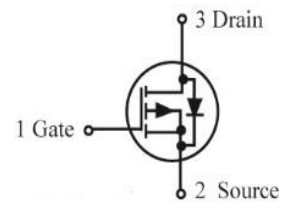
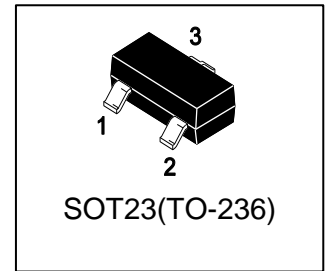


S-LP2301LT1G

20V P-Channel (D-S) MOSFET

1. FEATURES

- $V_{DS} = -20\text{ V}$.
- $R_{DS(ON)} \leq 90\text{ m}\Omega @ V_{GS} = -4.5\text{ V}$
 $R_{DS(ON)} \leq 110\text{ m}\Omega @ V_{GS} = -2.5\text{ V}$
 $R_{DS(ON)} \leq 150\text{ m}\Omega @ V_{GS} = -1.8\text{ V}$
- Low thermal impedance.
- Fast switching speed.
- 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. APPLICATION

- Power Routing
- Load Switch
- Motor Drives

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
S-LP2301LT1G	01	3000/Tape&Reel

4. MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	V_{DS}	-20	V
Gate–to–Source Voltage – Continuous	V_{GS}	± 8	V
Drain Current			A
– Continuous $T_A = 25^\circ\text{C}$	I_D	-3	
– Pulsed(Note 1)	I_{DM}	-12	

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	0.9	W
Thermal Resistance, Junction–to–Ambient(Note 2)	$R_{\theta JA}$	140	$^\circ\text{C/W}$
Junction–to–Ambient(Note 3)	$R_{\theta JA}$	245	
Junction and Storage temperature	T_J, T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

1.Repetitive Rating: Pulse width limited by the Maximum junction temperature.

2.1-in² 2oz Cu PCB board.

