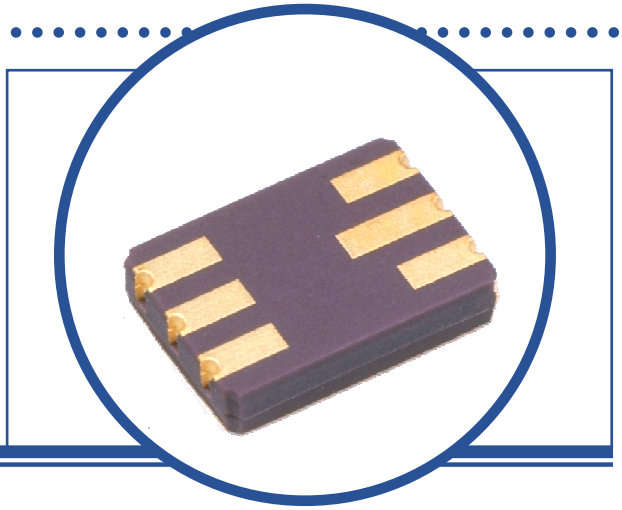
DUAL N-CHANNEL MOSFETS

TT electronics
Semelab Limited

SML1248NC2A

- V_{DSS} = 60V , I_D = 160mA, $R_{DS(ON)}$ = 4Ω
- Device characterised to Max TJ =200°C (See Note 1)
- Fast Switching
- Low Threshold Voltage
- Hermetic Ceramic Surface Mount Package



ABSOLUTE MAXIMUM RATINGS(1) (T_A = 25°C unless otherwise stated)

			Each Side	Total Device
V_{DS}	Drain – Source Voltage		60V	
V_{GS}	Gate – Source Voltage		±20V	
I_D	Continuous Drain Current	T_A = 25°C	160mA	
I_D	Continuous Drain Current	T_A = 100°C	120mA	
I_{DM}	Pulsed Drain Current (2)		800mA	
P_T	Total Power Dissipation at	$T_A \leq$ 25°C	350mW	500mW(3)
		Derate Above 25°C	2mW/°C	2.86mW/°C
T_J	Junction Temperature Range		-55 to +200°C	
T_{stg}	Storage Temperature Range		-55 to +200°C	

THERMAL PROPERTIES (Each Side)

Symbols	Parameters	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	500	°C/W

Notes

(1) Device characterisation to T_j=200°C exceeds the maximum 150°C junction temperature of the die. Long term reliability of the device above a junction temperature of 150°C cannot be guaranteed.

(2) Repetitive Rating: Pulse width limited by maximum junction temperature.

(3) Total device power dissipation limited by package.

(4) Pulse Width ≤ 380us, δ ≤ 2%

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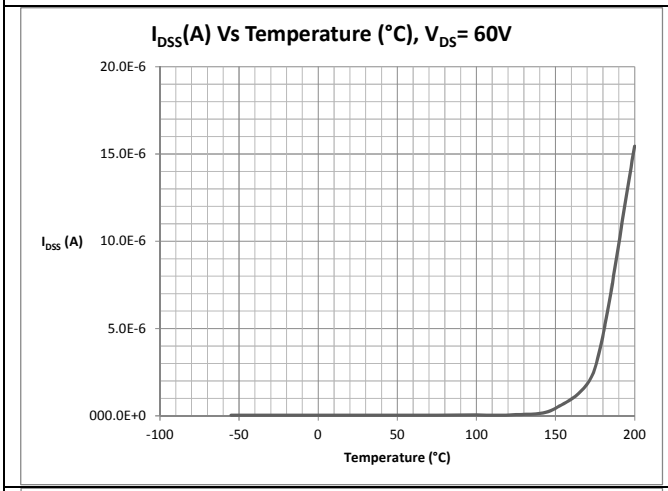
ELECTRICAL CHARACTERISTICS[1] (T_A = 25°C unless otherwise stated)

