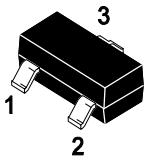
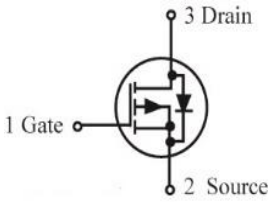
S-LP3401LT1G

30V P-Channel Power MOSFET



SOT23(TO-236)



1. FEATURES

- VDS = -30V
- RDS(ON) ≤ 75mΩ (VGS = -10V)
- RDS(ON) ≤ 85mΩ (VGS = -4.5V)
- RDS(ON) ≤ 130mΩ (VGS = -2.5V)
- 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.

2. APPLICATIONS

- Power Routing
- DC/DC Conversion
- Motor Drives

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
S-LP3401LT1G	A1	3000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	-30	V
Gate–to–Source Voltage – Continuous	VGS	±12	V
Drain Current – Continuous TA = 25°C(Note 1) – Pulsed (Note 2)	 ID IDM	 -3.5 -14	A

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Power Dissipation(Note 1)	PD	1	W
Thermal Resistance, Junction–to–Ambient(Note 1) Junction–to–Ambient(Note 3) Junction–to–Case	 RΘJA RΘJA RΘJC	 125 226 100	 ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C

1.Surface mounted on "1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.

2.Pulse width limited by maximum junction temperature.

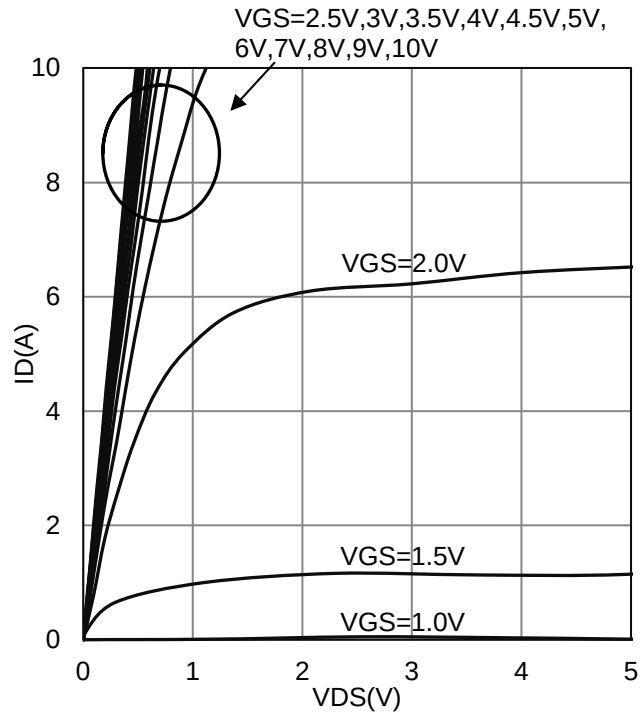
3.Surface mounted on FR4 board using the minimum recommended pad size.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