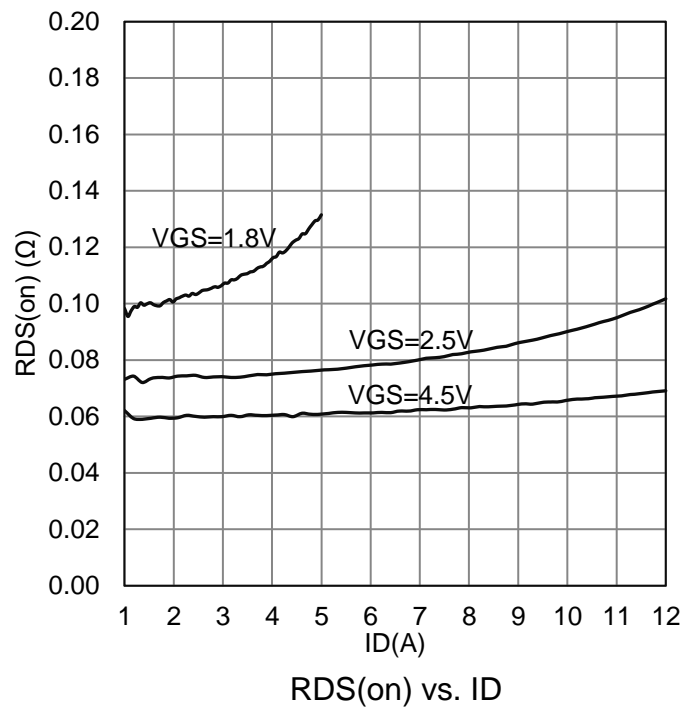
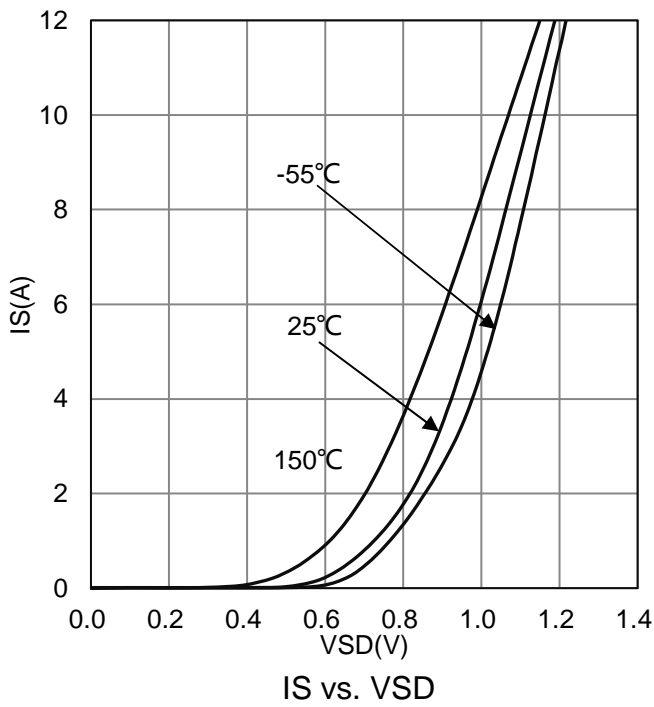
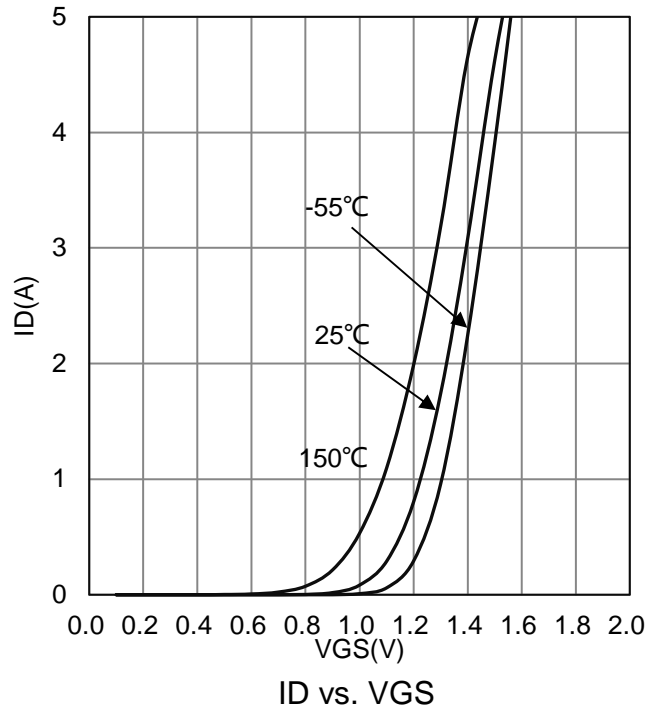
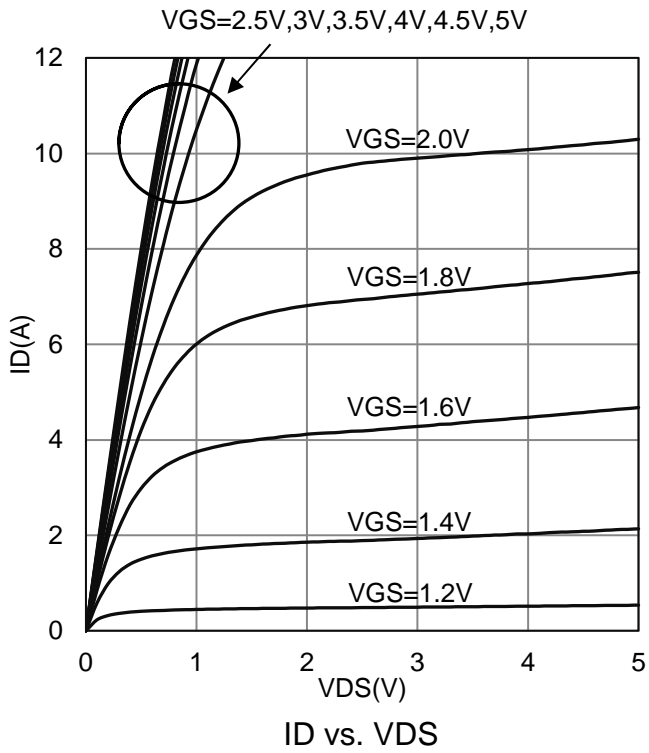
3.Surface mounted on FR4 board using the recommended pad size.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

