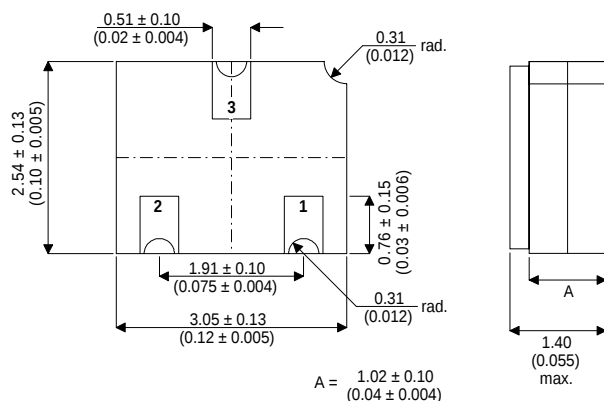


HIGH FREQUENCY, NPN TRANSISTOR IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

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 AVAILABLE
- SPACE QUALITY LEVELS AVAILABLE
- HIGH SPEED SATURATED SWITCHING

APPLICATIONS:

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

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ 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 $50^{\circ}C$	2.00mW / $^{\circ}C$
R_{ja}	Thermal Resistance Junction to Ambient	350 $^{\circ}C$ / W
T_j	Max Junction Temperature	200 $^{\circ}C$
T_{stg}	Storage Temperature	–55 to 200 $^{\circ}C$

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.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CEO}^*$ Collector – Emitter Breakdown Voltage	$I_C = 10mA$ $I_B = 0$	80			V
$V_{(BR)CBO}^*$ Collector – Base Breakdown Voltage	$I_C = 100\mu A$ $I_E = 0$	140			V
$V_{(BR)EBO}^*$ Emitter – Base Breakdown Voltage	$I_E = 100\mu A$ $I_C = 0$	7			V
I_{CBO} Collector Cut-off Current	$V_{CB} = 90V$ $V_{BE} = 0$ $T_{amb} = 150^{\circ}C$			10	nA
				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	
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	
	$T_{amb} = -55^{\circ}C$	40			
	$I_C = 500mA$ $V_{CE} = 10V$	50			
	$I_C = 1A$ $V_{CE} = 10V$	15			

t^* 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	$I_C = 50mA$ $V_{CE} = 10V$ $f = 20MHz$	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	$I_C = 100\mu A$ $V_{CE} = 10V$ $f = 1kHz$ $R_g = 1K\Omega$			4	dB