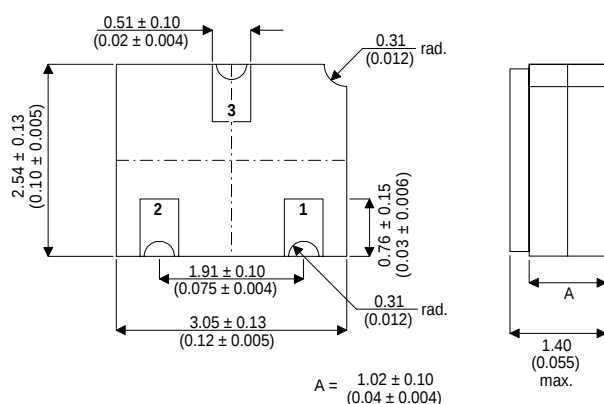


HIGH SPEED, MEDIUM POWER, NPN SWITCHING TRANSISTOR IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

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 2N2222A for high reliability / space applications requiring small size and low weight devices.

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

V _{CBO}	Collector – Base Voltage	75V
V _{CEO}	Collector – Emitter Voltage (I _B = 0)	40V
V _{EBO}	Emitter – Base Voltage (I _B = 0)	6V
I _C	Collector Current	600mA
P _D	Total Device Dissipation	350mW
P _D	Derate above 50°C	2.0mW / °C
R _{ja}	Thermal Resistance Junction to Ambient	350°C/W
T _{stg,Tj}	Storage Temperature, Operating Temp Range	–55 to 200°C

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _{CEO(sus)} * Collector – Emitter Sustaining Voltage	I _C = 10mA	40			V
V _{(BR)CBO} * Collector – Base Breakdown Voltage	I _C = 10μA	75			V
V _{(BR)EBO} * Emitter – Base Breakdown Voltage	I _E = 10μA I _C = 0	6			V
I _{CEX} * Collector Cut-off Current (I _C = 0)	I _B = 0 V _{CE} = 60V			10	nA
I _{CBO} * Collector – Base Cut-off Current	I _E = 0 V _{CB} = 60V			10	nA
	T _C = 125°C			10	μA
I _{EBO} * Emitter Cut-off Current (I _C = 0)	I _C = 0 V _{EB} = 3V (off)			10	nA
I _{BL} * Base Current	V _{CE} = 60V V _{EB} = 3V (off)			20	nA
V _{CE(sat)} * Collector – Emitter Saturation Voltage	I _C = 150mA I _B = 15mA			0.3	V
	I _C = 500mA I _B = 50mA			1	
V _{BE(sat)} * Base – Emitter Saturation Voltage	I _C = 150mA I _B = 15mA	0.6		1.2	V
	I _C = 500mA I _C = 50mA			2	
h _{FE} * DC Current Gain	I _C = 0.1mA V _{CE} = 10V	35			—
	I _C = 1mA V _{CE} = 10V	50			
	I _C = 10mA V _{CE} = 10V	75			
	I _C = 10mA V _{CE} = 10V	35			
	I _C = 150mA V _{CE} = 10V	100		300	
	I _C = 150mA V _{CE} = 1V	50			
	I _C = 500mA V _{CE} = 10V	40			

* Pulse test t_p = 300μs, δ ≤ 2%

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f _T Transition Frequency	I _C = 20mA V _{CE} = 20V f = 100MHz	300			MHz
C _{ob} Output Capacitance	V _{CB} = 10V I _E = 0 f = 1.0MHz			8	pF
C _{ib} Input Capacitance	V _{BE} = 0.5V I _C = 0 f = 1.0MHz			30	pF
h _{fe} Small Signal Current Gain	I _C = 1mA V _{CE} = 10V f = 1kHz	50		300	
	I _C = 10mA V _{CE} = 10V f = 1kHz	75		375	

SWITCHING CHARACTERISTICS (RESISTIVE LOAD) (T_{case} = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t _d Delay Time	V _{CC} = 30V V _{BE} = 0.5V (off)			10	ns
t _r Rise Time	I _{C1} = 150mA I _{B1} = 15mA			25	ns
t _s Storage Time	V _{CC} = 30V I _C = 150mA			225	ns
t _f Fall Time	I _{B1} = I _{B2} = 15mA			60	ns

f_T is defined as the frequency at which h_{FE} extrapolates to unity.