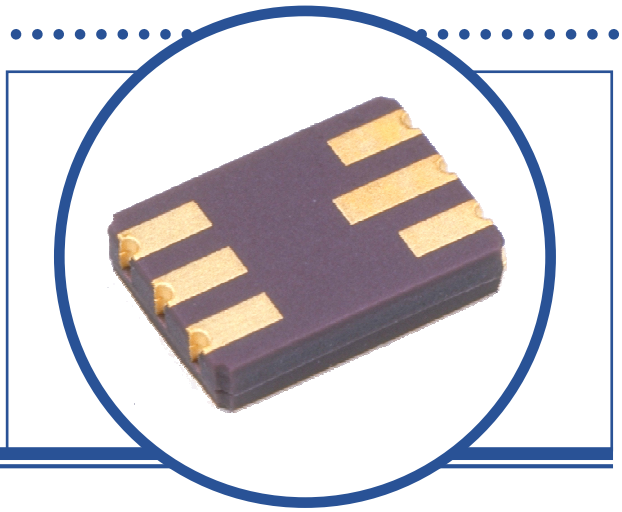
DUAL PNP SWITCHING TRANSISTORS

TT electronics
Semelab Limited

2N3251DCSM

- Dual Silicon Planer PNP Transistors
- Hermetic Ceramic Surface Mount Package
- Designed For Small Signal, General Purpose and Switching Applications
- Screening Options Available



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

			Each Side	Total Device
V_{CBO}	Collector – Base Voltage		-50V	
V_{CEO}	Collector – Emitter Voltage		-40V	
V_{EBO}	Emitter – Base Voltage		-5V	
I_C	Continuous Collector Current		-200mA	
P_D	Total Power Dissipation at	T_A = 25°C	360mW	500mW (1)
		Derate Above 25°C	2.06mW/°C	
T_J	Junction Temperature Range		-65 to +200°C	
T_{stg}	Storage Temperature Range		-65 to +200°C	

THERMAL PROPERTIES (Each Side)

Symbols	Parameters	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	486	°C/W
$R_{\theta JSP(IS)}$ (2)	Thermal Resistance, Junction To Solder Point	208.33	°C/W

Notes
(1) Total device power dissipation limited by package.
(2) Infinite sink mount to PCB

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ELECTRICAL CHARACTERISTICS (Each Side , T_A = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$V_{(BR)CEO}$ [3]	Collector-Emitter Breakdown Voltage	I_C = -10mA I_B = 0	-40			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = -50V			-10	µA
		V_{CB} = -40V			-20	nA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = -5V			-10	µA
I_{CEX}	Collector Cut-Off Current	V_{CE} = -40V V_{BE} = -3V			-20	nA
		T_A = 150°C			-20	µA
h_{FE} [3]	Forward-current transfer ratio	I_C = -0.1mA V_{CE} = -1.0V	80			
		I_C = -1.0mA V_{CE} = -1.0V	90			
		T_A = -55°C	40			
		I_C = -10mA V_{CE} = -1.0V	100		300	
		I_C = -50mA V_{CE} = -1.0V	30			
$V_{CE(sat)}$ [3]	Collector-Emitter Saturation Voltage	I_C = -10mA I_B = -1.0mA			-0.25	V
		I_C = -50mA I_B = -5mA			-0.5	
$V_{BE(sat)}$ [3]	Base-Emitter Saturation Voltage	I_C = -10mA I_B = -1.0mA	-0.6		-0.9	
		I_C = -50mA I_B = -5mA			-1.2	

DYNAMIC CHARACTERISTICS (Each Side , T_A = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
f_T	Transition Frequency	I_C = -10mA V_{CE} = -20V f = 100MHz	300			MHz
C_{obo}	Output Capacitance	V_{CB} = -10V I_E = 0 f = 1.0MHz			6	pF
C_{ibo}	Input Capacitance	V_{EB} = -1.0V I_C = 0 f = 1.0MHz			8	
h_{ie} [4]	Input Impedance	I_C = -1.0mA V_{CE} = -10V f = 1.0KHz	2		12	KΩ
h_{re} [4]	Reverse Voltage Ratio	I_C = -1.0mA V_{CE} = -10V f = 1.0KHz			20	$x10^{-4}$
hfe	Small Signal Current Gain	I_C = -1.0mA V_{CE} = -10V f = 1.0KHz	100		400	
h_{oe} [4]	Output Admittance	I_C = -1.0mA V_{CE} = -10V f = 1.0KHz	10		60	µS

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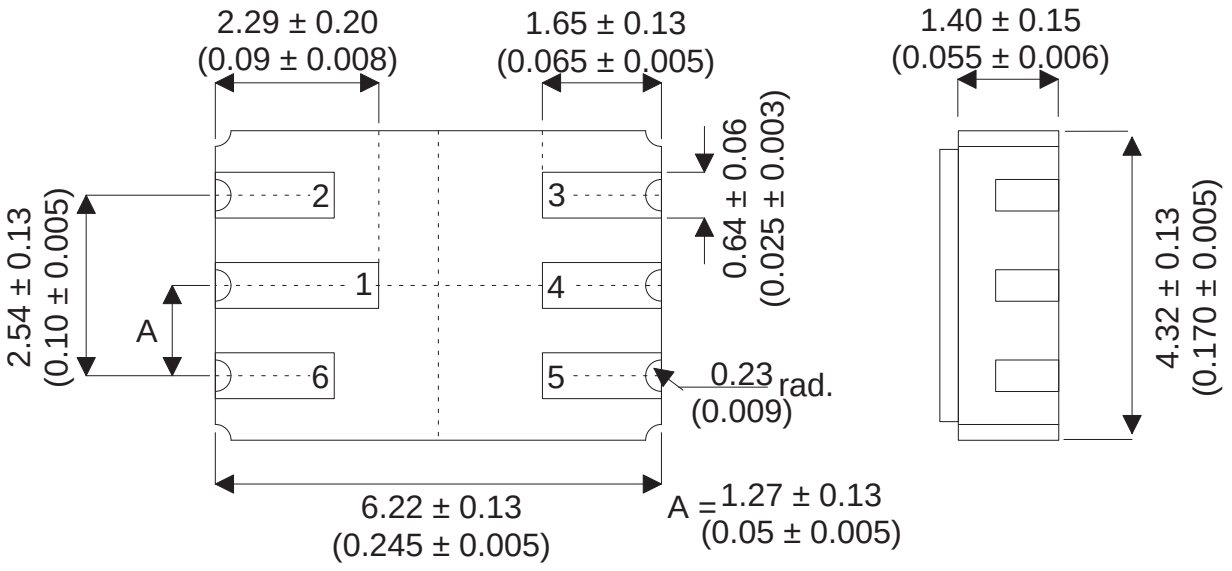
DYNAMIC CHARACTERISTICS (Each Side , T_A = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$`rb'C_C$ (4)	Collector Base Time Constant	I_C = -10mA V_{CE} = -20V f = 31.8MHz			250	ps
NF (4)	Noise Figure	I_C = -0.1mA V_{CE} = -5V R_S = 1.0KΩ f = 100Hz			6	dB
t_{on}	Turn-On Time	V_{CC} = -3V V_{BE} = 0.5V I_C = -10mA I_{B1} = -1.0mA			70	ns
t_{off}	Turn-Off Time	V_{CC} = -3V I_C = -10mA I_{B1} = $-I_{B2}$ = -1.0mA			300	

Notes
(3) Pulse Width ≤ 300us, δ ≤ 2%
(4) By design only, not a production test.

MECHANICAL DATA

Dimensions in mm (inches)



LCC2 (MO-041BB)

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