![LRC]

L2N7002KDW1T1G
S-L2N7002KDW1T1G

Small Signal MOSFET
380 mAmps, 60 Volts N–Channel SC-88

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

SC88(SOT-363)
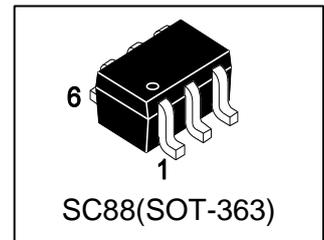
2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
L2N7002KDW1T1G	72K	3000/Tape&Reel
L2N7002KDW1T3G	72K	10000/Tape&Reel
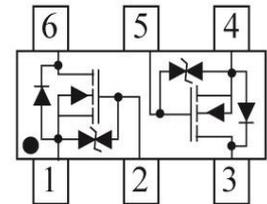
3. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	60	Vdc
Gate-Source Voltage	VGS	±20	Vdc
Drain Current	ID		mAdc
– 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

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation(Note 1)	PD		mW
– Steady State		300	
– t<5s		420	
Junction−to−Ambient(Note 1)	RΘJA		ºC/W
– Steady State		417	
– t<5s		300	
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. FR–5 = 1.0×0.75×0.062 in.

5. ELECTRICAL CHARACTERISTICS (Ta= 25ºC)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 250µAdc)	VBRDSS	60	-	-	Vdc
Drain−to−Source Breakdown Voltage Temperature Coefficient	VBRDSS/TJ	-	71	-	mV/º C
Zero Gate Voltage Drain Current TJ = 25°C	IDSS	-	-	1.0	µAdc
(VGS = 0, VDS = 60 Vdc) TJ = 125°C				500	
(VGS = 0, VDS = 50 Vdc) TJ = 25°C		-	-	100	nAdc
Gate–Body Leakage Current, Forward (VGS = 20 Vdc)	IGSSF	-	-	10	µAdc
Gate–Body Leakage Current, Reverse (VGS = - 20 Vdc)	IGSSR	-	-	-10	µAdc

ON CHARACTERISTICS (Note 2)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Gate Threshold Voltage (VDS = VGS, ID = 250µAdc)	VGS(th)	1.0	-	2.5	Vdc
Negative Threshold Temperature Coefficient	VGS(TH)/TJ	-	4	-	mV/º C
Static Drain–Source On–State Resistance	RDS(on)				Ω
(VGS = 10 Vdc, ID = 500 mAdc)		-	-	2.3	
(VGS = 5.0 Vdc, ID = 50 mAdc)		-	-	2.7	
Forward Transconductance (VDS = 5.0 Vdc, ID = 200 mAdc)	gfs	80	-	-	mS

DYNAMIC CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Input Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Ciss	-	34	-	pF
Output Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Coss	-	3	-	pF
Reverse Transfer Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Crss	-	2.2	-	pF

SWITCHING CHARACTERISTICS

| Characteristic		Symbol	Min.	Typ.	Max.	Unit
Turn-On Delay Time	VDS = 10 V, VGEN = 10 V, ID = 500 mA	td(on)	-	3.8	-	ns
Rise Time		tr	-	3.4	-	
Turn-Off Delay Time		td(off)	-	19	-	
Fall Time		tf	-	12	-	

BODY–DRAIN DIODE RATINGS

| Characteristic		Symbol	Min.	Typ.	Max.	Unit
Diode Forward On–Voltage (IS = 115 mAdc, VGS = 0 V)	TJ = 25°C	VSD	-	-	1.4	Vdc
	TJ = 85°C		-	0.7	-	

