHz	I_C = -100µA R_S = 1kΩ			4	dB

SWITCHING CHARACTERISTICS (T_A = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
t_d	Delay Time	V_{CC} = 3V	V_{BE} = 0.5V			35	ns
t_r	Rise Time	I_C = 10mA	I_{B1} = 1mA			35	
t_f	Fall Time	V_{CC} = 3V $I_{B1} = I_{B2}$ = 1mA	I_C = 10mA			75	

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