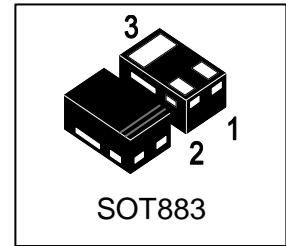


L2N7002KN3T5G

S-L2N7002KN3T5G

Small Signal MOSFET
380 mA, 60V N-Channel SOT-883

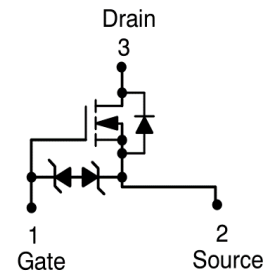


1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.
- ESD Protected
- Low RDS(on)
- Surface Mount Package

2. APPLICATIONS

- Low Side Load Switch
- Level Shift Circuits
- DC-DC Converter
- Portable Applications i.e. DSC, PDA, Cell Phone, etc.



3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
L2N7002KN3T5G	RK	10000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	VDSS	60	V
Gate-Source Voltage	VGS	±20	V
Drain Current	ID		mA
– Steady State TA = 25°C		320	
TA = 85°C		230	
– t<5s TA = 25°C		380	
TA = 85°C		270	
Pulsed Drain Current (tp=10µs)	IDM	1.5	A
Source Current (Body Diode)	IS	300	mA

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Power Dissipation (Note 1) – Steady State	PD	250	mW
Junction-to-Ambient(Note 1) – Steady State	R θ JA	500	°C/W
Lead Temperature for Soldering Purposes (1/8 " from case for 10 s)	TL	260	°C
Junction and Storage temperature	TJ,Tstg	-55~+150	°C
Gate-Source ESD Rating(HBM, Method 3015)	ESD	2000	V

1. Surface-mounted on FR4 board using 1 in sq pad size (Cu area = 1.127 in sq [1 oz] including traces)

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)
OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)	VBRDSS	60	-	-	V
Drain–to–Source Breakdown Voltage Temperature Coefficient	VBRDSS/TJ	-	71	-	mV/°C
Zero Gate Voltage Drain Current (VGS = 0, VDS = 60 V, TJ = 25°C)	IDSS	-	-	1.0	μA
(VGS = 0, VDS = 60 V, TJ = 125°C)		-	-	500	μA
(VGS = 0, VDS = 50 V, TJ = 25°C)		-	-	100	nA
Gate–to–Source Leakage Current (VDS = 0 V, VGS = ±20 V)	IGSS	-	-	±10	μA

ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	1.0	-	1.8	V
Negative Threshold Temperature Coefficient	VGS(TH)/TJ	-	4	-	mV/°C
Drain–Source On–State Resistance (VGS = 10 V, ID = 500 mA)	RDS(on)	-	-	2.3	Ω
(VGS = 5.0 V, ID = 50 mA)		-	-	2.7	
Forward Transconductance (VDS = 5.0 V, ID = 200 mA)	gfs	-	80	-	S

CHARGES AND CAPACITANCES

Input Capacitance	(VGS = 0 V, f = 1 MHz, VDS = 25 V)	Ciss	-	32.8	-	pF
Output Capacitance		Coss	-	5.4	-	
Reverse Transfer Capacitance		Crss	-	2.9	-	
Total Gate Charge	(VGS = 4.5 V, VDS = 10 V, ID = 200 mA)	QG(TOT)	-	0.7	-	nC
Threshold Gate Charge		QG(TH)	-	0.1	-	
Gate–to–Source Charge		QGS	-	0.3	-	
Gate–to–Drain Charge		QGD	-	0.1	-	

SWITCHING CHARACTERISTICS

Turn-On Delay Time	(VGS = 10 V, VDD = 10 V, ID = 500 mA)	td(on)	-	9.9	-	ns
Rise Time		tr	-	5	-	
Turn-Off Delay Time		td(off)	-	39.4	-	
Fall Time		tf	-	17.9	-	

