



HIGH FREQUENCY, NPN TRANSISTOR IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

MECHANICAL DATA Dimensions in mm (inches)

$\frac{0.51 \pm 0.10}{(0.02 \pm 0.004)}$ 0.31 (0.012) rad. 1.91 ± 0.10 3.05 ± 0.13 (0.12 ± 0.005) (0.055) max. $A = \frac{1.02 \pm 0.10}{(0.04 \pm 0.004)}$

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

SOT23 CERAMIC (LCC1 PACKAGE)

Underside View

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

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
$I_{\mathbb{C}}$	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
Tj	Max Junction Temperature	200°C
T _{stg}	Storage Temperature	−55 to 200°C

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

	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
V _{(BR)CEO*}	Collector – Emitter BreakdownVoltage	I _C = 10mA	I _B = 0	80			V
V _{(BR)CBO*}	Collector – Base Breakdown Voltage	I _C = 100μA	I _E = 0	140			V
V _{(BR)EBO*}	Emitter – Base Breakdown Voltage	I _E = 100μA	I _C = 0	7			V
I _{CBO}	Collector Cut-off Current	V _{CB} = 90V	$V_{BE} = 0$			10	nA
			$T_{amb} = 150$ °C			10	μΑ
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	
		I _C = 500mA	I _B = 50mA			0.50	V
V _{BE(sat)*}	Base – Emitter Saturation Voltage	I _C = 150mA	I _B = 15mA			1.1	
		$I_C = 0.1 \text{mA}$	V _{CE} = 10V	50			
		I _C = 10mA	V _{CE} = 10V	90			
		I _C = 150mA	V _{CE} = 10V	100		300	_
h _{FE*}	DC Current Gain		$T_{amb} = -55$ °C	40			
		I _C = 500mA	V _{CE} = 10V	50			
		I _C = 1A	V _{CE} = 10V	15			

 t^{\star} Pulse test t_p = 300 μs , $\delta \! \leq \! 2\%$

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

Parameter		Test Conditions			Min.	Тур.	Max.	Unit
f _T	Transition Frequency	$I_C = 50 \text{mA}$	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	$I_{C} = 100 \mu A$	V _{CE} = 10V	f = 1kHz			4	dB
			$R_g = 1K\Omega$					

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