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

6. **ELECTRICAL CHARACTERISTICS CURVES**

On-Region Characteristics

Transfer Characteristics

RDS(on) vs. ID
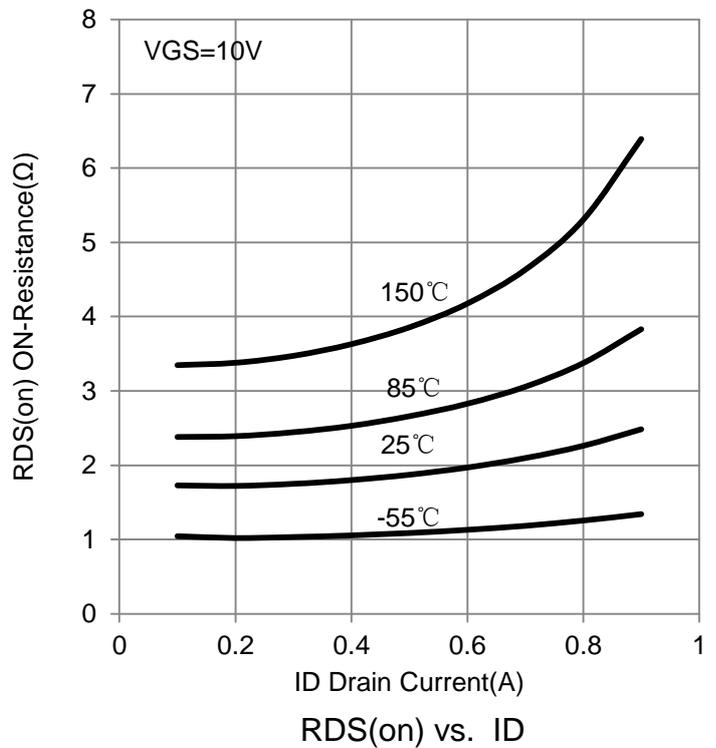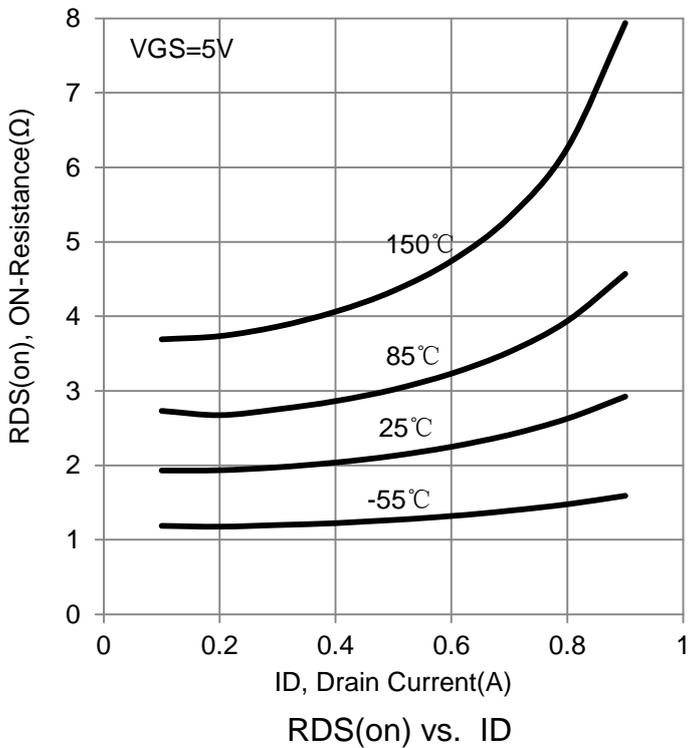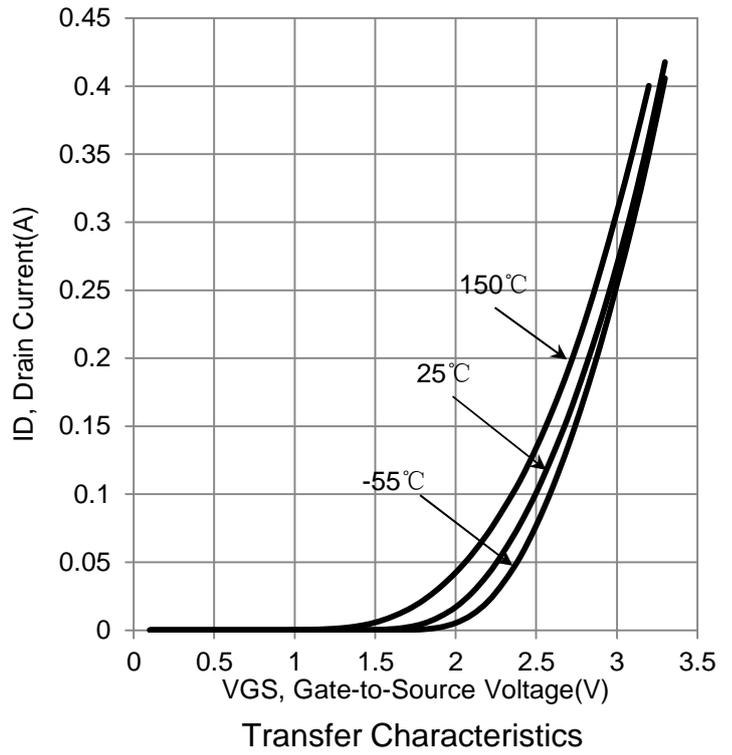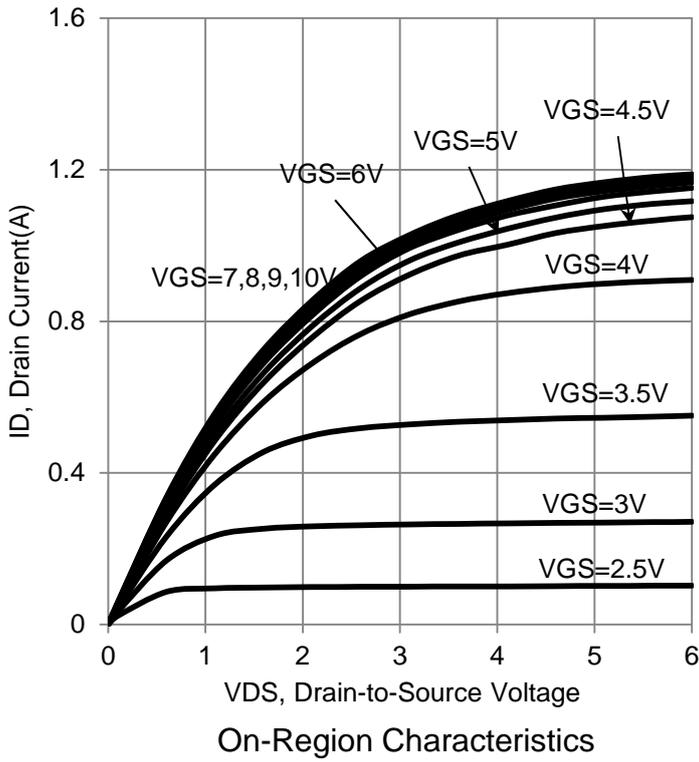
RDS(on) vs. ID