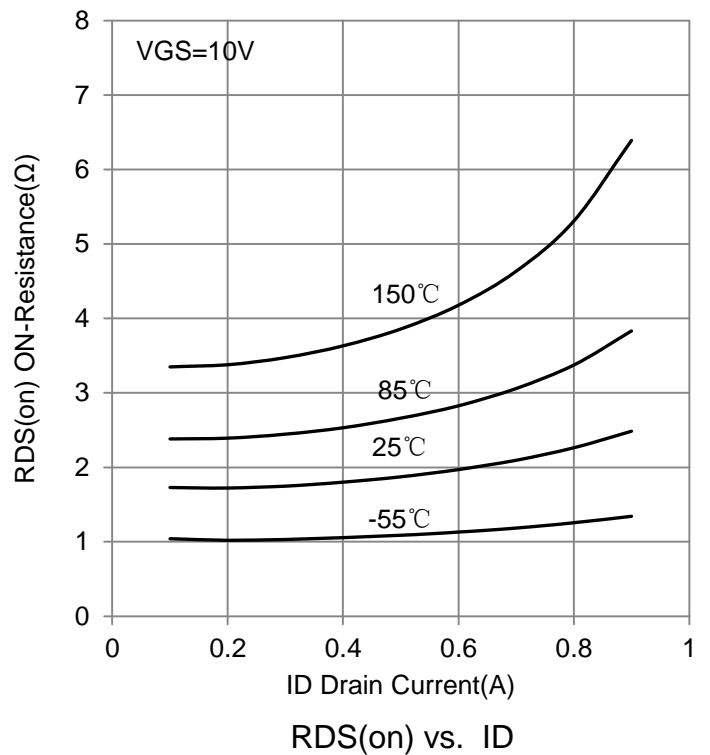
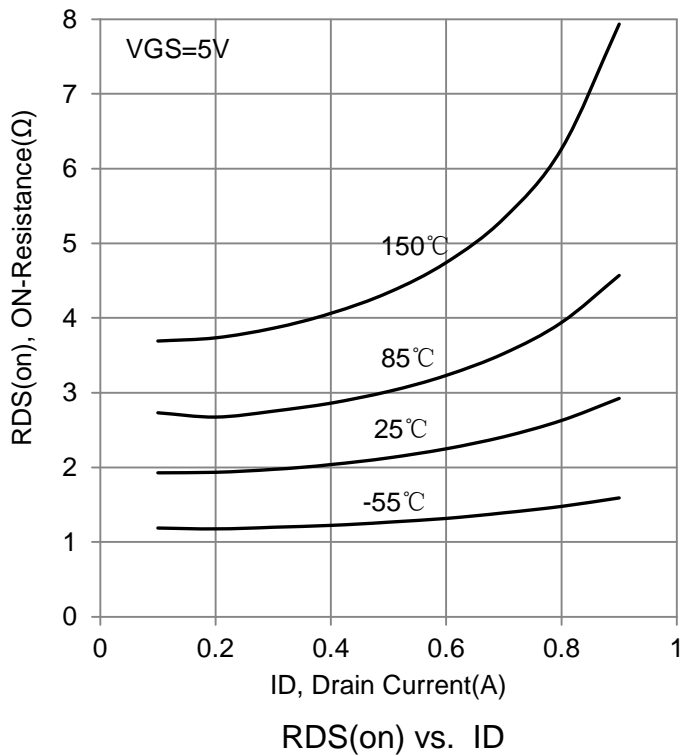
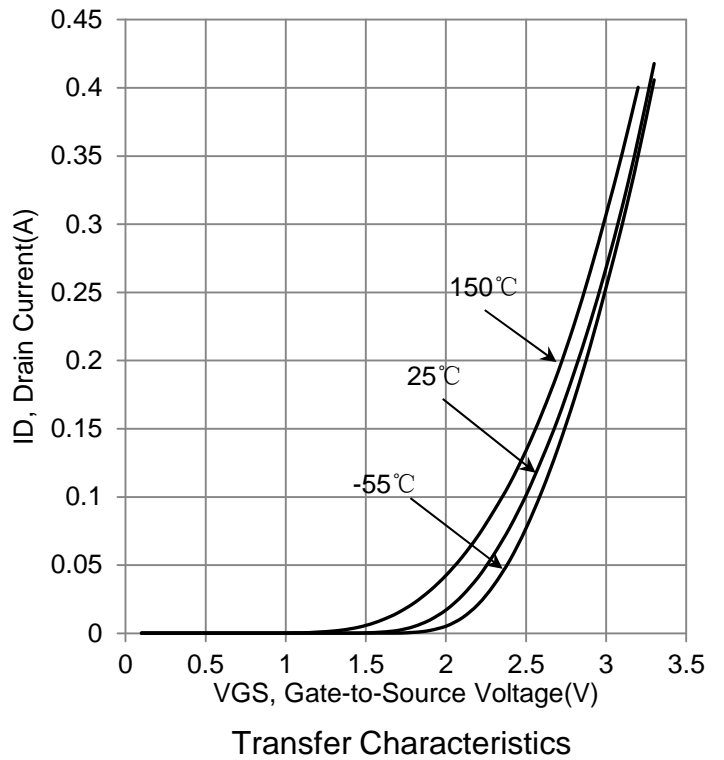
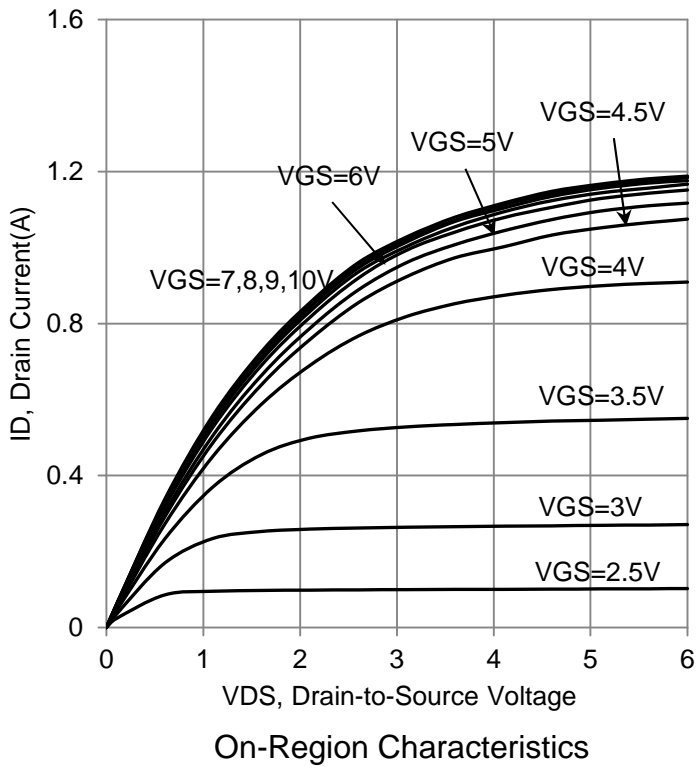
DRAIN–SOURCE DIODE CHARACTERISTICS

