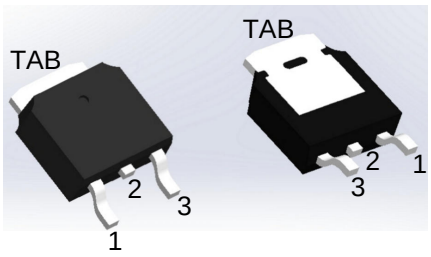
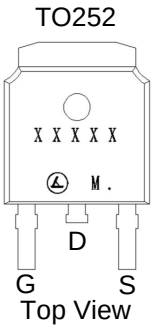
LP30N10D2

100V P-Channel Power MOSFET



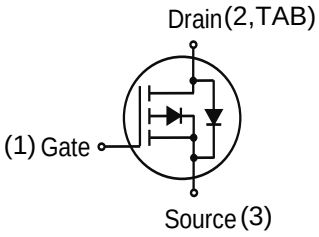


1. FEATURES

- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- Power Tools
- DC−DC conversion
- Motor Control



3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
LP30N10D2	P30N10D2	2500pcs/Tape&Reel

4. MAXIMUM RATINGS

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	-100	V
Gate-to-Source Voltage		VGS	± 20	V
Continuous Drain Current	TC=25℃	ID	-27	A
	TC=100℃		-15	
Pulsed Drain Current (Note 2)	TC=25℃	IDM	-108	A
Avalanche Current		IAS	32	A
Avalanche Energy(L=0.1mH)		EAS	51	mJ
Power Dissipation	TC=25℃	PD	62.5	W
	TC=100℃		25	
Operating Junction and Storage Temperature Range		Tj/Tstg	-55~+150	℃

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction-to-Ambient(Note 1)	RθJA	55	℃/W
Junction-to-Case	RθJC	2	

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

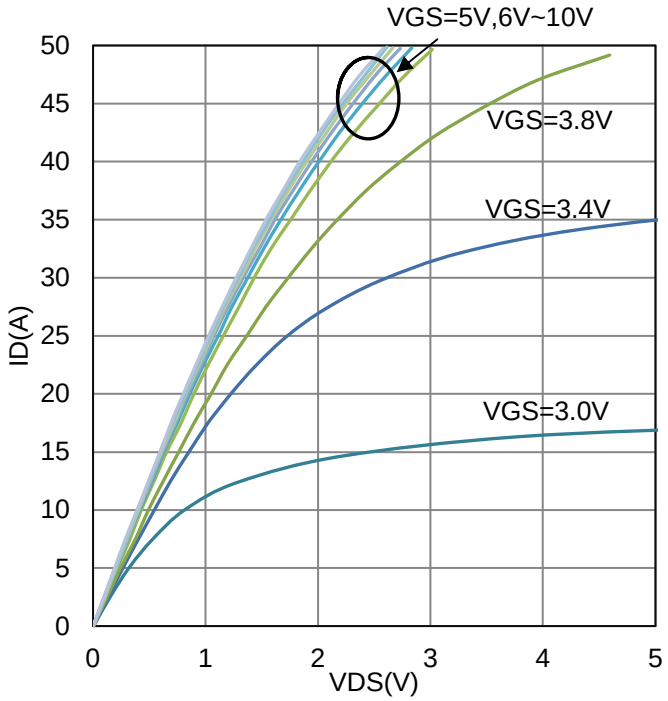
2.Pulse width limited by maximum junction temperature.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