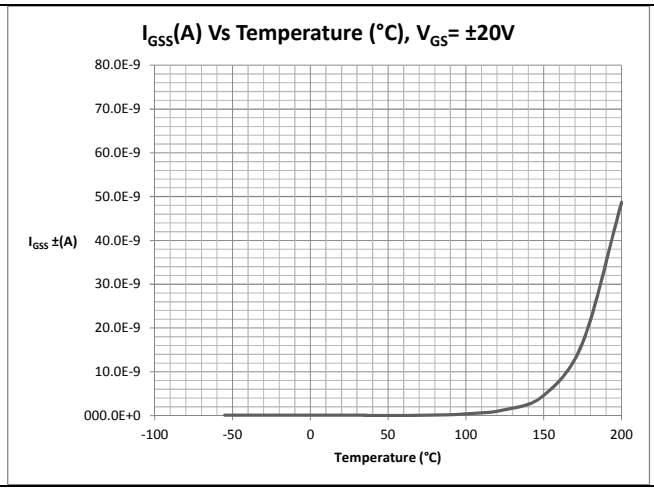
Symbols	Parameters	Test Conditions		Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0	I_D = 10µA	60			V
$V_{GS(th)}$	Gate Threshold Voltage	I_D = 250µA	$V_{DS} \geq V_{GS}$	0.8	1.2	2.4	
			T_J = 200°C		0.6		
			T_J = -55°C		1.5		
$\Delta V_{GS(th)}$	Change in V_{GS}(th) with Temperature	I_D = 250µA	$V_{DS} \geq V_{GS}$		-3.3	-5.5	mV/°C
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V	V_{DS} = 0V			±100	nA
			T_J = 200°C			1.0	µA
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS} = 0	V_{DS} = 60V			1.0	
			T_J = 200°C			500	
$V_{DS(on)}$[4]	Static Drain-Source On-State Voltage	V_{GS} = 5V	I_D = 50mA		0.17	0.3	V
		V_{GS} = 10V	I_D = 0.5A		1.45	2	
$R_{DS(on)}$[4]	Static Drain-Source On-State Resistance	V_{GS} = 5V	I_D = 50mA		3.4	6	Ω
			T_J = 200°C		7.9	13	
		V_{GS} = 10V	I_D = 0.5A		2.9	4	
			T_J = 200°C		7.6	11	
$\Delta R_{DS(on)}$[4]	Change in $R_{DS(on)}$ with Temperature	V_{GS} = 10V	I_D = 0.5A		0.76	1.0	%/°C
g_{fs}[4]	Forward Transconductance	V_{DS} = 10V	I_D = 0.2A	80			m℧
V_{SD}[3]	Body Diode Forward Voltage	V_{GS} = 0	I_S = 0.2A	0.7	0.85	1.5	V
			T_J = 200°C	0.4	0.6		