Diode Forward On–Voltage (IS = 115 mA, VGS = 0 V)	TJ = 25°C	VSD	-	-	1.4	V
	TJ = 85°C		-	0.7	-	

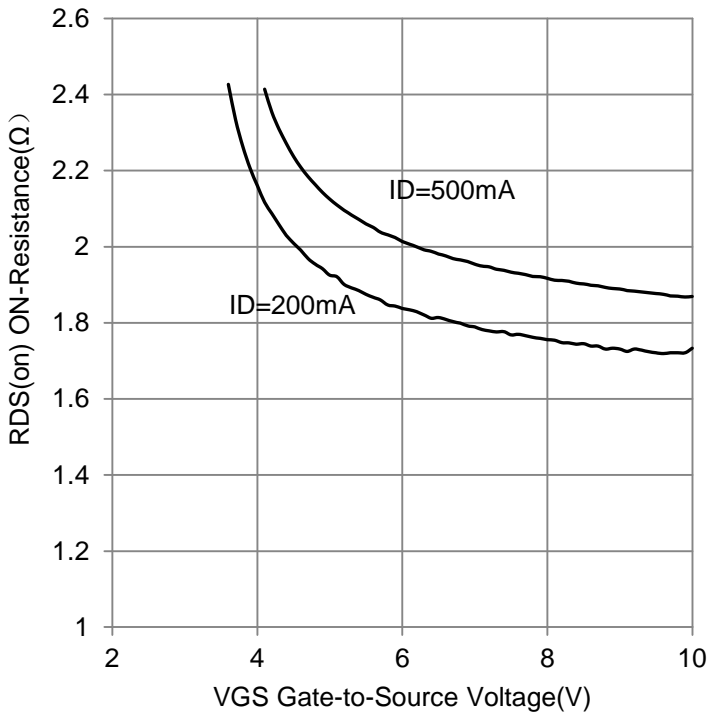
2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