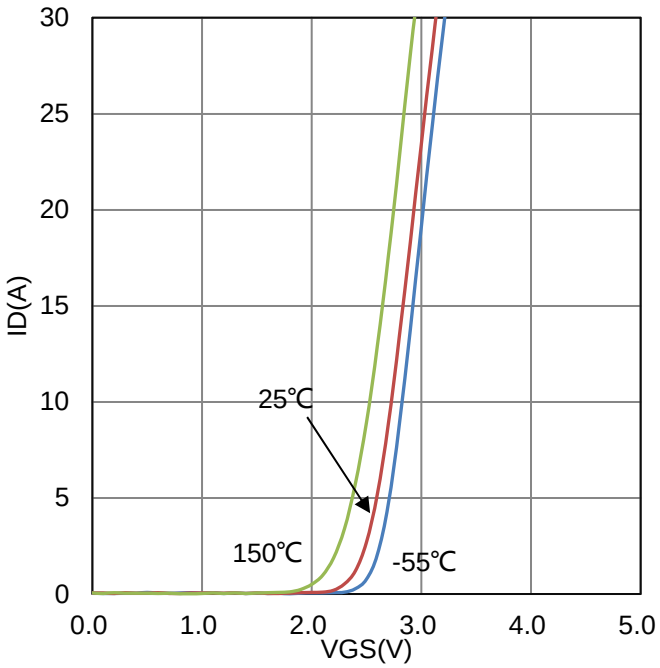
Characteristic		Symbol	Min.	Typ.	Max.	Unit
STATIC						
Drain–Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)		VBRDSS	-100	-	-	V
Gate Threshold Voltage (VDS = VGS , ID = -250 μA)		VGS(th)	-1.5	-2	-2.5	V
Gate-Body leakage current (VDS = 0 V, VGS = ±20 V)		IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = -100 V, VGS = 0 V)		IDSS	-	-	-1	μA
Drain-to-Source On-Resistance (Note 3)		RDS(on)				mΩ
(VGS = -10 V, ID = -10 A)			-	45	55	
(VGS = -4.5 V, ID = -10 A)			-	57	65	
Diode Forward Voltage (IS = -10 A, VGS = 0 V)		VSD	-	-0.7	-1.2	V
DYNAMIC						
Input Capacitance	(VGS = 0 V, VDS = -50 V, f= 1MHz)	Ciss	-	2030	-	pF
Output Capacitance		Coss	-	168	-	
Reverse Transfer Capacitance		Crss	-	22	-	
Total Gate Charge	(VDS = -50 V,VGS = -10 V,ID = -10 A)	Qg	-	38	-	nC
Gate Source Charge		Qgs	-	6.1	-	
Gate Drain Charge		Qgd	-	7.7	-	
Turn-On DelayTime	(VDS = -50 V, ID = -10 A, VGEN = -10 V, RGEN = 6 Ω)	td(on)	-	15	-	ns
Turn-On Rise Time		tr	-	10	-	
Turn-Off DelayTime		td(off)	-	75	-	
Turn-Off Fall Time		tf	-	16	-	
Gate Resistance (VDS = 0 V,VGS = 0 V,f = 1.0MHz)		Rg	-	3	-	Ω

3.Pulse test: PW ⩽ 300us duty cycle ⩽ 2%.

