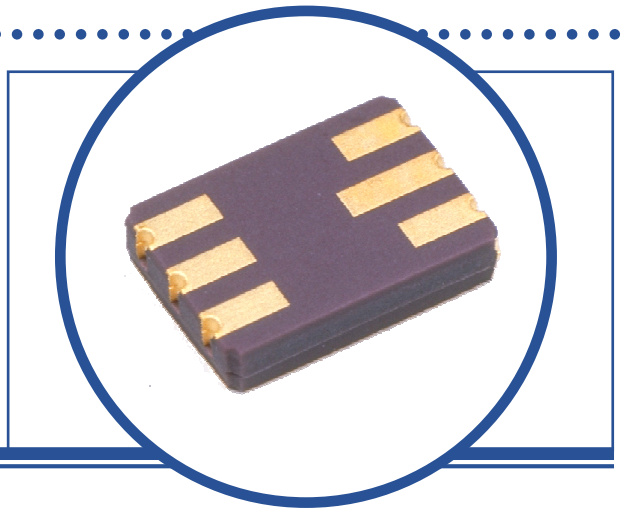
NPN SILICON DUAL TRANSISTORS

TT electronics
Semelab Limited

2N3019DCSM



- High Voltage, High Current Dual Small Signal NPN Transistors.
- Hermetic Ceramic Surface Mount Package.
- Ideally Suited For General Purpose Amplifier and High Speed 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		140V	
V_{CEO}	Collector – Emitter Voltage		80V	
V_{EBO}	Emitter – Base Voltage		7V	
I_C	Continuous Collector Current		1.0A	
P_D	Total Power Dissipation at	T_A = 25°C	500mW	500mW(1)
		Derate Above 25°C	2.86mW/°C	2.86mW/°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	350	°C/W

Notes
(1) Total device power dissipation limited by package.

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

Symbols	Parameters	Test Conditions		Min.	Typ	Max.	Units
$V_{(BR)CEO}$ (2)	Collector-Emitter Breakdown Voltage	I_C = 10mA	I_B = 0	80			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 140V	I_E = 0			10	µA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 5V	I_C = 0			10	nA
		V_{EB} = 7V	I_C = 0			10	µA
I_{CES}	Collector Cut-Off Current	V_{CE} = 90V	I_B = 0			10	nA
			T_A = 150°C			5	µA
h_{FE} (2)	Forward-current transfer ratio	I_C = 0.1mA	V_{CE} = 10V	50		300	
		I_C = 10mA	V_{CE} = 10V	90			
		I_C = 150mA	V_{CE} = 10V	100		300	
			T_A = -55°C	40			
		I_C = 500mA	V_{CE} = 10V	50		300	
		I_C = 1.0A	V_{CE} = 10V	15			
$V_{CE(sat)}$ (2)	Collector-Emitter Saturation Voltage	I_C = 150mA	I_B = 15mA			0.2	V
		I_C = 500mA	I_B = 50mA			0.5	
$V_{BE(sat)}$ (2)	Base-Emitter Saturation Voltage	I_C = 150mA	I_B = 15mA			1.1	

DYNAMIC CHARACTERISTICS

h_{fe}	Small-Signal Current Gain	I_C = 1.0mA f = 1.0KHz	V_{CE} = 5V	80		400	
$\lvert h_{fe} \rvert$	Magnitude of Small-Signal Short-Circuit Forward Current, Transfer Ratio	I_C = 50mA f = 20MHz	V_{CE} = 10V	5		20	
C_{obo}	Output Capacitance	V_{CB} = 10V f = 1.0MHz	I_E = 0			12	pF
C_{ibo}	Input Capacitance	V_{EB} = 0.5V f = 1.0MHz	I_C = 0			60	
NF (3)	Noise Figure	V_{CE} = 6V f = 1.0KHz	I_C = 100µA R_G = 1.0KΩ			4	dB
$r_b'C_C$ (3)	Collector Base Time Constant	I_E = 10mA f = 79.8MHz	V_{CB} = 10V			400	ps
t_{on}	Turn-On Time	I_C = 500mA I_{B1} = 50mA	V_{CC} = 20V			200	ns
t_{off}	Turn-Off Time	I_C = 500mA I_{B1} = - I_{B2} = 50mA	V_{CC} = 20V			700	

Notes
(2) Pulse Width ≤ 380us, δ ≤ 2%
(3) By design only, not a production test.

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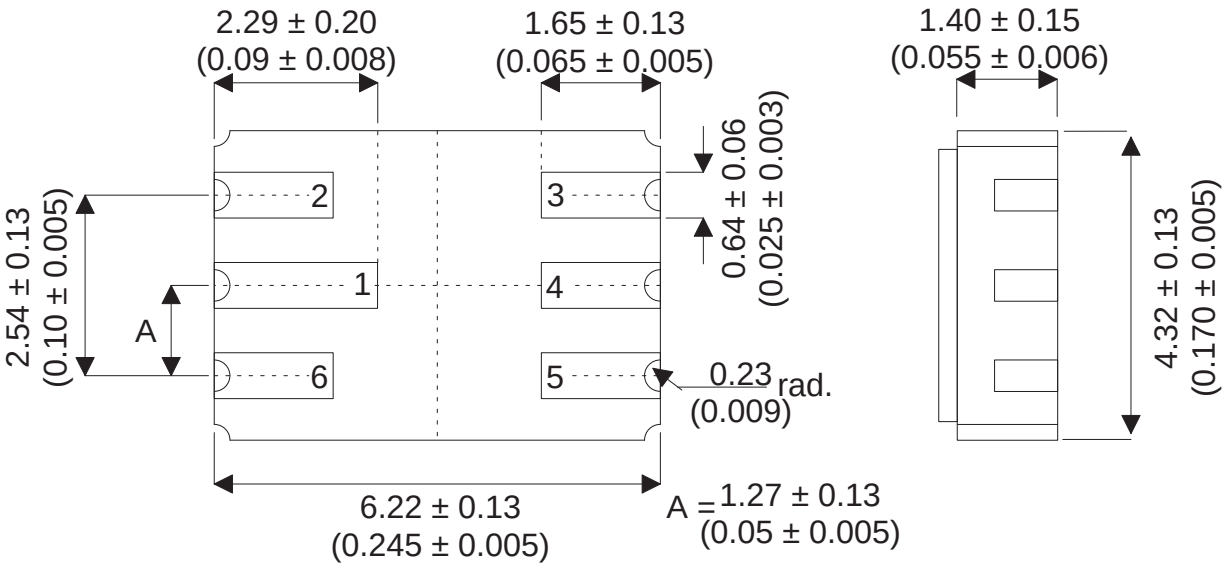
MECHANICAL DATA

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