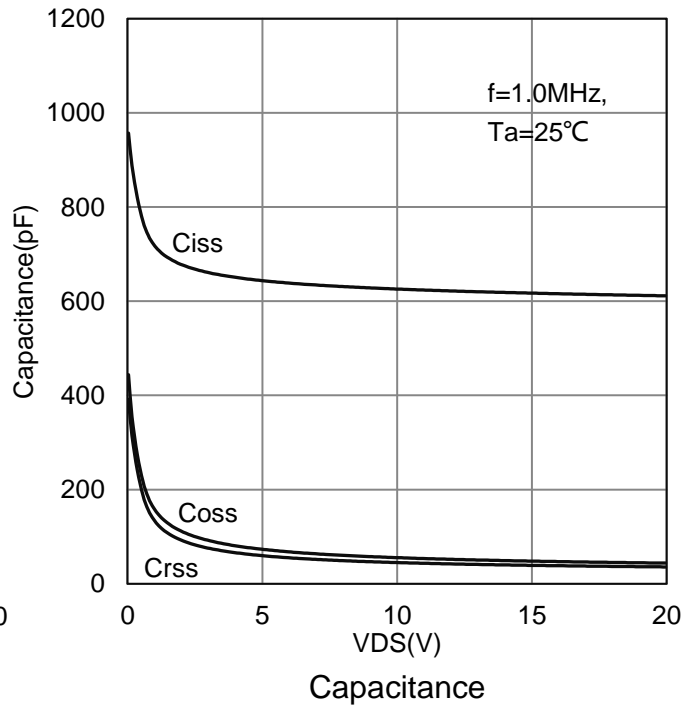
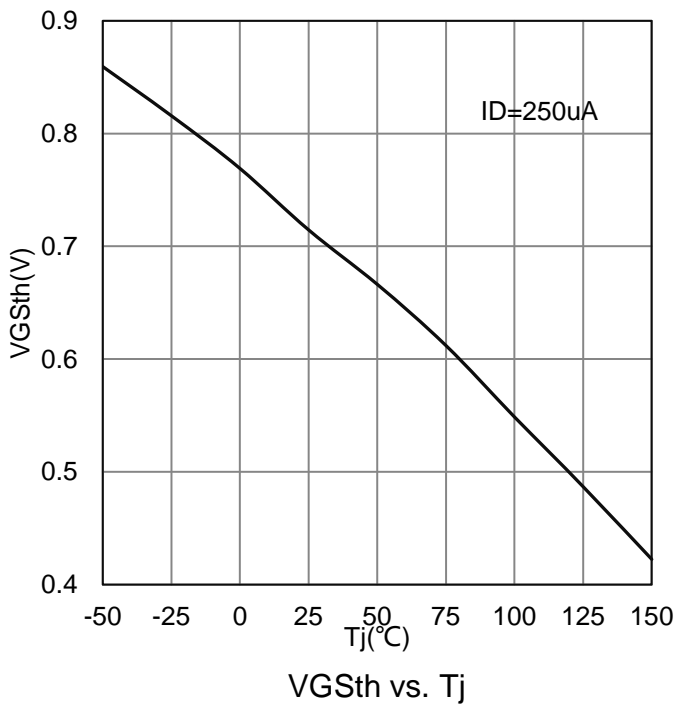
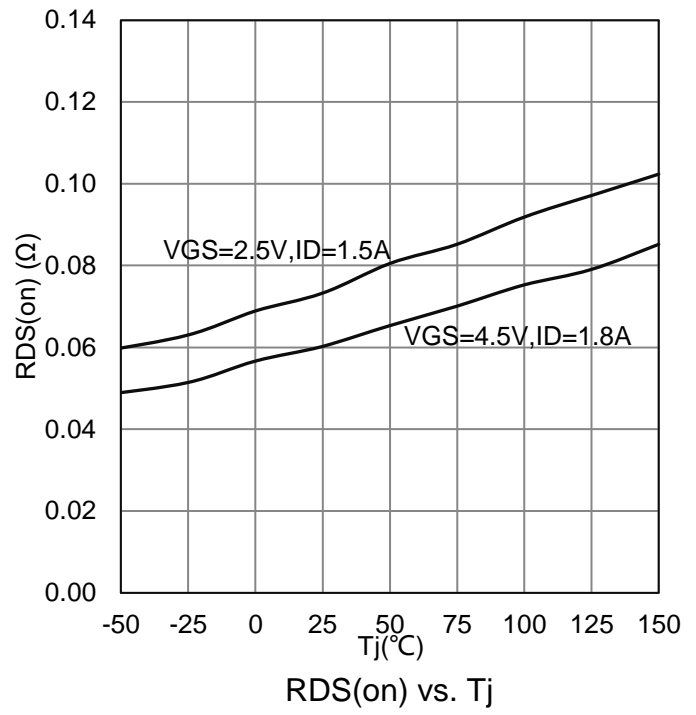
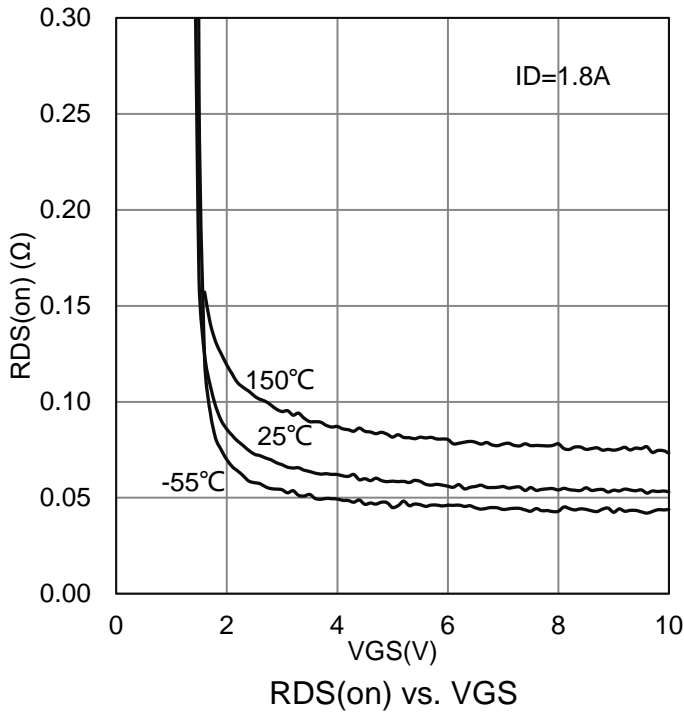
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
STATIC						
Drain-Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)	V(BR)DSS	-20	-	-	V	
Gate-Source Threshold Voltage (VDS = VGS, ID = -250 μA)	VGS(th)	-0.4	-	-0.9	V	
Gate-Body Leakage (VDS = 0 V, VGS = ± 8 V)	IGSS	-	-	±100	nA	
Zero Gate Voltage Drain Current (VDS = -20 V, VGS = 0 V)	IDSS	-	-	-1	μA	
Drain-Source On-Resistance(Note 4) (VGS = -4.5 V, ID = -1.8 A) (VGS = -2.5 V, ID = -1.5 A) (VGS = -1.8 V, ID = -1.2 A)	RDS(on)	-	65 80 95	90 110 150	mΩ	
Diode Forward Voltage (VGS = 0 V, IS = -1 A)	VSD	-	-0.7	-1	V	
DYNAMIC						
Total Gate Charge(10V)	(VDS = -15V, VGS = -4.5 V, ID = -2 A)	Qg	-	13	-	nC
Total Gate Charge(4.5V)		Qg	-	6.4	-	
Gate-Source Charge		Qgs	-	0.8	-	
Gate-Drain Charge		Qgd	-	2	-	
Turn-On Delay Time	(VDD = -15 V, RL = 15 Ω, VGEN = -10 V, RG = 6 Ω)	td(on)	-	4	-	ns
Rise Time		tr	-	2.3	-	
Turn-Off Delay Time		td(off)	-	44	-	
Fall Time		tf	-	9.2	-	
Input Capacitance	(VDS = -15 V, VGS = 0V, f = 1 MHz)	Ciss	-	635	-	pF
Output Capacitance		Coss	-	51	-	
Reverse Transfer Capacitance		Crss	-	41	-	