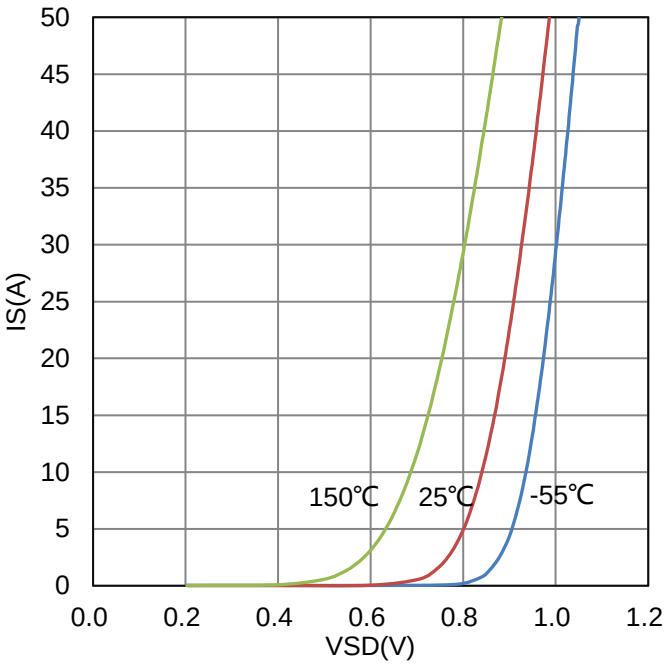
7. ELECTRICAL CHARACTERISTICS CURVES



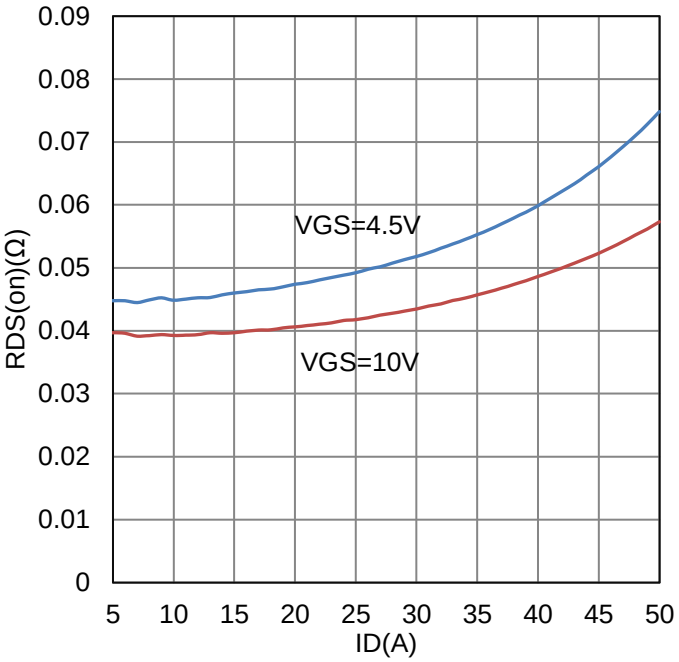
ID vs. VDS



ID vs. VGS

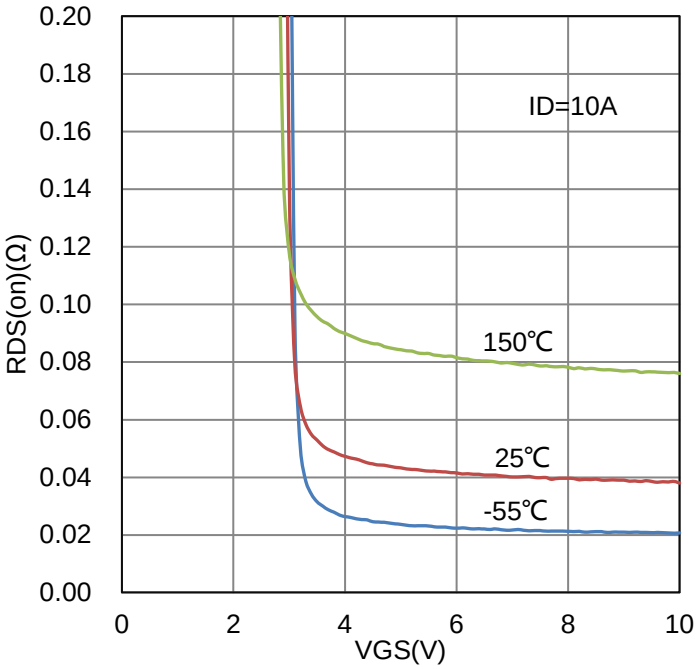


