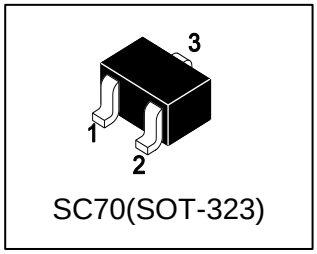
LNTS4409NWT1G
S-LNTS4409NWT1G

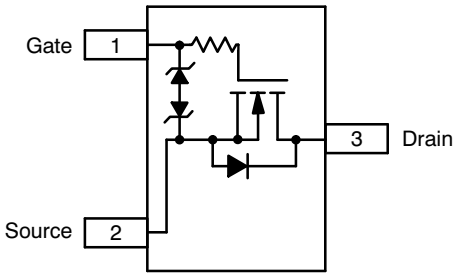
Small Signal MOSFET



SC70(SOT-323)

1. FEATURES

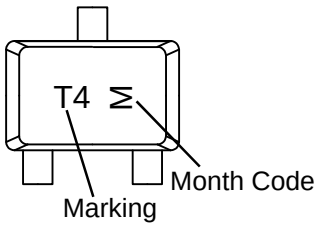
- Gate to Source ESD protected.
- Advance Planar Technology for Fast Switching, Low RDS(on).
- Higher Efficiency Extending Battery Life.
- This is a Pb−Free Device
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



(Top View)

2. APPLICATIONS

- Boost and Buck Converter
- Load Switch
- Battery Protection



3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LNTS4409NWT1G	T4	3000/Tape&Reel
S-LNTS4409NWT1G	T4	3000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	25	V
Gate-Source Voltage	VGS	±8	V
Drain Current – t<5s TA = 25°C – Steady State TA = 25°C TA = 75°C	ID	 0.75 0.7 0.6	A
Pulsed Drain Current (tp=10μs)	IDM	3	A
Source Current (Body Diode)(Note 1)	IS	0.3	A
Operating Junction and Storage Temperature Range	TJ,Tstg	−55~+150	ºC
Lead Temperature for Soldering Purposes (1/8 " from case for 10 s)	TL	260	ºC
ESD Rating − Machine Model		250	V

Maximum ratings are those values beyond which device damage can occur.Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits a exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation(Note 1) – Steady State – t≤5s	PD	 0.28 0.33	W
Junction−to−Ambient(Note 1) – Steady State – t≤5s	RΘJA	 450 375	ºC/W

6. ELECTRICAL CHARACTERISTICS (TJ = 25°C unless otherwise noted)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)		VBRDSS	25	-	-	V
Drain−to−Source Breakdown Voltage Temperature Coefficient		VBRDSS/TJ	-	30	-	mV/ºC
Zero Gate Voltage Drain Current (VGS = 0, VDS = 20 V,TJ = 25°C) (VGS = 0, VDS = 20 V,TJ = 70°C) (VGS = 0, VDS = 20 V,TJ = 125°C)		IDSS	 - - -	 - - -	 0.5 2 5	μA
Gate−to−Source Leakage Current (VDS = 0 V, VGS = ±8 V)		IGSS	-	-	±3	μA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage (VDS = VGS, ID = 250μA)		VGS(th)	0.5	-	1.5	V
Negative Threshold Temperature Coefficient		VGS(TH)/TJ	-	-2	-	mV/ºC
Drain–Source On–State Resistance (VGS = 4.5 V, ID = 0.6 A) (VGS = 2.7 V, ID = 0.2 A) (VGS = 4.5 V, ID = 1.2 A)		RDS(on)	 - - -	 249 299 260	 350 400 -	mΩ
Forward Transconductance (VDS = 5.0 V, ID = 0.5 A)		gfs	-	0.5	-	S
CHARGES AND CAPACITANCES						
Input Capacitance (VDS = 10 V, VGS = 0, f = 1.0 MHz)		Ciss	-	96	-	pF
Output Capacitance (VDS = 10 V, VGS = 0, f = 1.0 MHz)		Coss	-	16	-	
Reverse Transfer Capacitance (VDS = 10 V, VGS = 0, f = 1.0 MHz)		Crss	-	10	-	
Total Gate Charge	(VGS = 4.5 V, VDS = 15 V,ID = 0.8 A)	QG(TOT)	-	1.2	1.5	nC
Threshold Gate Charge		QG(TH)	-	0.2	-	
Gate−to−Source Charge		QGS	-	0.28	0.5	
Gate−to−Drain Charge		QGD	-	0.3	0.4	

