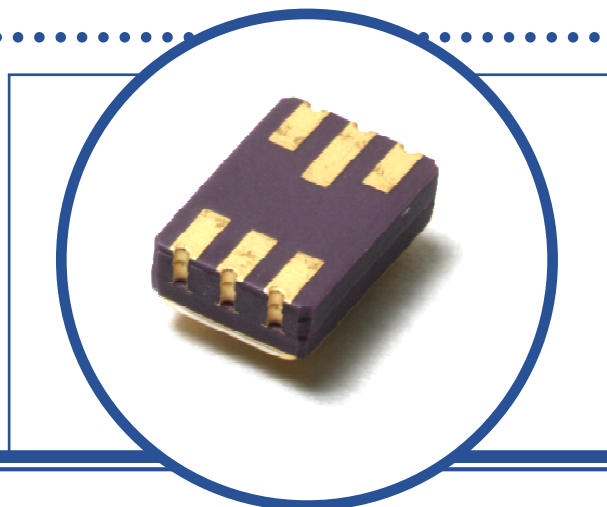


# SILICON SWITCHING NPN TRANSISTOR

## 2N2222ADCSM

- Dual High Speed, Medium Power Saturated Switching Transistor
- Hermetic Surface Mount Ceramic Package
- Dual NPN version of the 2N2222A Transistor
- Screening Options Available



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise stated). Per Device

$V_{CBO}$	Collector – Base Voltage	75V
$V_{CEO}$	Collector – Emitter Voltage	50V
$V_{EBO}$	Emitter – Base Voltage	6V
$I_C$	Continuous Collector Current	0.8A
$P_D$	Total Power Dissipation at $T_A = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	500mW 2.86mW/ $^\circ\text{C}$
$T_J$	Junction Temperature Range	-65 to $+200^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-65 to $+200^\circ\text{C}$

### THERMAL PROPERTIES Per Device

Symbols	Parameters	Max.	Units
$R_{\theta JA}^{(1)}$	Thermal Resistance, Junction To Ambient	325	$^\circ\text{C/W}$
$R_{\theta JSP(S)}^{(2)}$	Thermal resistance Junction To Solder Pads	110	$^\circ\text{C/W}$

<sup>(1)</sup> For non-thermal conductive PCB or unknown PCB surface mount conditions in free air

<sup>(2)</sup> Infinite sink mount to PCB

# SILICON SWITCHING NPN TRANSISTOR 2N2222ADCSM

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$V_{(BR)CEO}^{(3)}$	Collector-Emitter Sustaining Voltage	$I_C = 10\text{mA}$ $I_B = 0$	50			V
$I_{CES}$	Collector-Emitter Cut-Off Current	$V_{CE} = 50\text{V}$			50	nA
$I_{CBO}$	Collector-Base Cut-Off Current	$I_E = 0$ $V_{CB} = 75\text{V}$			10	$\mu\text{A}$
		$I_E = 0$ $V_{CB} = 60\text{V}$			10	nA
		$T_A = 150^\circ\text{C}$			10	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-Off Current	$I_C = 0$ $V_{EB} = 4\text{V}$			10	nA
		$V_{EB} = 6\text{V}$			10	$\mu\text{A}$

## ON CHARACTERISTICS

$V_{CE(Sat)}^{(3)}$	Collector-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			0.3	V
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			1.0	
$V_{BE(Sat)}^{(3)}$	Base-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$	0.6		1.2	V
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			2.0	
$h_{FE}$	DC Current Gain	$I_C = 0.1\text{mA}$ $V_{CE} = 10\text{V}$	50			-
		$I_C = 1.0\text{mA}$ $V_{CE} = 10\text{V}$	75		325	
		$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$	100			
		$T_A = -55^\circ\text{C}$	35			
		$I_C = 150\text{mA}$ $V_{CE} = 10\text{V}^{(1)}$	100		300	
		$I_C = 500\text{mA}$ $V_{CE} = 10\text{V}^{(1)}$	30			

