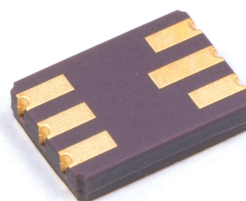


SILICON EPITAXIAL NPN TRANSISTOR

BC109DCSM

- Dual Silicon Planar NPN Transistors
- Hermetic Ceramic Surface Mount Package
- Designed For Low Noise General Purpose Amplifiers, Driver Stages and Signal Processing Applications
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

		Each Side	Total Device
V _{CBO}	Collector – Base Voltage	30V	
V _{CEO}	Collector – Emitter Voltage	20V	
V _{EBO}	Emitter – Base Voltage	5V	
I _C	Continuous Collector Current	100mA	
I _{CM}	Peak Collector Current	200mA	
P _D	Total Power Dissipation at T _A = 25°C Derate Above 25°C T _C = 25°C Derate Above 25°C	300mW 2mW/°C 750mW 5mW/°C	500mW ⁽¹⁾ 3.3mW/°C
T _J	Junction Temperature Range	-65 to +175°C	
T _{stg}	Storage Temperature Range	-65 to +175°C	

THERMAL PROPERTIES (Each Side)

Symbols	Parameters	Min.	Typ.	Max.	Units
R _{θJA}	Thermal Resistance, Junction To Ambient			500	°C/W
R _{θJC}	Thermal Resistance, Junction To Case			200	°C/W

Notes

(1) Total device power dissipation limited by package.

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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
I_{CBO}	Collector-Cut-Off Current	$V_{CB} = 20V$			15	nA
		$T_A = 150^\circ\text{C}$			15	μA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\mu\text{A}$	30			V
$V_{(BR)CEO}^{(2)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$	20			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}$	5			
$V_{BE}^{(2)}$	Base-Emitter Voltage	$I_C = 2\text{mA}$ $V_{CE} = 5V$	550		700	mV
		$I_C = 10\text{mA}$ $V_{CE} = 5V$			700	
$V_{CE(sat)}^{(2)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 0.5\text{mA}$			250	
		$I_C = 100\text{mA}$ $I_B = 5\text{mA}$			600	
$V_{BE(sat)}^{(2)}$	Base-Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 0.5\text{mA}$		750		
		$I_C = 100\text{mA}$ $I_B = 5\text{mA}$		900		
$h_{FE}^{(2)}$	Forward-current transfer ratio	$I_C = 2\text{mA}$ $V_{CE} = 5V$	200		800	
		$I_C = 10\mu\text{A}$ $V_{CE} = 5V$	40			

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	$I_C = 10\text{mA}$ $V_{CE} = 5V$ $f = 100\text{MHz}$	150			MHz
h_{fe}	Small-Signal Current Gain	$I_C = 2\text{mA}$ $V_{CE} = 5V$ $f = 1.0\text{KHz}$	240		900	
C_{obo}	Output Capacitance	$V_{CB} = 10V$ $I_E = 0$ $f = 1.0\text{MHz}$			6	pF
C_{ibo}	Input Capacitance	$V_{EB} = 0.5V$ $I_C = 0$ $f = 1.0\text{MHz}$		12		pF

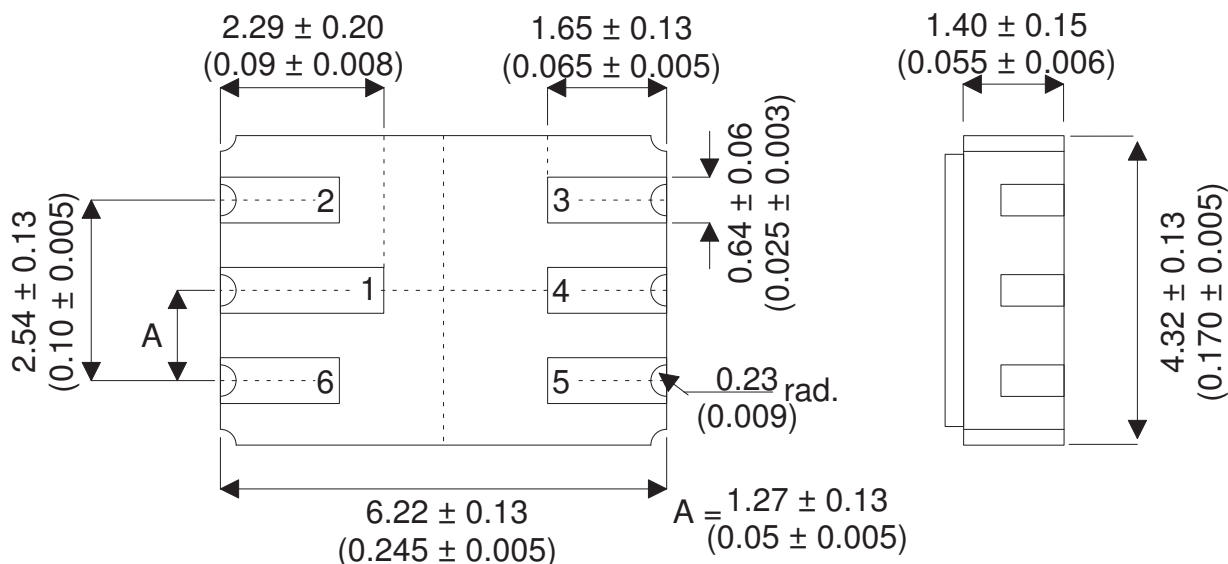
Notes

(2) Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$

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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