6. ELECTRICAL CHARACTERISTICS (TJ = 25°C unless otherwise noted)(Con.)

SWITCHING CHARACTERISTICS(Note 3)

Turn-On Delay Time	(VGS = 4.5 V, VDS = 15 V,ID = 0.7 A,RG =51Ω)	td(on)	-	5	12	ns
Rise Time		tr	-	8.2	8	
Turn-Off Delay Time		td(off)	-	23	35	
Fall Time		tf	-	41	60	

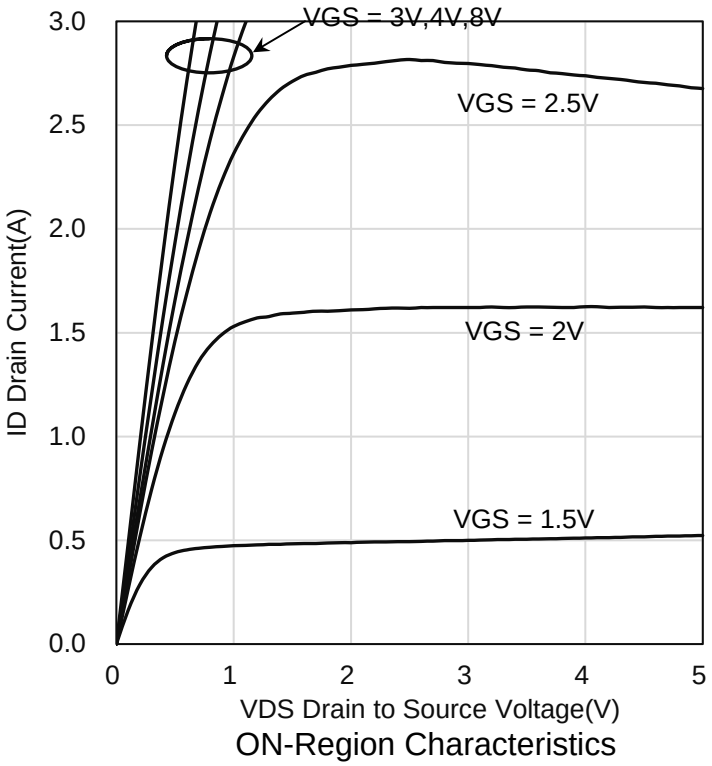
DRAIN−SOURCE DIODE CHARACTERISTICS

Forward Diode Voltage (VGS = 0 V,IS = 0.6 A,TJ = 25°C)	VSD	-	0.82	1.2	V

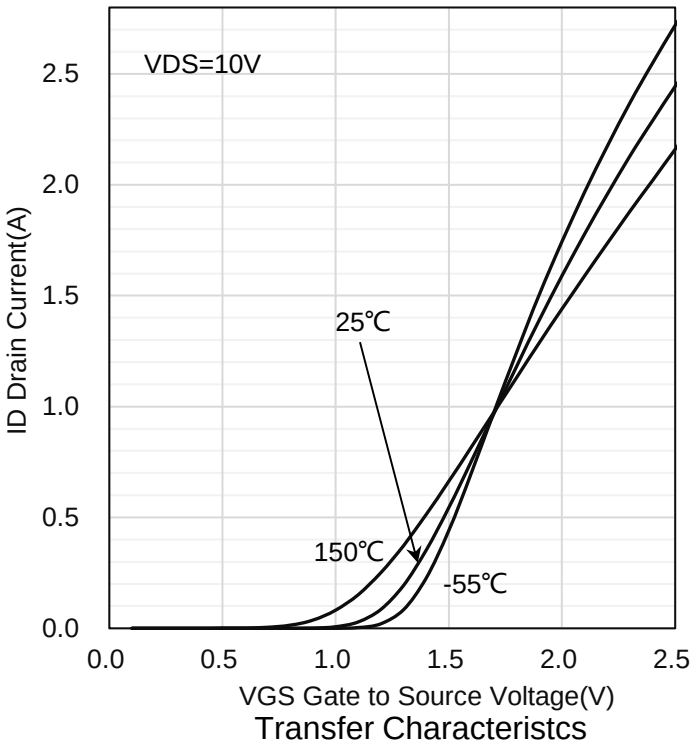
2. Pulse Test: pulse width ≤ 300 μs, duty cycle ≤ 2%.