3. Switching characteristics are independent of operating junction temperatures

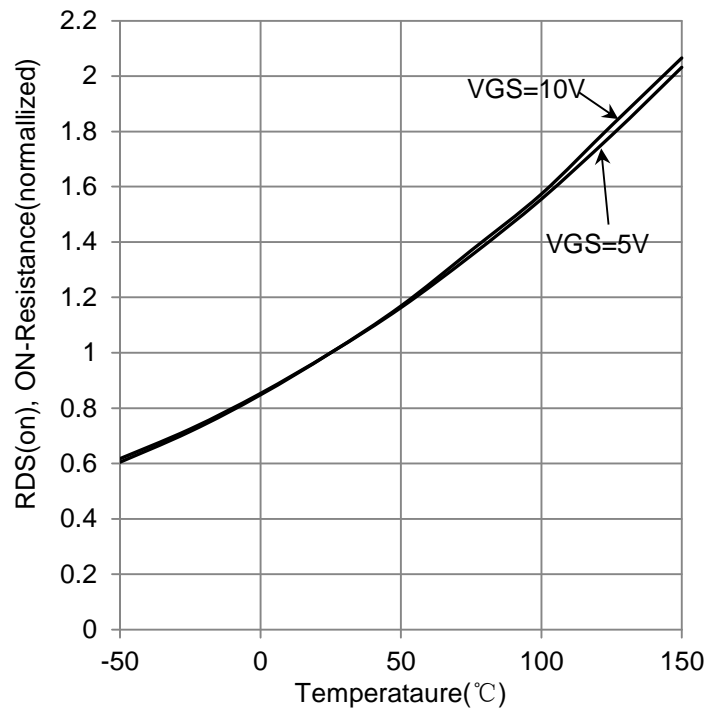
7. ELECTRICAL CHARACTERISTICS CURVES



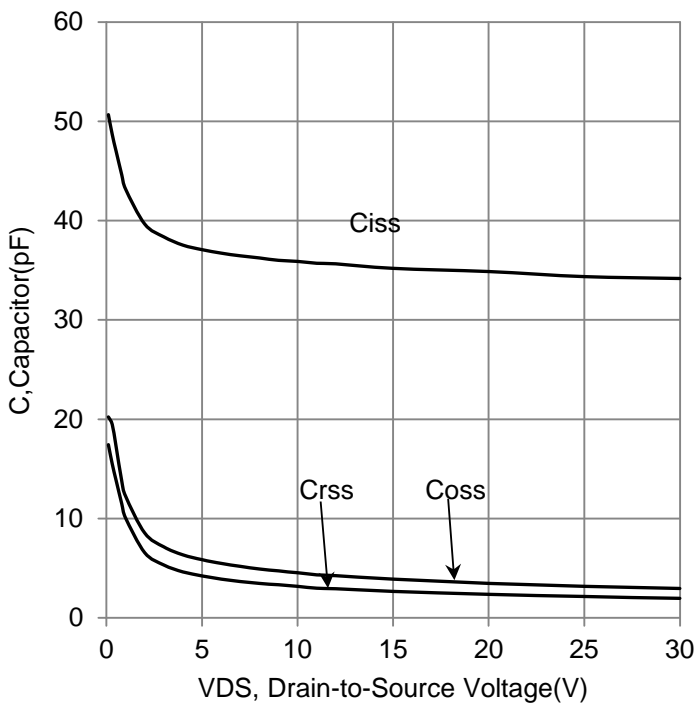
7.ELECTRICAL CHARACTERISTICS CURVES (Con.)