4. Pulse test: PW ≤ 300us duty cycle ≤ 2%.

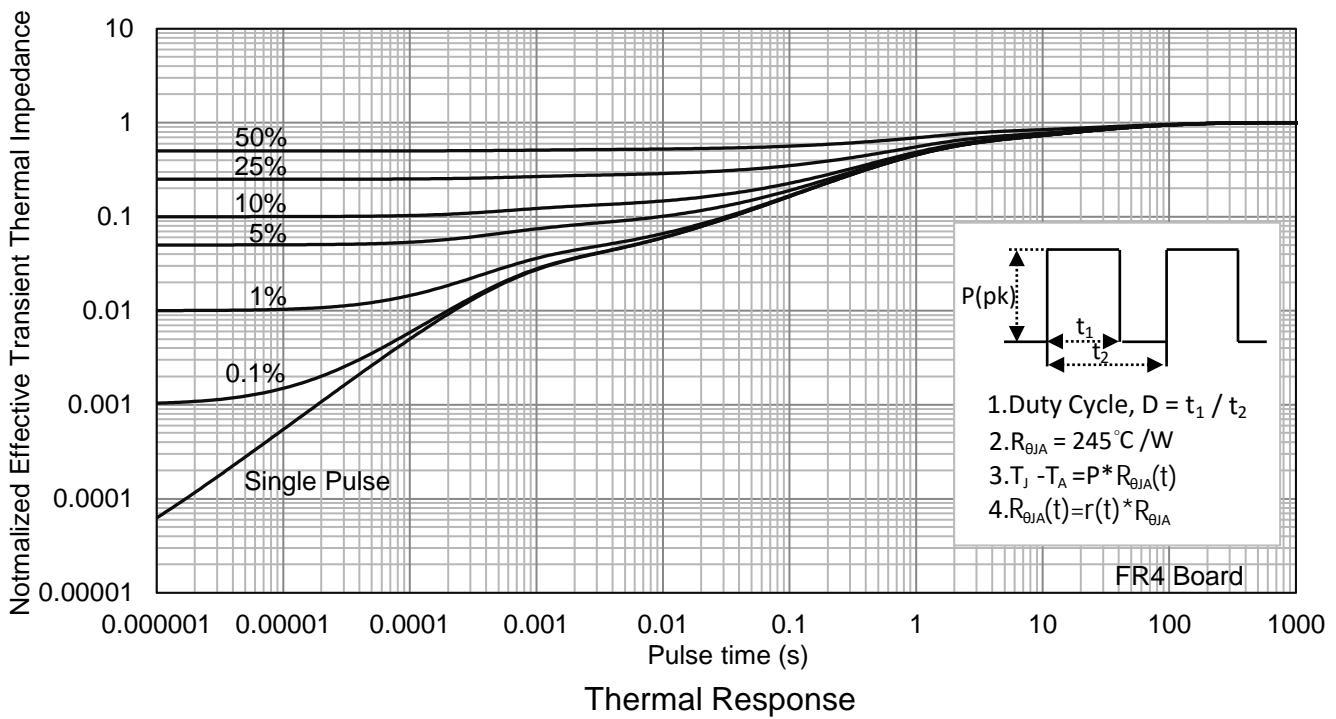
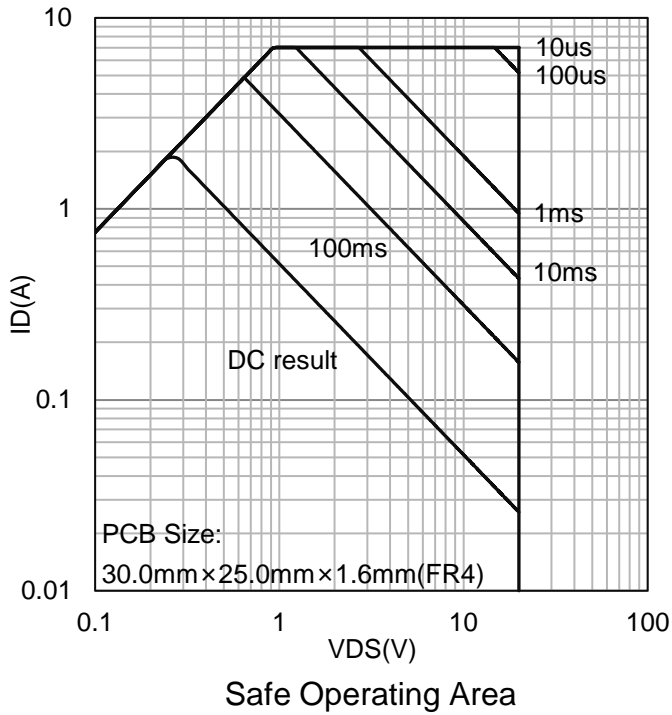
7. ELECTRICAL CHARACTERISTICS CURVES