3. Switching characteristics are independent of operating junction temperatures.

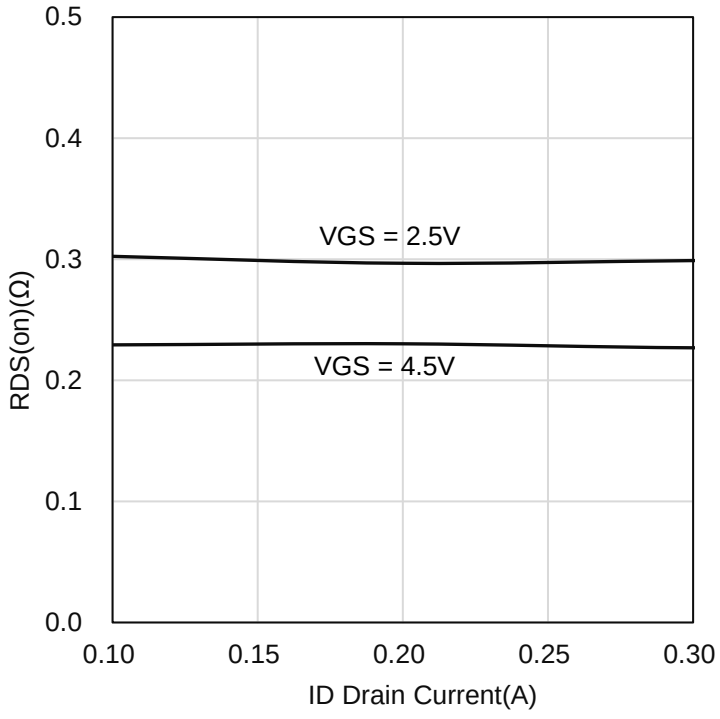
7.ELECTRICAL CHARACTERISTICS CURVES



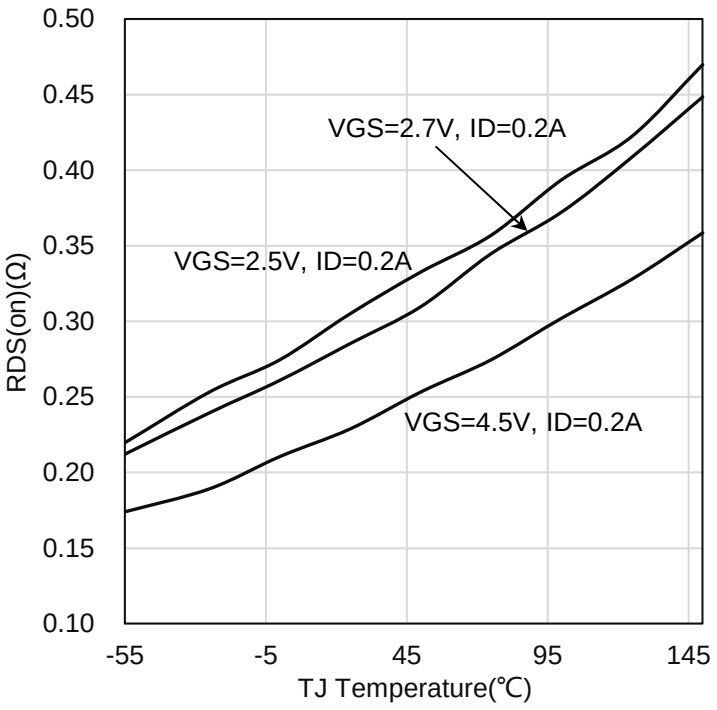
ON-Region Characteristics