6. ELECTRICAL CHARACTERISTICS CURVES（Con.)
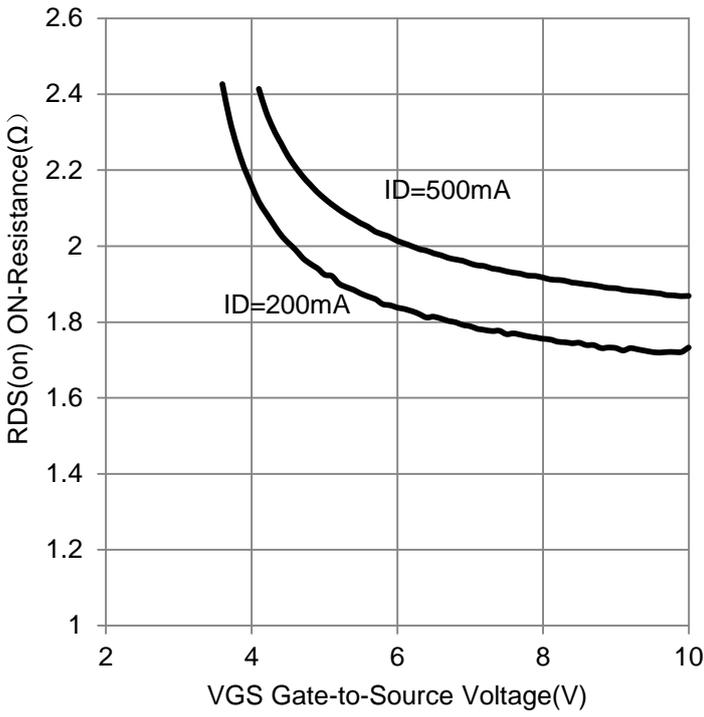
RDS(on) vs. VGS
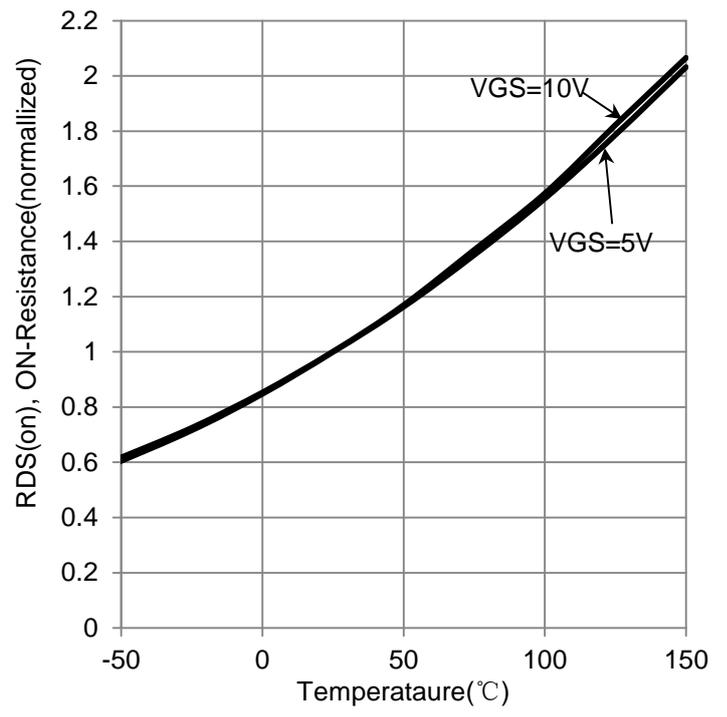
RDS(on) vs. Temperature
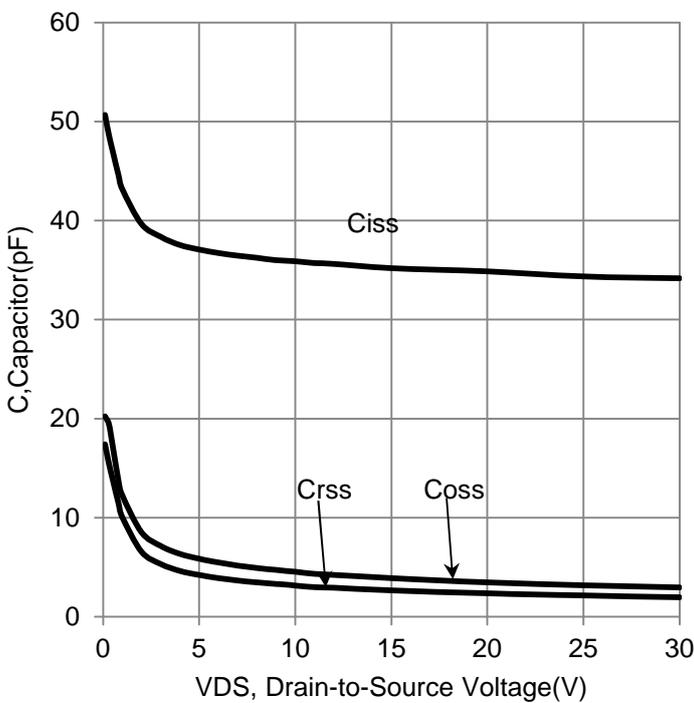
Capacitor vs.VDS
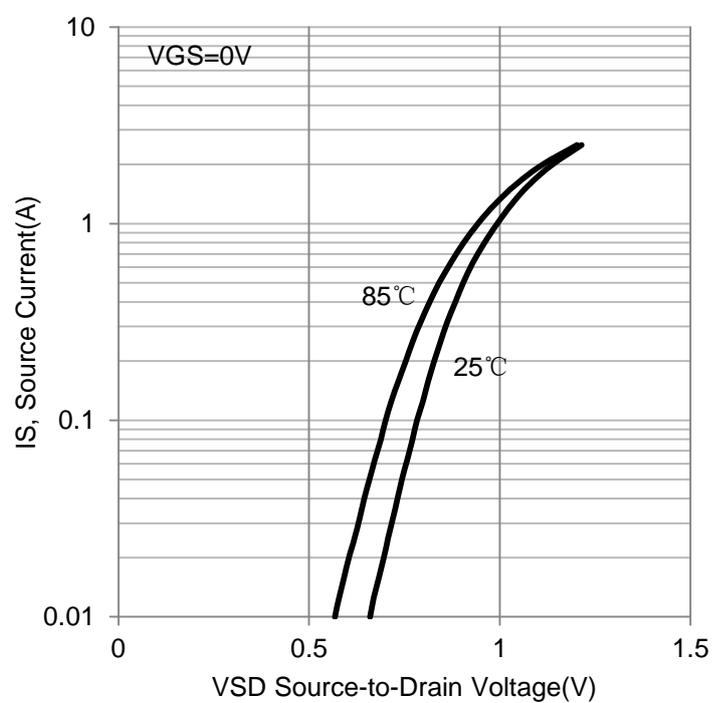
IS vs.VSD