IS vs. VSD

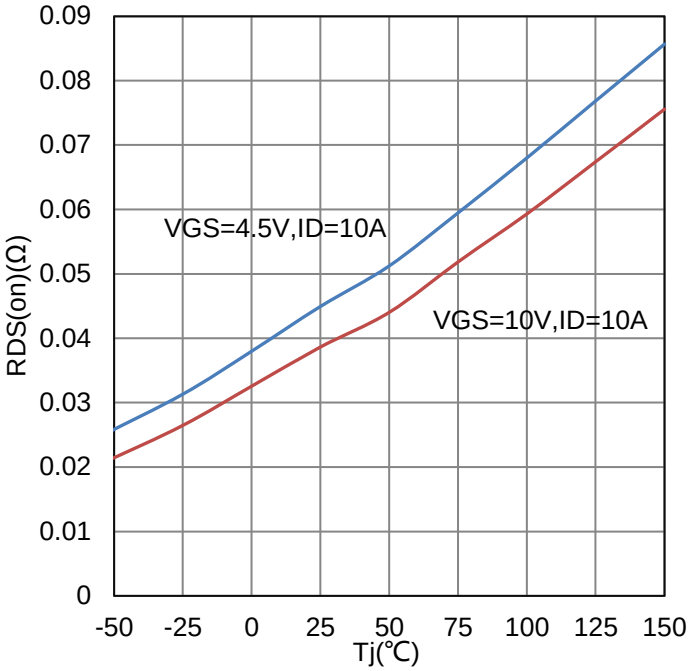


RDS(on) vs. ID

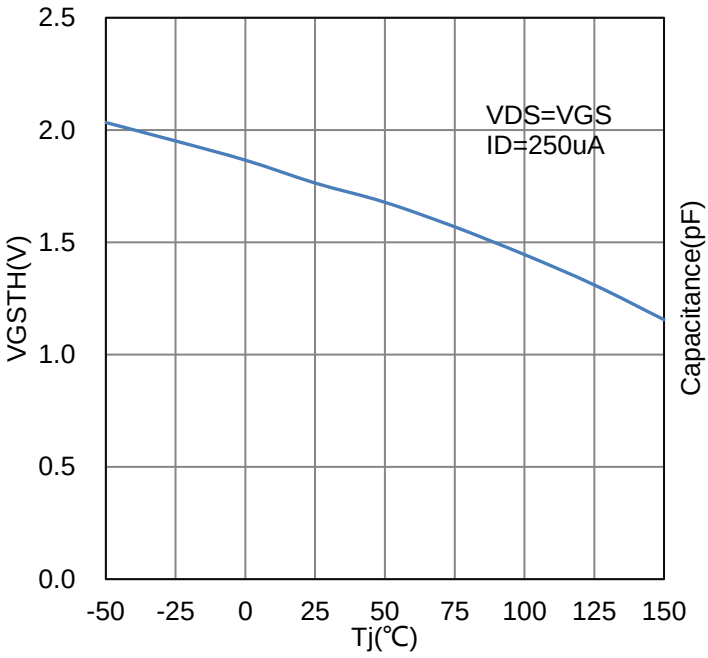
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