Transfer Characteristcs

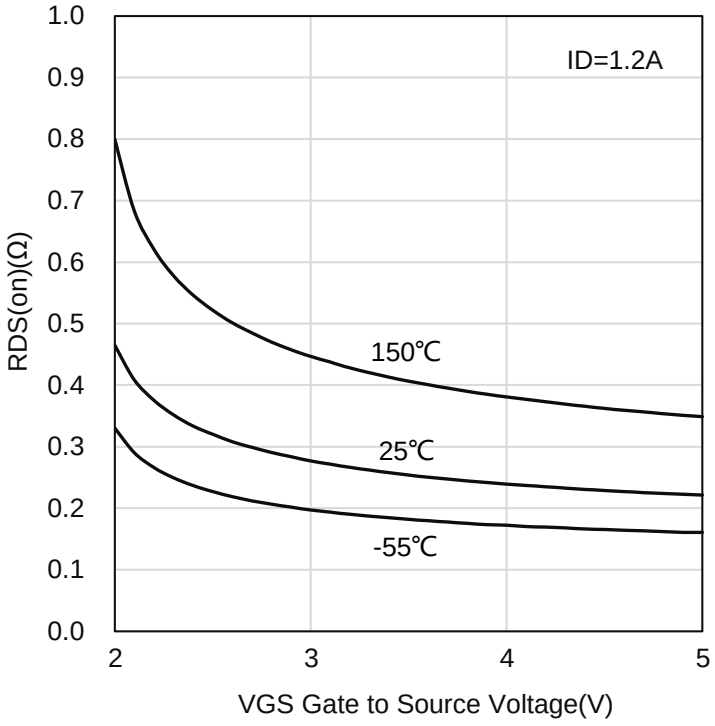


RDS(on) vs. ID

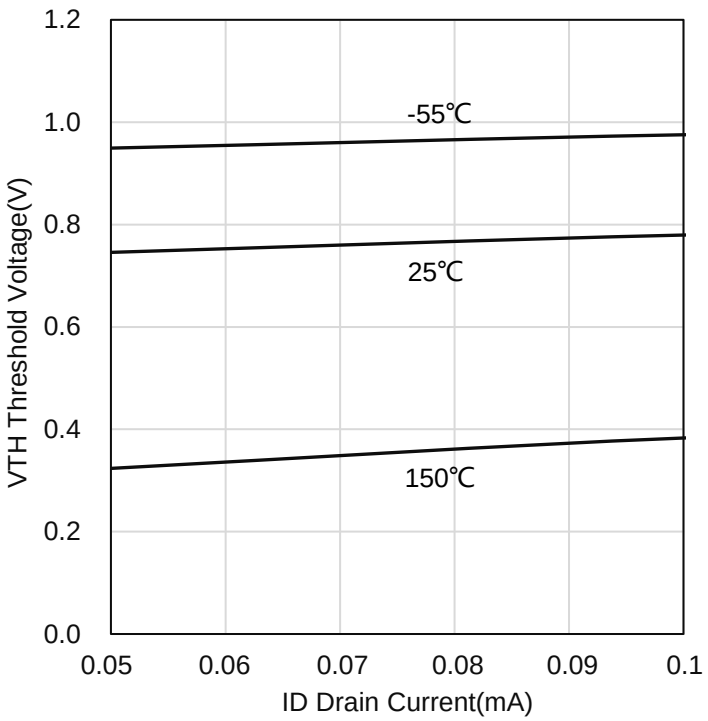


RDS(on) vs. Tj

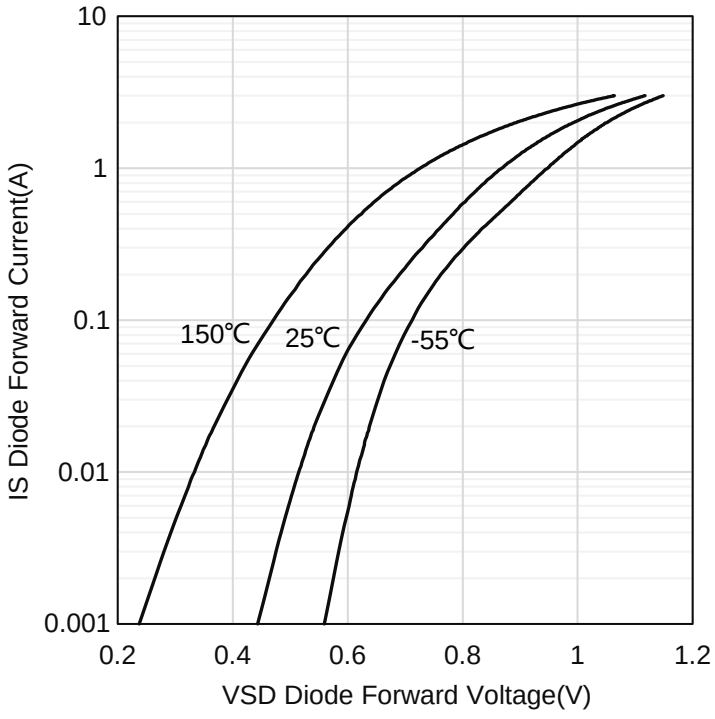
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