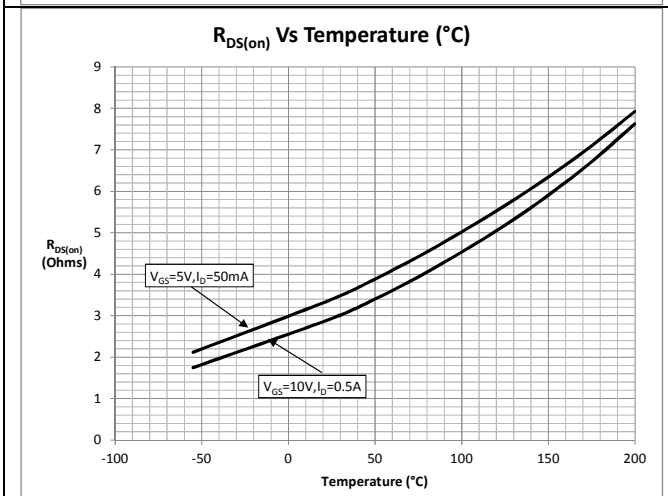
DYNAMIC CHARACTERISTICS

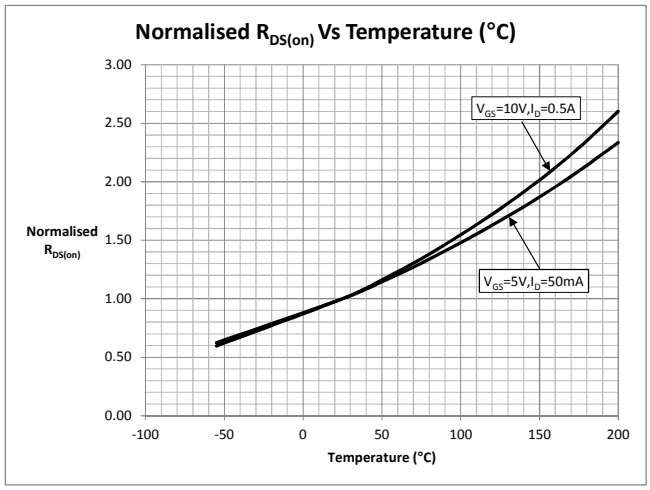
C_{iss}	Input Capacitance	V_{GS} = 0				50	pF
C_{oss}	Output Capacitance	V_{DS} = 25V				30	
C_{rss}	Reverse Transfer Capacitance	f = 1.0MHz				8	
$t_{(on)}$	Turn-On Time	V_{DD} = 30V				20	ns
$t_{(off)}$	Turn-Off Time	I_D = 0.2A	R_G = 50Ω			20	

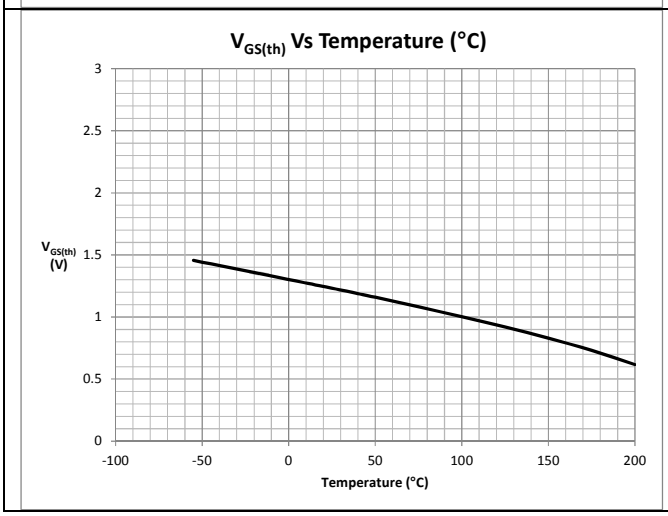
TYPICAL PERFORMANCE CHARACTERISTICS(1)