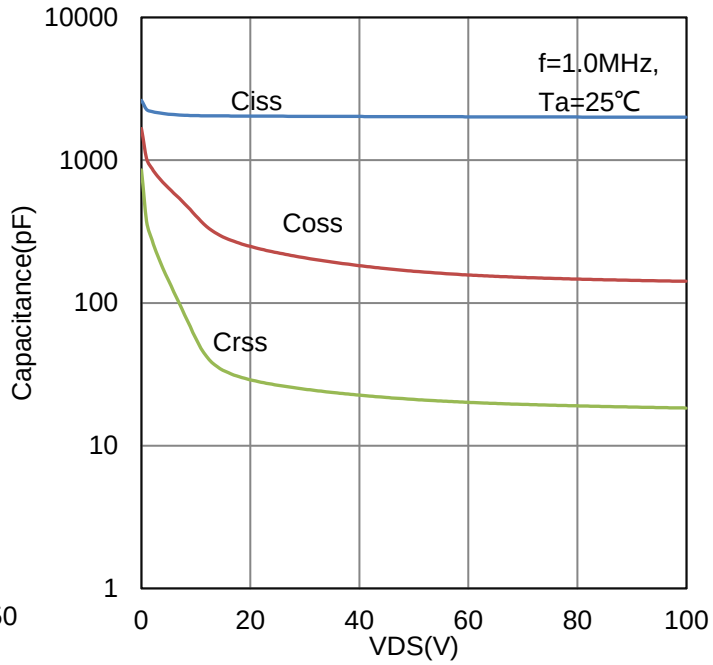
RDS(on) vs. VGS



RDS(on) vs. Tj

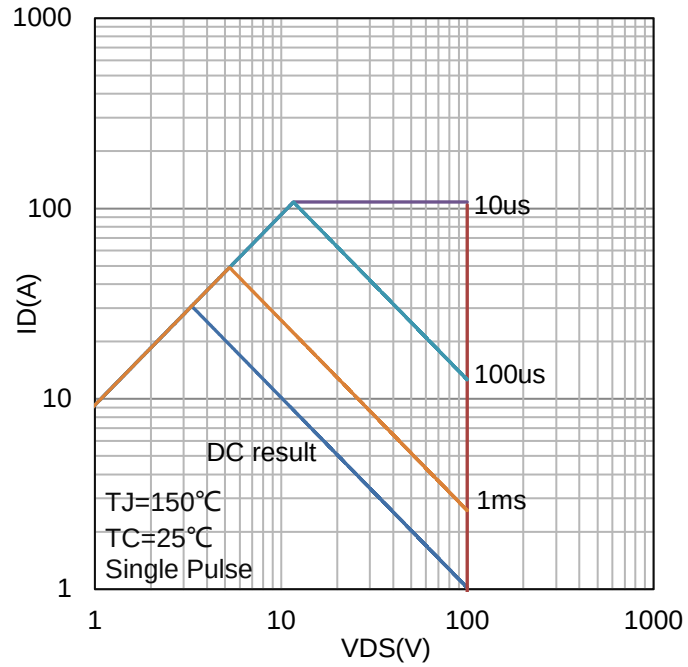


VGSth vs. Tj