## SMALL SIGNAL CHARACTERISTICS

$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			8	pF
$C_{ibo}$	Input Capacitance	$V_{EB} = 0.5\text{V}$ $I_C = 0$ $f = 1.0\text{MHz}$			25	
$ h_{fe} $	Magnitude of small-signal, short-circuit forward current transfer ratio	$I_C = 20\text{mA}$ $V_{CE} = 20\text{V}$ $f = 100\text{MHz}$	2.5			-
$h_{fe}$	Small Signal Current Gain	$I_C = 1.0\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{kHz}$	50			-

### Notes

<sup>(3)</sup> Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

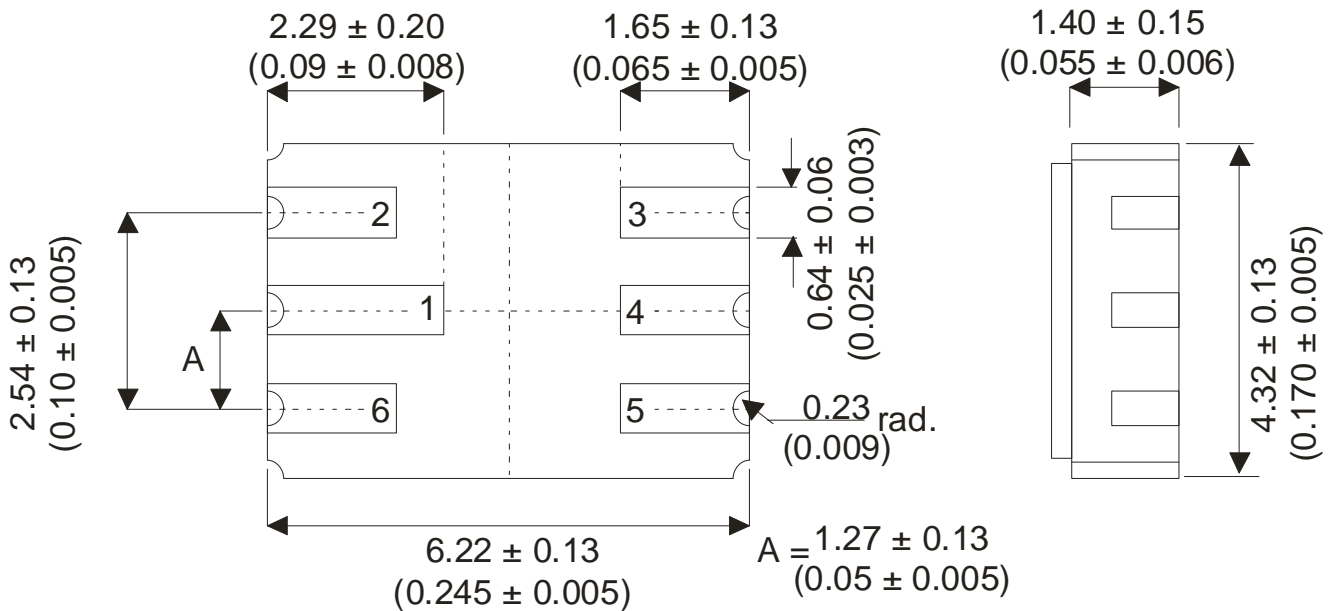
# SILICON SWITCHING NPN TRANSISTOR 2N2222ADCSM

## SWITCHING CHARACTERISTICS

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$t_{on}$	Saturated Turn-on Time	$V_{CC} = 30V$ $I_{B1} = 15mA$			35	ns
$t_{off}$	Saturated Turn-off Time	$I_C = 150mA$			300	

## MECHANICAL DATA

Dimensions in mm (inches)



## LCC2 (MO-041BB)

### Underside View

- |                     |                     |
|---------------------|---------------------|
| Pad 1 – Collector 1 | Pad 4 – Collector 2 |
| Pad 2 – Base 1      | Pad 5 – Emitter 2   |
| Pad 3 – Base 2      | Pad 6 – Emitter 1   |