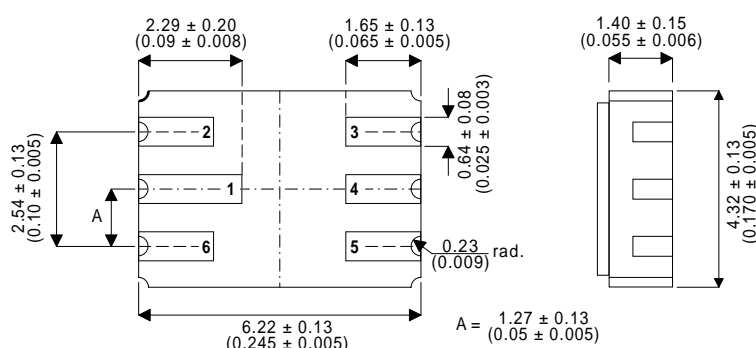


**DUAL HIGH SPEED, MEDIUM POWER  
NPN SWITCHING TRANSISTOR IN A  
HERMETICALLY SEALED  
CERAMIC SURFACE MOUNT PACKAGE  
FOR HIGH RELIABILITY APPLICATIONS**

**MECHANICAL DATA**  
Dimensions in mm (inches)



**FEATURES**

- DUAL SILICON PLANAR EPITAXIAL NPN TRANSISTORS
- HERMETIC CERAMIC SURFACE MOUNT PACKAGE
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- HIGH SPEED SATURATED SWITCHING

**LCC2 PACKAGE**  
**Underside View**

- PAD 1 – Collector 1
- PAD 2 – Base 1
- PAD 3 – Base 2
- PAD 4 – Collector 2
- PAD 5 – Emitter 2
- PAD 6 – Emitter 1

**APPLICATIONS:**

Hermetically sealed dual surface mount version of the popular 2N2222A for high reliability / space applications requiring small size and low weight devices.

**ABSOLUTE MAXIMUM RATINGS PER SIDE** ( $T_C = 25^\circ\text{C}$  unless otherwise stated)

PER SIDE		
$V_{CBO}$	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 $50^\circ\text{C}$	2.0mW / $^\circ\text{C}$
TOTAL DEVICE		
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	130 $^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction to Case	60 $^\circ\text{C}/\text{W}$
$T_{STG}, T_j$	Storage Temperature, Operating Temp Range	-55 to 200 $^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS PER SIDE** ( $T_C = 25^\circ\text{C}$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO(sus)^*}$ Collector – Emitter Sustaining Voltage	$I_C = 10\text{mA}$	40			V
$V_{(BR)CBO}^*$ Collector – Base Breakdown Voltage	$I_C = 10\mu\text{A}$	75			V
$V_{(BR)EBO}^*$ Emitter – Base Breakdown Voltage	$I_E = 10\mu\text{A}$ $I_C = 0$	6			V
$I_{CEX}^*$ Collector Cut-off Current ( $I_C = 0$ )	$I_B = 0$ $V_{CE} = 60\text{V}$			10	nA
$I_{CBO}^*$ Collector – Base Cut-off Current	$I_E = 0$ $V_{CB} = 60\text{V}$			10	nA
	$T_C = 125^\circ\text{C}$			10	$\mu\text{A}$
$I_{EBO}^*$ Emitter Cut-off Current ( $I_C = 0$ )	$I_C = 0$ $V_{EB} = 3\text{V (off)}$			10	nA
$I_{BL}^*$ Base Current	$V_{CE} = 60\text{V}$ $V_{EB} = 3\text{V (off)}$			20	nA
$V_{CE(sat)^*}$ Collector – Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			0.3	V
	$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			1	
$V_{BE(sat)^*}$ Base – Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$	0.6		1.2	V
	$I_C = 500\text{mA}$ $I_C = 50\text{mA}$			2	
$h_{FE}^*$ DC Current Gain	$T_A = -55^\circ\text{C}$				—
	$I_C = 0.1\text{mA}$ $V_{CE} = 10\text{V}$	35			
	$I_C = 1\text{mA}$ $V_{CE} = 10\text{V}$	50			
	$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$	75			
	$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$	35			
	$I_C = 150\text{mA}$ $V_{CE} = 10\text{V}$	100		300	
	$I_C = 150\text{mA}$ $V_{CE} = 1\text{V}$	50			
	$I_C = 500\text{mA}$ $V_{CE} = 10\text{V}$	40			

\* Pulse test  $t_p = 300\mu\text{s}$ ,  $\delta \leq 2\%$

**DYNAMIC CHARACTERISTICS PER SIDE** ( $T_C = 25^\circ\text{C}$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$f_T$ Transition Frequency	$I_C = 20\text{mA}$ $V_{CE} = 20\text{V}$ $f = 100\text{MHz}$	300			MHz
$C_{ob}$ Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			8	pF
$C_{ib}$ Input Capacitance	$V_{BE} = 0.5\text{V}$ $I_C = 0$ $f = 1.0\text{MHz}$			30	pF
$h_{fe}$ Small Signal Current Gain	$I_C = 1\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1\text{kHz}$	50		300	
	$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1\text{kHz}$	75		375	

**SWITCHING CHARACTERISTICS PER SIDE (RESISTIVE LOAD)**

( $T_C = 25^\circ\text{C}$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$t_d$ Delay Time	$V_{CC} = 30\text{V}$ $V_{BE} = 0.5\text{V (off)}$			10	ns
$t_r$ Rise Time	$I_{C1} = 150\text{mA}$ $I_{B1} = 15\text{mA}$			25	ns
$t_s$ Storage Time	$V_{CC} = 30\text{V}$ $I_C = 150\text{mA}$			225	ns
$t_f$ Fall Time	$I_{B1} = I_{B2} = 15\text{mA}$			60	ns

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