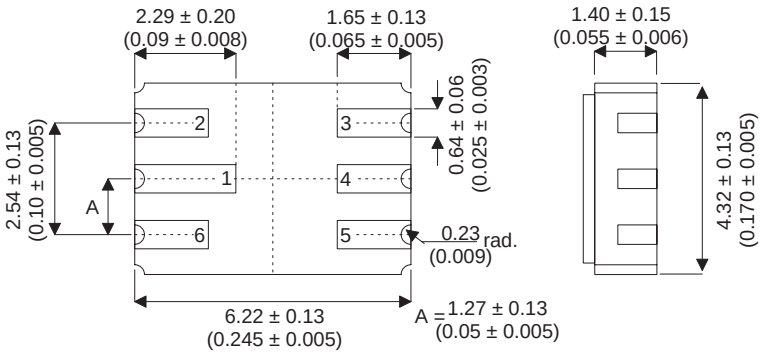
2N3501DCSM

DUAL BIPOLAR NPN DEVICES IN A HERMETICALLY SEALED LCC2 CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

MECHANICAL DATA
Dimensions in mm (inches)



LCC2 (MO-041BB)

PIN OUT

Pin 1 – Collector 1	**Pin 4 – Collector 2**
Pin 2 – Base 1	**Pin 5 – Emitter 2**
Pin 3 – Base 2	**Pin 6 – Emitter 1**

FEATURES

- **SILICON PLANAR EPITAXIAL NPN TRANSISTOR**
- **HERMETIC CERAMIC SURFACE MOUNT PACKAGE**
- **CECC SCREENING OPTIONS**
- **SPACE QUALITY LEVELS OPTIONS**
- **JAN LEVEL SCREENING OPTIONS**
- **HIGH VOLTAGE**

All Semelab hermetically sealed products can be processed in accordance with the requirements of BS, CECC and JAN, JANTX, JANTXV and JANS specifications.

ABSOLUTE MAXIMUM RATINGS

	(T_{case} = 25°C unless otherwise stated)		Single Side	Total Device
V_{CBO}	Collector-Base Voltage		150V	
V_{CEO}	Collector-Emitter Voltage(I_B=0)		150V	
V_{EBO}	Emitter-Base Voltage(I_B=0)		6V	
I_C	Continuous Collector Current		300mA	
P_D	Power Dissipation	Tamb = 25°C	300mW	500mW
		Derate above 25°C	1.72mW/°C	2.86mW/°C
T_j	Operating Temperature Range		-65 to 200°C	
T_{stg}	Storage Temperature Range		-65 to 200°C	
R_{thJA}	Thermal Resistance Junction to Ambient		350°C	

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

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage[1]	I_C=10mA I_B=0	150			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C=10µA I_E=0	150			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E=10µA I_C=0	6			V
I_{CBO}	Collector Cutoff Current	V_{CB}=75V I_E=0			0.05	µA
		T_{amb}=150°C			50	
I_{EBO}	Emitter Cutoff Current	$V_{BE(off)}$=4V V_{CE}=0			25	nA
ON CHARACTERISTICS						
h_{FE}	DC Current Gain	I_C=0.1mA V_{CE}=10V	35			
		I_C=1mA V_{CE}=10V	50			
		I_C=10 mA V_{CE}=10V	75			
		I_C=150 mA V_{CE}=10V	100		300	
		I_C=300 mA V_{CE}=10V	20			
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage[1]	I_C=10mA I_B=1mA			0.2	V
		I_C=50mA I_B=5mA			0.25	
		I_C=150 mA I_B=15mA			0.4	
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage[1]	I_C=10mA I_B=1mA			0.8	V
		I_C=50mA I_B=5mA			0.9	
		I_C=150 mA I_B=15mA			1.2	
SMALL SIGNAL CHARACTERISTICS						
f_T	Current Gain-Bandwidth Product (100MHz)	V_{CE}=20V I_C=20mA	150			MHz
C_{obo}	Output Capacitance (1MHz)	V_{CB}=10V I_E=0			8	pF
C_{ibo}	Input Capacitance (1MHz)	V_{EB}=0.5V I_C=0			80	
h_{ie}	Input Impedance (1kHz)	V_{CE}=10V I_C=10mA	0.25		1.25	`
h_{fe}	Small-Signal Current Gain (1kHz)	V_{CE}=10V I_C=10mA			375	
h_{oe}	Output Admittance (1kHz)	V_{CE}=10V I_C=10mA			200	`
SWITCHING CHARACTERISTICS						
t_d	Delay Time	I_C=150mA I_B[1]=15mA		20		ns
t_r	Rise Time	V_{CC}=100V $V_{EB(off)}$=-2V		35		
t_s	Storage Time	I_C=150mA I_B[1]=15mA		800		
t_f	Fall Time	I_{B1}=I_{B2}=15mA		80		

1) Pulse Test: Pulse Width < 300µs, Duty Cycle <2%

2) f_t is defined as frequency at which $|h_{fe}|\cdot f_{test}$

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