7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



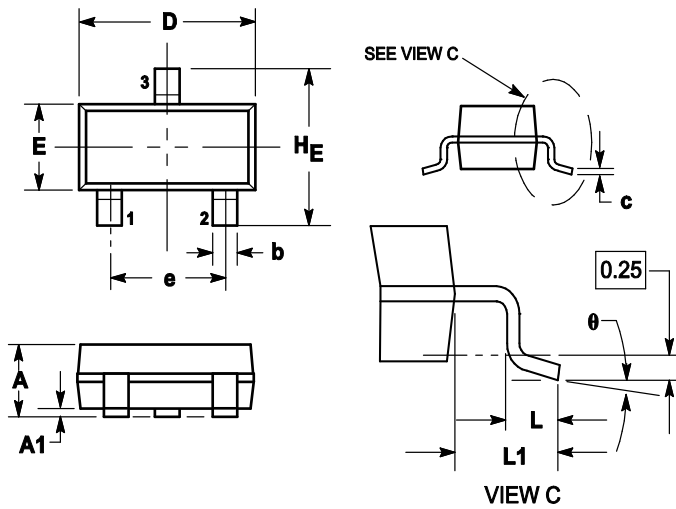
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



8. OUTLINE AND DIMENSIONS

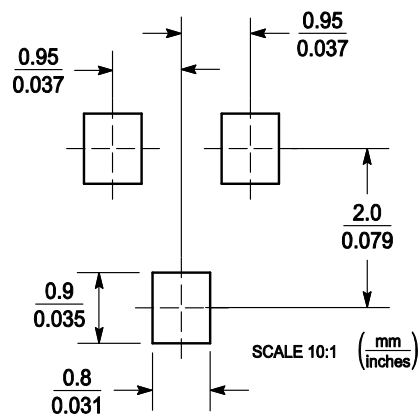
Notes:

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.



DIM	MILLIMETERS			INCHES		
	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



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