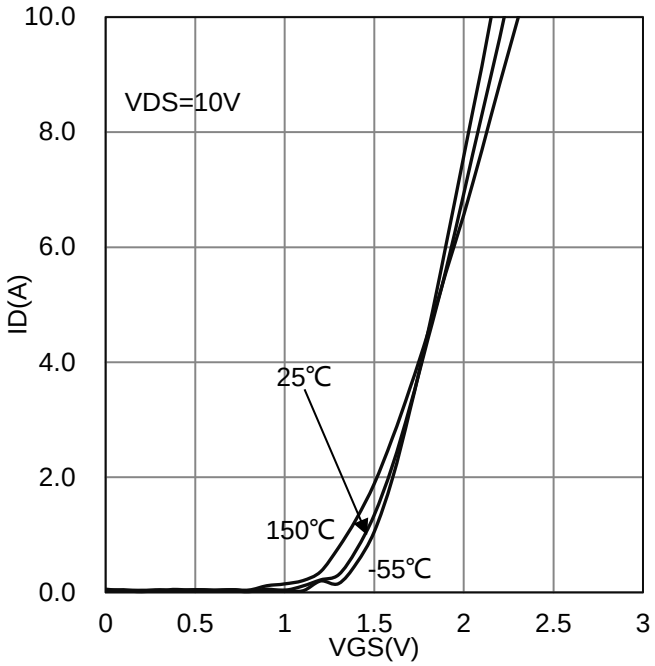
Characteristic		Symbol	Min.	Typ.	Max.	Unit
STATIC						
Drain–Source Breakdown Voltage (VGS = 0V, ID = -250μA)		VBRDSS	-30	-	-	V
Gate-Source Threshold Voltage (VDS =VGS , ID =-250μA)		VGS(th)	-0.5	-	-1.3	V
Gate-Body Leakage Current (VDS =0V, VGS =± 12V)		IGSS	-	-	± 100	nA
Zero Gate Voltage Drain Current (VDS = -24 V, VGS = 0 V)		IDSS	-	-	-1	μA
Drain-Source On-Resistance(Note 4) (VGS = -10 V, ID = -2.5 A) (VGS = -4.5 V, ID = -2.5 A) (VGS = -2.5 V, ID = -1 A)		RDS(ON)	 - - -	 - - -	 75 85 130	mΩ
Diode Forward Voltage(Note 3) (IS = -1 A, VGS = 0 V)		VSD	-	-	-1.2	V
DYNAMIC						
Total Gate Charge	(VDS = -15 V, VGS = -4.5 V,ID = -2.5 A)	Qg	-	5.8	-	nC
Gate-Source Charge		Qgs	-	0.9	-	
Gate-Drain Charge		Qgd	-	2	-	
Turn-On Delay Time	(VDS = -15 V, RL = 3 Ω, VGS= -10 V, RG = 6 Ω)	td(on)	-	3	-	ns
Rise Time		tr	-	3.4	-	
Turn-Off Delay Time		td(off)	-	53	-	
Fall Time		tf	-	25	-	
Input Capacitance	(VDS = -15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	447	-	pF
Output Capacitance		Coss	-	63	-	
Reverse Transfer Capacitance		Crss	-	57	-	