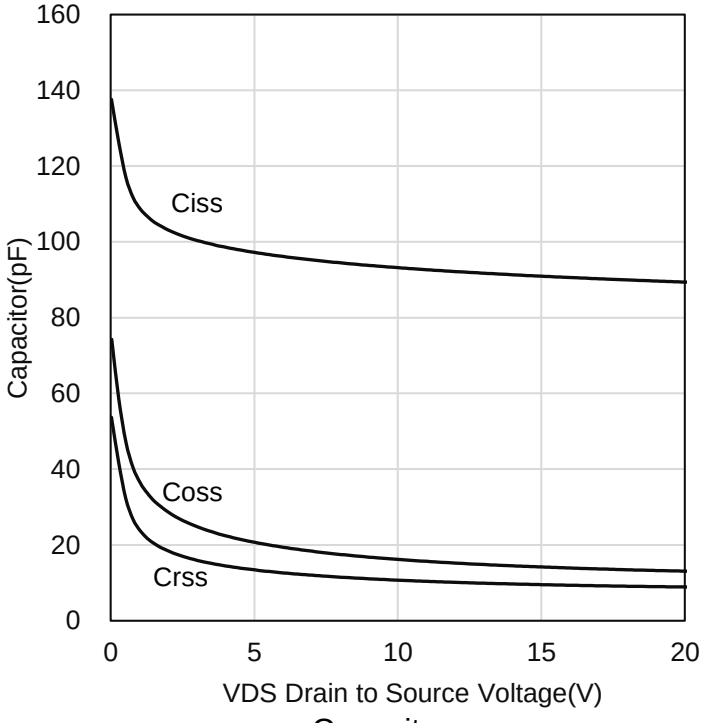
RDS(on) vs. VGS



VTH vs. ID

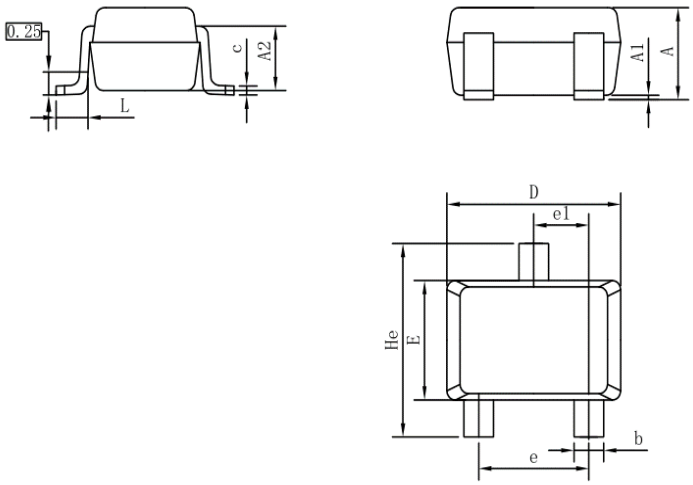


IS vs.VSD



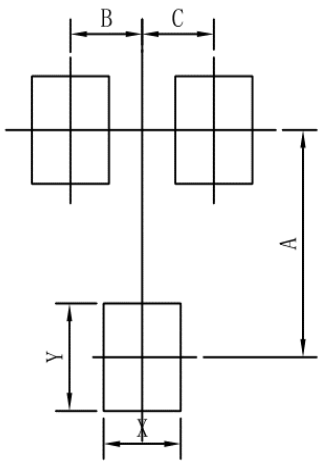
Capacitance

8.OUTLINE AND DIMENSIONS



SC70			
DIM	MIN	NOR	MAX
A	0.80	0.95	1.00
A1	0.00	0.05	0.10
A2		0.7 REF	
b	0.30	0.35	0.40
c	0.10	0.15	0.25
D	1.80	2.05	2.20
E	1.15	1.30	1.35
e	1.20	1.30	1.40
e1		0.65 BSC	
L	0.20	0.35	0.56
He	2.00	2.10	2.40
ALL Dimension in mm			

9.SOLDERING FOOTPRINT



SC70	
DIM	MIN
A	1.90
B	0.65
C	0.65
X	0.70
Y	0.90

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