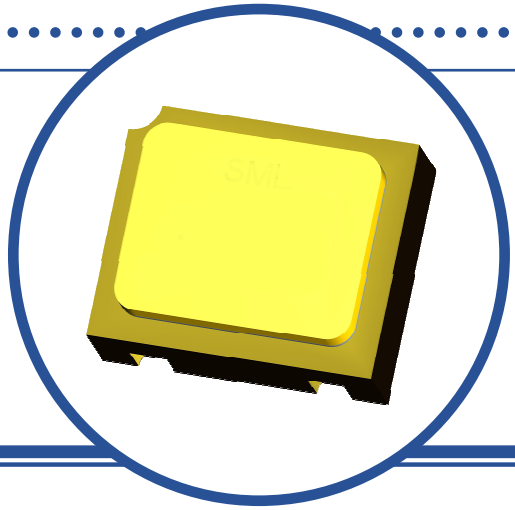
N-CHANNEL ENHANCEMENT MODE MOSFET

TT electronics
Semelab Limited

2N7002CSM

- V_{DSS} = 60V , I_D = 115mA, $R_{DS(ON)}$ = 7.5Ω
- Fast Switching
- Low Threshold Voltage
- Integral Source-Drain Body Diode
- Hermetic Ceramic Surface Mount Package (SOT-23 compatible)
- High Reliability Screening Options Available



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

V_{DS}	Drain – Source Voltage		60V
V_{GS}	Gate – Source Voltage		±40V
I_D	Continuous Drain Current	T_C = 25°C	115mA
I_D	Continuous Drain Current	T_C = 100°C	75mA
I_{DM}	Pulsed Drain Current (1)		800mA
P_T	Total Power Dissipation at	T_A ≤ 25°C	350mW
		De-rate T_C > 25°C	2.8mW/°C
T_J	Operating Temperature Range		-55 to +150°C
T_{stg}	Storage Temperature Range		-55 to +150°C

THERMAL PROPERTIES

Symbols	Parameters	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	357	°C/W

Notes
(1) Repetitive Rating: Pulse width limited by maximum junction temperature
(2) Pulse Width ≤ 300us, δ ≤ 2%

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

Symbols	Parameters	Test Conditions		Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0	I_D = 10µA	60			V
$V_{GS(th)}$	Gate Threshold Voltage	I_D = 250µA	$V_{DS} \geq V_{GS}$	1.0		2.5	V
		I_D = 1.0mA	T_A = -55°C			2.5	
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V	V_{DS} = 0V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS} = 0	V_{DS} = 60V			1.0	µA
			T_A = 125°C			500	
$V_{DS(on)}$ [2]	Static Drain-Source On-State Voltage	V_{GS} = 5V	I_D = 50mA			1.5	V
		V_{GS} = 10V	I_D = 0.5A			3.75	
$R_{DS(on)}$ [2]	Static Drain-Source On-State Resistance	V_{GS} = 5V	I_D = 50mA			7.5	Ω
			T_A = 125°C			13.5	
		V_{GS} = 10V	I_D = 0.5A			7.5	
			T_A = 125°C			13.5	
g_{fs} [2]	Forward Transconductance	V_{DS} = 10V	I_D = 0.2A	80			mʊ
V_{SD} [2]	Body Diode Forward Voltage	V_{GS} = 0	I_S = 0.2A	0.7		1.2	V

DYNAMIC CHARACTERISTICS

C_{iss}	Input Capacitance	V_{GS} = 0				50	pF
C_{oss}	Output Capacitance	V_{DS} = 25V				25	
C_{rss}	Reverse Transfer Capacitance	f = 1.0MHz				5	
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 30V				20	ns
$t_{d(off)}$	Turn-Off Delay Time	I_D = 2.0A	R_G = 50Ω			20	

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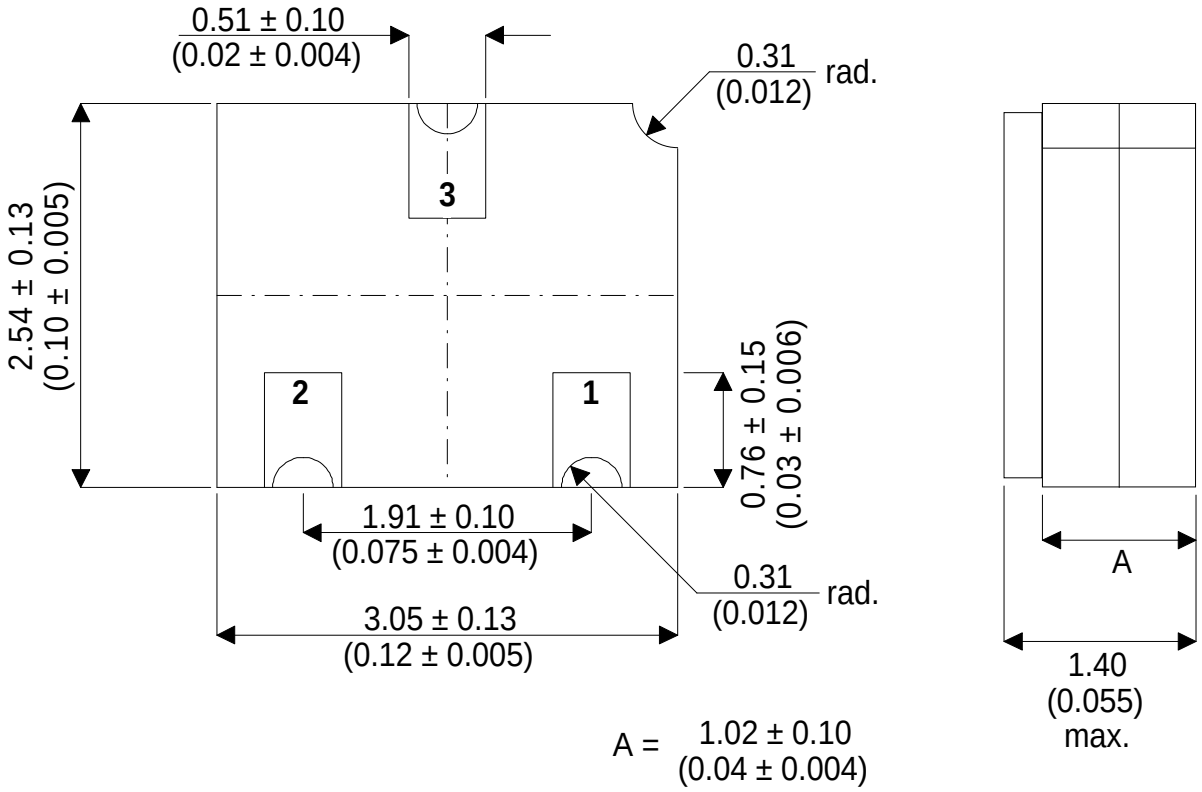
MECHANICAL DATA

Dimensions in mm (inches)



LCC1 (SOT-23 Ceramic)
Underside View

Pad 1	**Pad 2**	**Pad 3**
Gate	Source	Drain