4.Pulse test; pulse width≤300μs, duty cycle≤ 2%

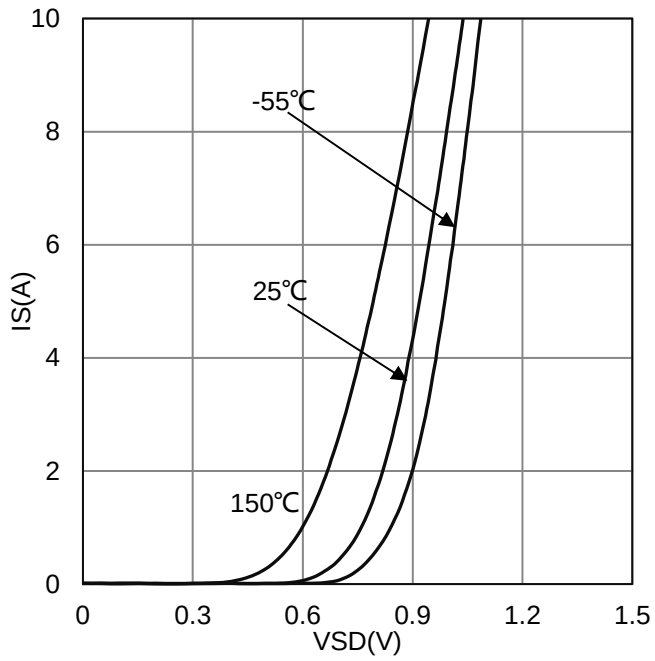
7. ELECTRICAL CHARACTERISTICS CURVES



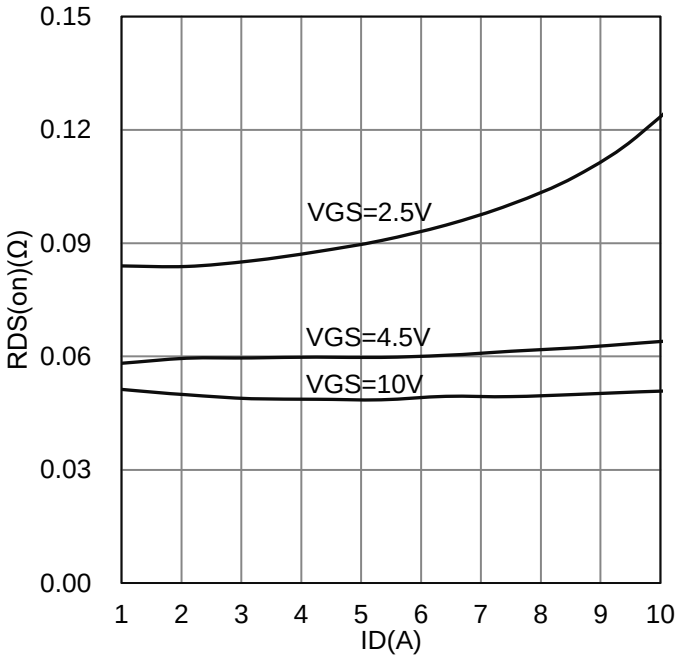
ID vs. VDS



ID vs. VGS

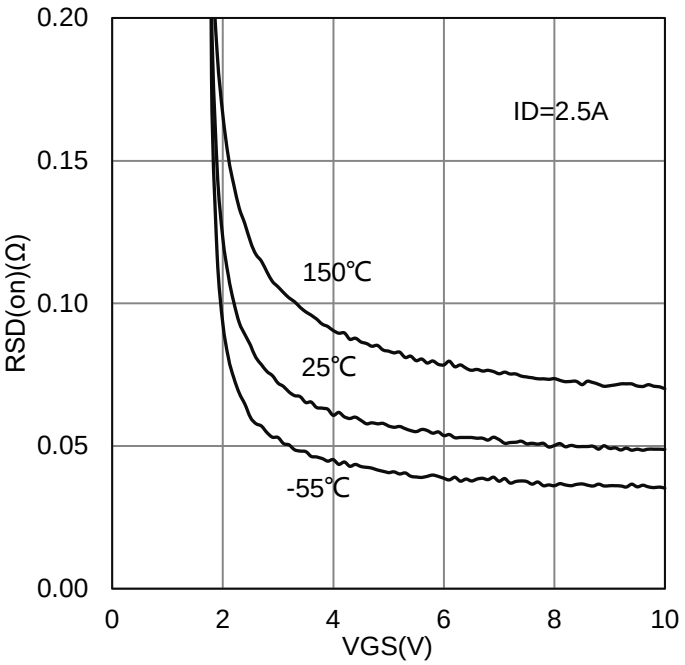


IS vs. VSD

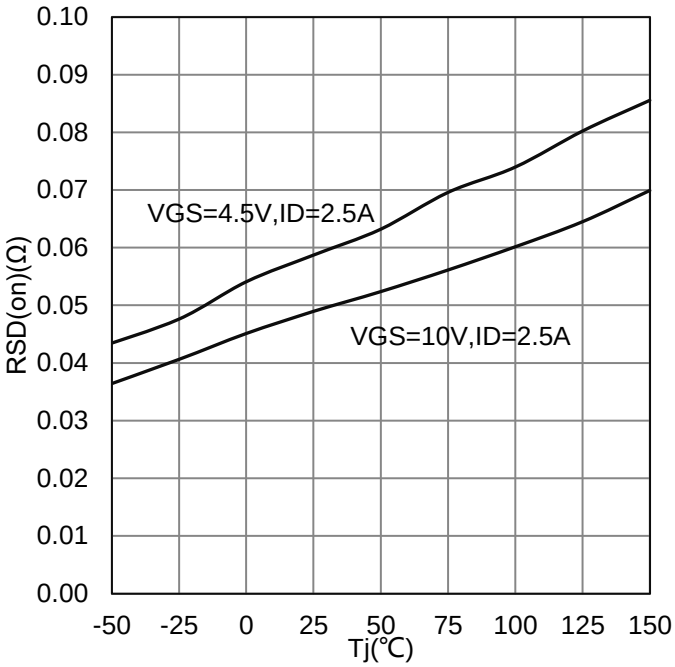


RDS(on) vs. ID

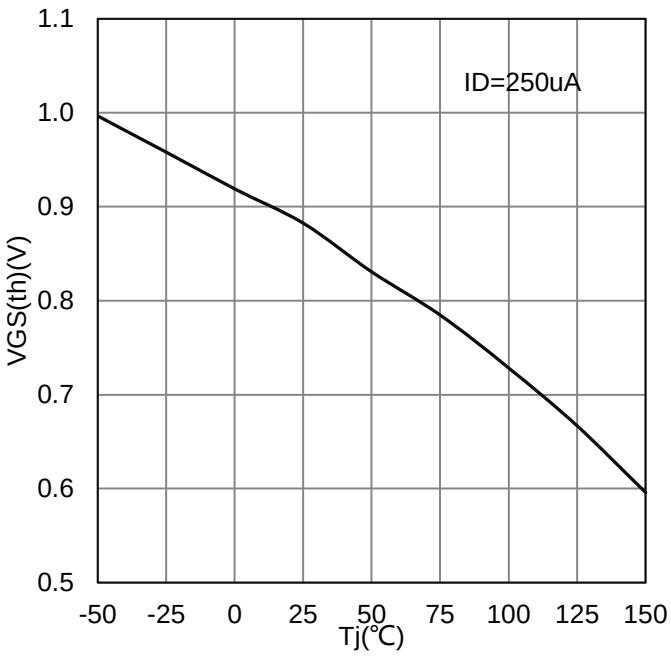
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



