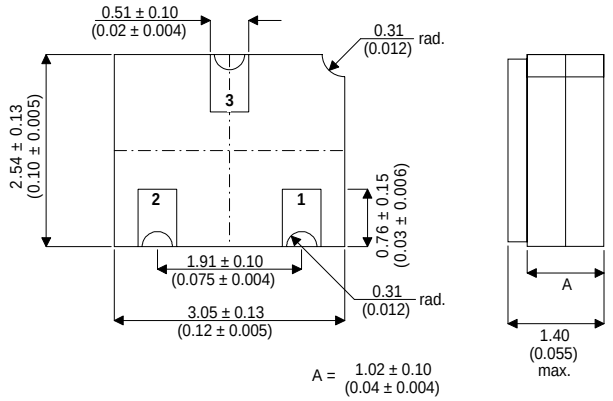
2N3019CSM

HIGH FREQUENCY, NPN 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 NPN TRANSISTOR**
- **HERMETIC CERAMIC SURFACE MOUNT PACKAGE (SOT23 COMPATIBLE)**
- **CECC SCREENING OPTIONS AVAILABLE**
- **SPACE QUALITY LEVELS AVAILABLE**
- **HIGH SPEED SATURATED SWITCHING**

APPLICATIONS:

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

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

V_{CBO}	Collector – Base Voltage	140V
V_{CEO}	Collector – Emitter Voltage	80V
V_{EBO}	Emitter – Base Voltage	7V
I_C	Collector Current	1A
P_D	Total Device Dissipation	350mW
P_D	Derate above 50°C	2.00mW / °C
R_{ja}	Thermal Resistance Junction to Ambient	350°C / W
T_j	Max Junction Temperature	200°C
T_{stg}	Storage Temperature	–55 to 200°C

SEME LAB

2N3019CSM

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
V_{CEO*}	Collector – Emitter Voltage	I_C = 10mA		80			V
$V_{(BR)CBO*}$	Collector – Base Breakdown Voltage	I_C = 10µA		140			V
$V_{(BR)EBO*}$	Emitter – Base Breakdown Voltage	I_E = 10µA	I_C = 0	7			V
I_{CBO}	Collector Cut-off Current	V_{CB} = 90V	V_{BE} = 0			10	nA
		V_{CB} = 90V T_{amb} = 150°C	V_{BE} = 0			10	µA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 5V				10	nA
$V_{CE(sat)*}$	Collector – Emitter Saturation Voltage	I_C = 150mA	I_B = 15mA			0.20	V
		I_C = 500mA	I_B = 50mA			0.50	
$V_{BE(sat)*}$	Base – Emitter Saturation Voltage	I_C = 150mA	I_B = 15mA			1.1	V
h_{FE*}	DC Current Gain	I_C = 0.1mA	V_{CE} = 10V	50			—
		I_C = 10mA	V_{CE} = 10V	90			
		I_C = 150mA	V_{CE} = 10V	100		300	
		I_C = 500mA	V_{CE} = 10V	50			
		I_C = 1A	V_{CE} = 10V	15			
	T_{amb} = –55°C	I_C = 150mA	V_{CE} = 0.5V	40			

t* Pulse test t_p = 300µs , $\delta \leq 2\%$

DYNAMIC CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

	Parameter	Test Conditions			Min.	Typ.	Max.	Unit
f_T	Transition Frequency	I_C = 50mA	V_{CE} = 10V	f = 20MHz	100			MHz
C_{EBO}	Capacitance	V_{EB} = 0.5V	I_C = 0	f = 1.0MHz			60	pF
C_{CBO}	Input Capacitance	V_{CB} = 10V	I_E = 0	f = 1.0MHz			12	pF
h_{fe}	Small Signal Current Gain	I_C = 1mA	V_{CE} = 5V	f = 1kHz	80		400	—
NF	Noise Figure	I_C = 100µA	V_{CE} = 10V R_g = 1KΩ	f = 1kHz			4	db

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