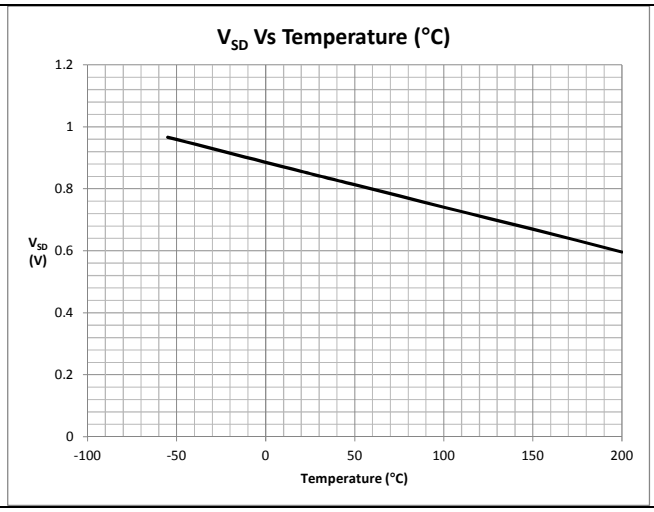












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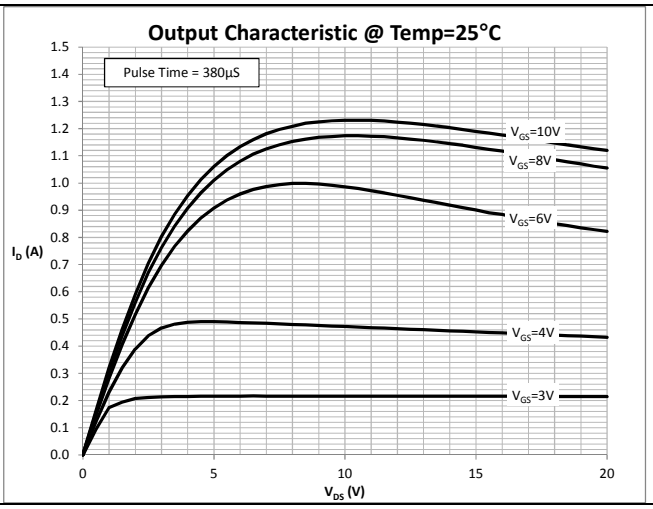
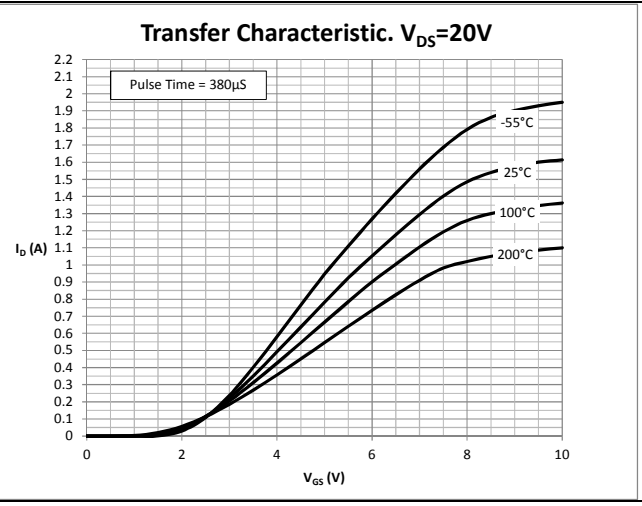
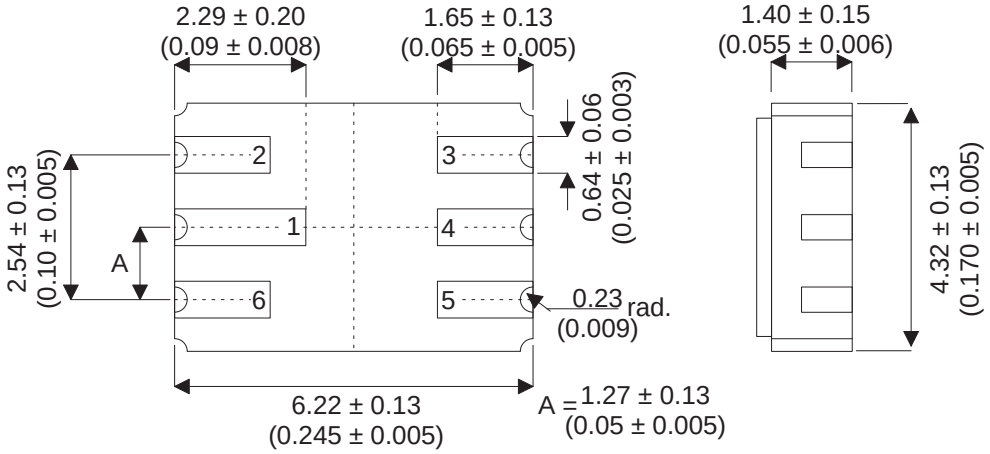




MECHANICAL DATA

Dimensions in mm (inches)



LCC2 (MO-041BB)

Underside View

Pad 1 – Drain 1	Pad 4 – Drain 2
Pad 2 – Gate 1	Pad 5 – Source 2
Pad 3 – Gate 2	Pad 6 – Source 1