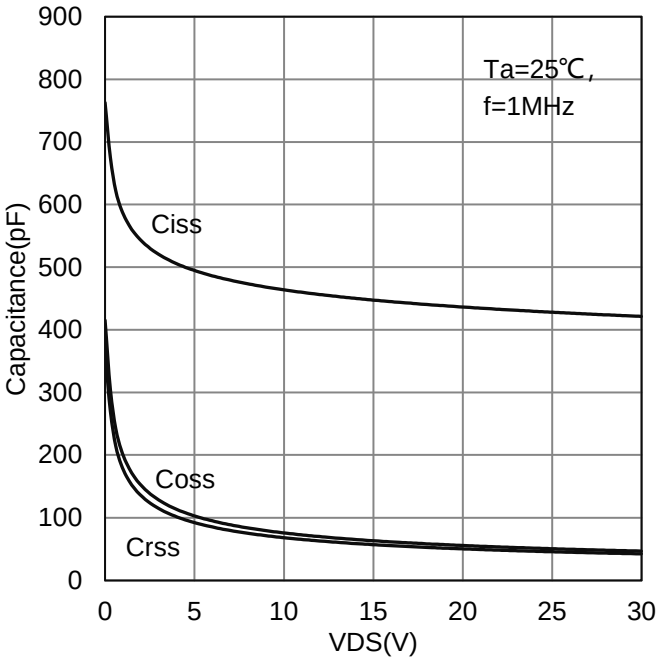
RDS(on) vs. VGS



RDS(on) vs. Tj

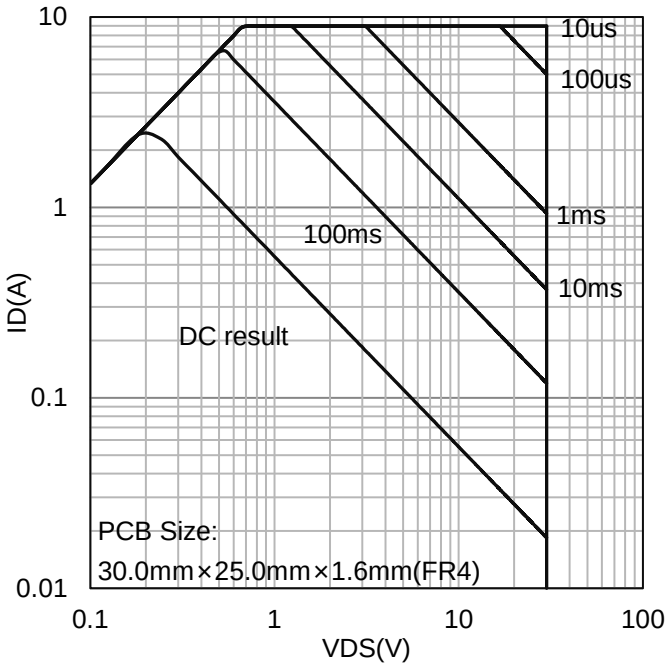


VGSth vs. Tj

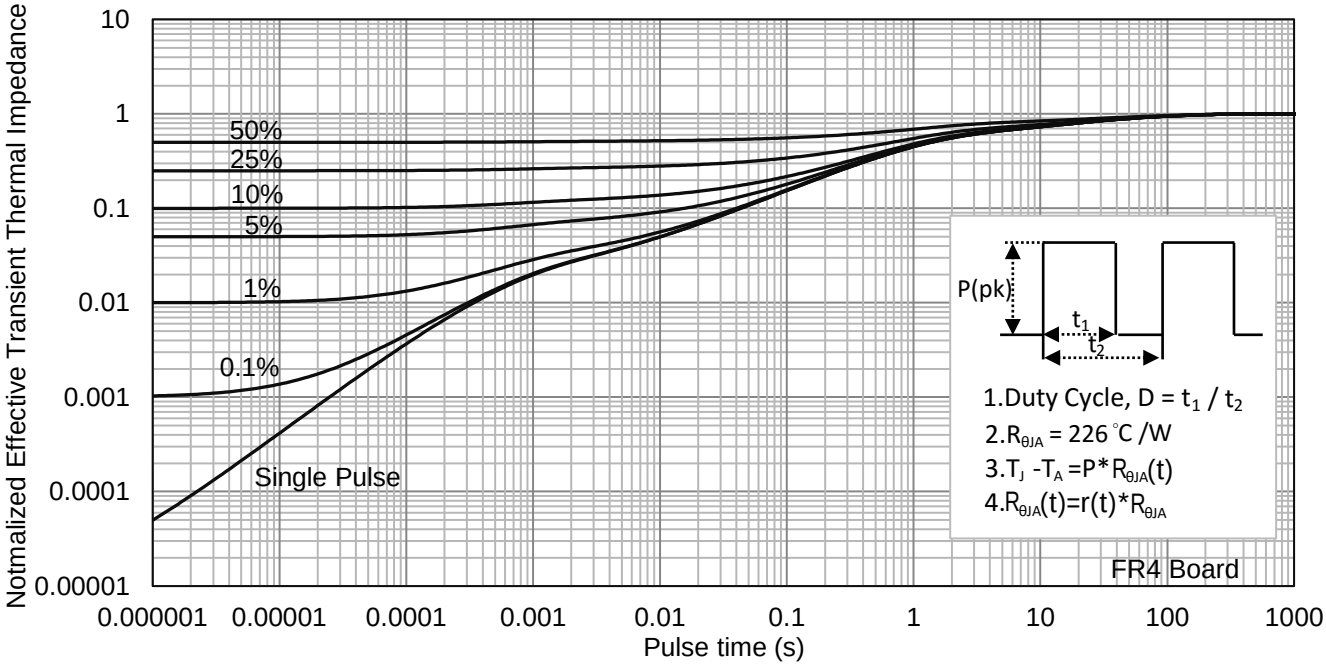


Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

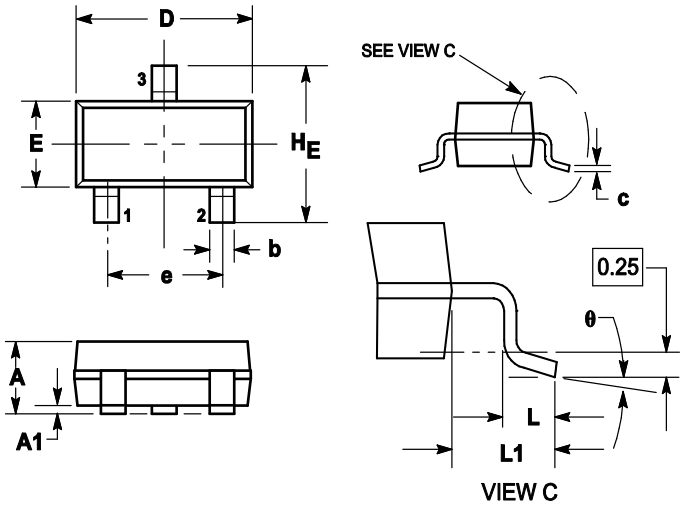


Safe Operating Area



Thermal Response

8.OUTLINE AND DIMENSIONS

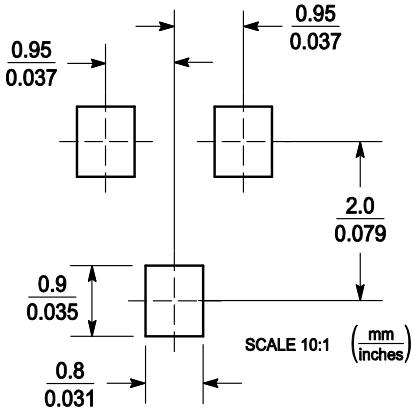


Notes:

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.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

9.SOLDERING FOOTPRINT



DISCLAIMER

- Before you use our Products, you are requested to carefully read this document and fully understand its contents. LRC shall not be in any way responsible or liable for failure, malfunction or accident arising from the use of any LRC's Products against warning, caution or note contained in this document.
- All information contained in this document is current as of the issuing date and subject to change without any prior notice. Before purchasing or using LRC's Products,please confirm the latest information with a LRC sales representative.