6. ELECTRICAL CHARACTERISTICS CURVES（Con.)

ID=250µA
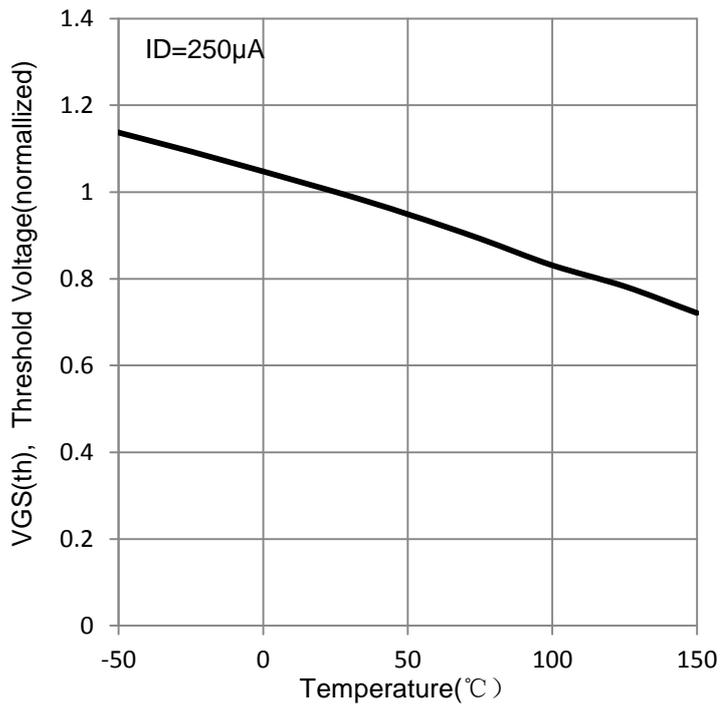
VGS(th) vs. Temperature

7.OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

2. CONTROLLING DIMENSION: MILLIMETERS.

3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
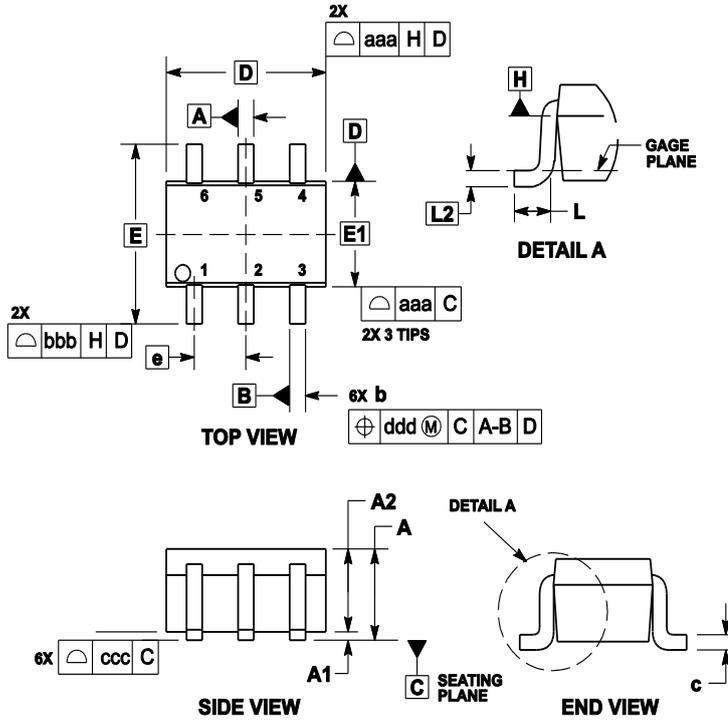
DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	---	---	1.10	---	---	0.043
A1	0.00	---	0.10	0	---	0.004
A2	0.70	0.90	1.00	0.027	0.035	0.039
b	0.15	0.20	0.25	0.006	0.008	0.01
C	0.08	0.15	0.22	0.003	0.006	0.009
D	1.80	2.00	2.20	0.07	0.078	0.086
E	2.00	2.10	2.20	0.078	0.082	0.086
E1	1.15	1.25	1.35	0.045	0.049	0.053
e	0.65 BSC			0.026 BSC		
L	0.26	0.36	0.46	0.010	0.014	0.018
L2	0.15 BSC			0.006 BSC		
aaa	0.15			0.01		
bbb	0.30			0.01		
ccc	0.10			0.00		
ddd	0.10			0.00		

8.SOLDERING FOOTPRINT