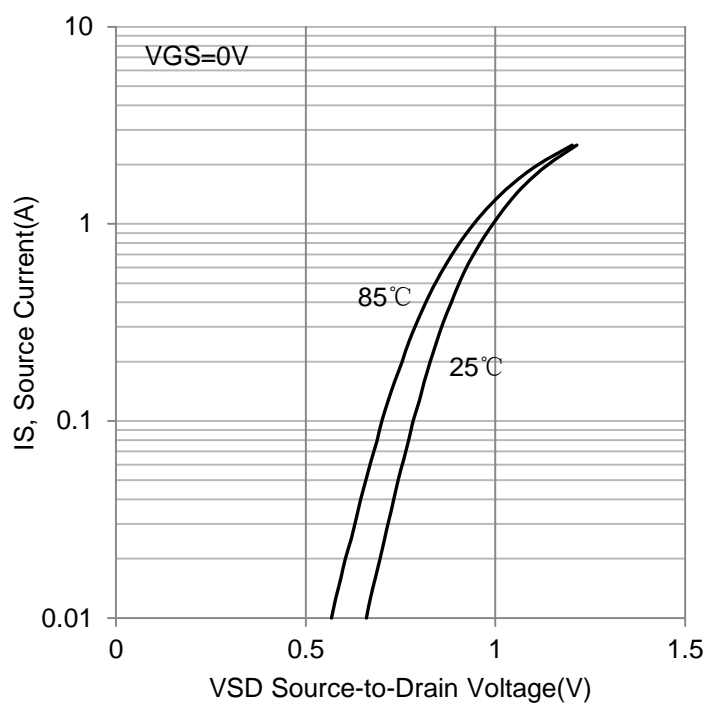
RDS(on) vs. VGS



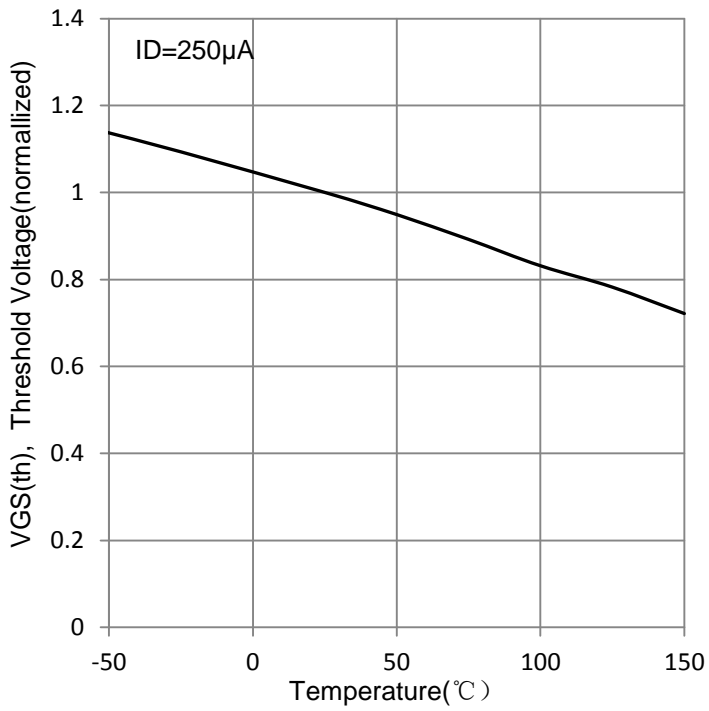
RDS(on) vs. Temperature



Capacitor vs. VDS

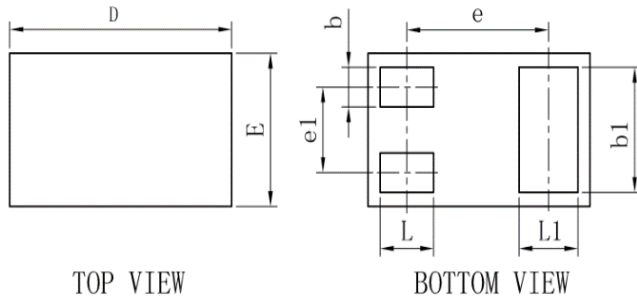


I_S vs. VSD

7.ELECTRICAL CHARACTERISTICS CURVES (Con.)

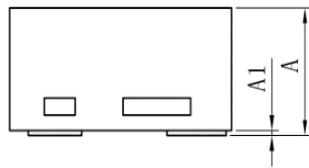
VGS(th) vs. Temperature

8. OUTLINE AND DIMENSIONS



TOP VIEW

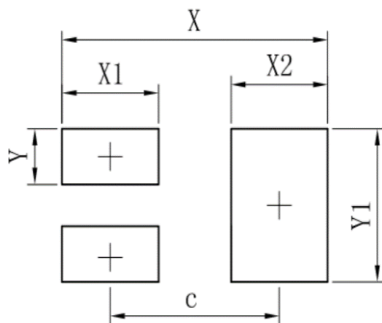
BOTTOM VIEW



SIDE VIEW

SOT883			
DIM	MIN	TYP	MAX
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	-	0.64	-
e1	-	0.34	-
L	0.19	0.24	0.29
L1	0.22	0.27	0.32
b	0.10	0.15	0.20
b1	0.44	0.49	0.54
A	0.43	0.48	0.53
A1	0	-	0.05
All Dimensions in mm			

9. SOLDERING FOOTPRINT



Dimensions	(mm)
c	0.70
X	1.10
X1	0.40
X2	0.40
Y	0.20
Y1	0.55

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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