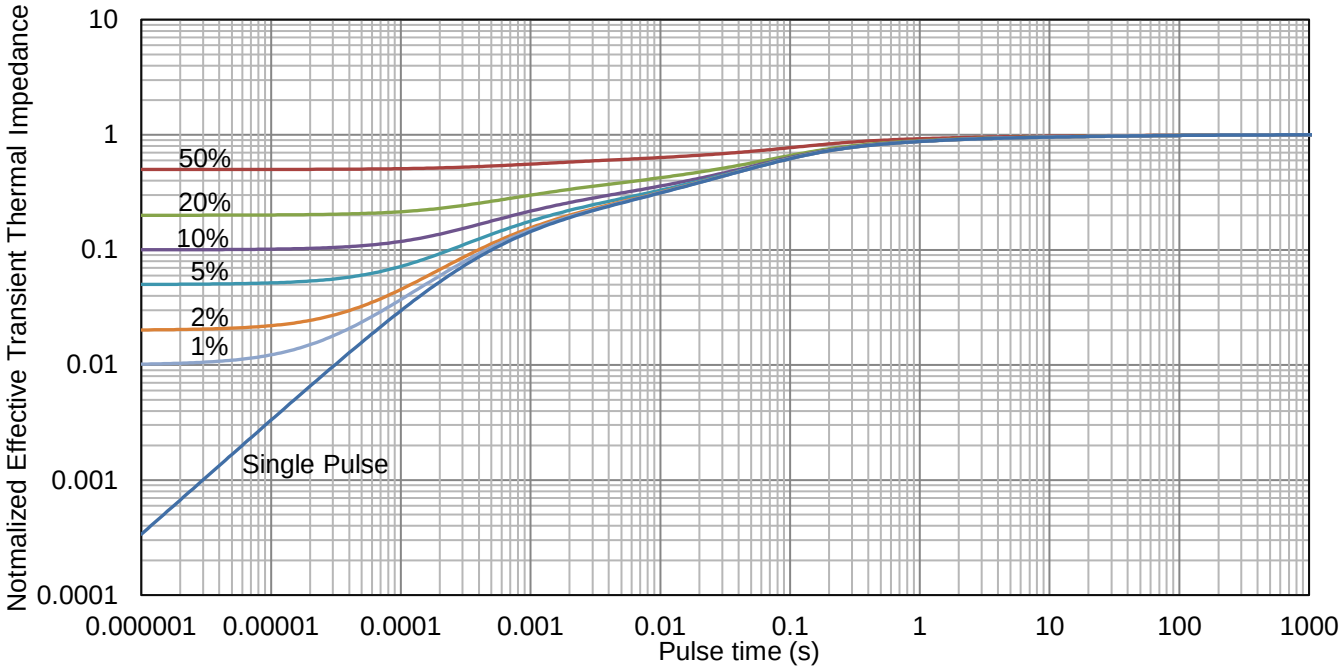


Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

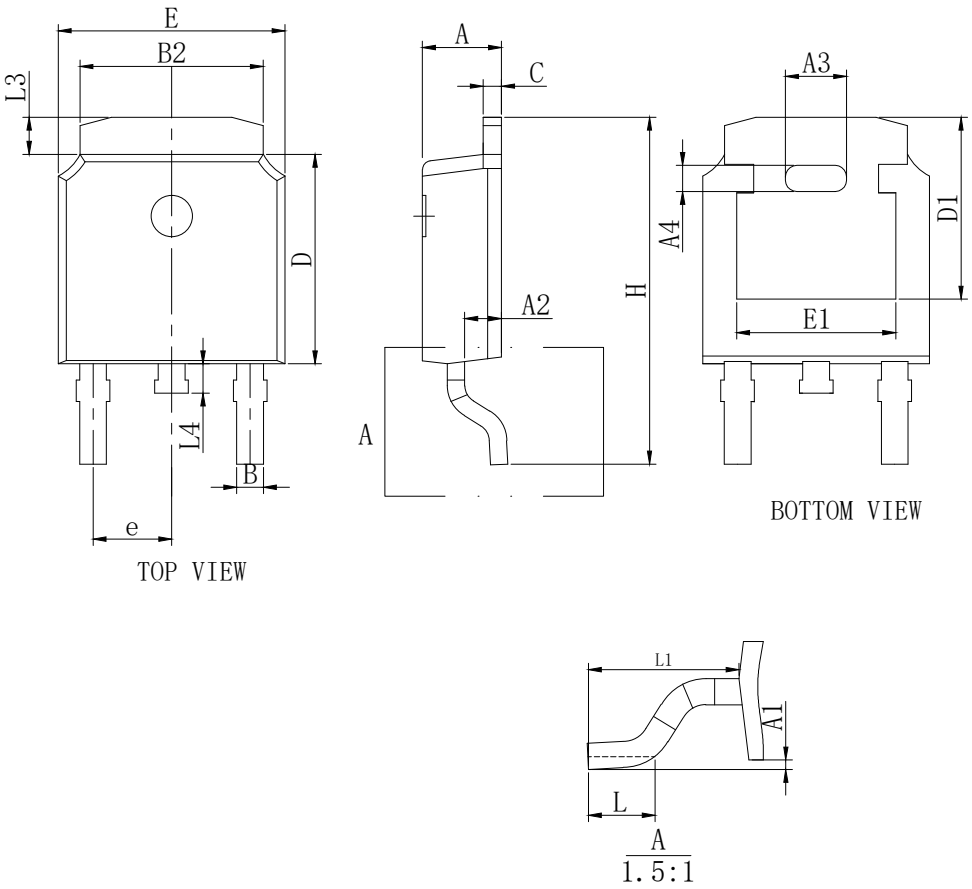


Safe Operating Area



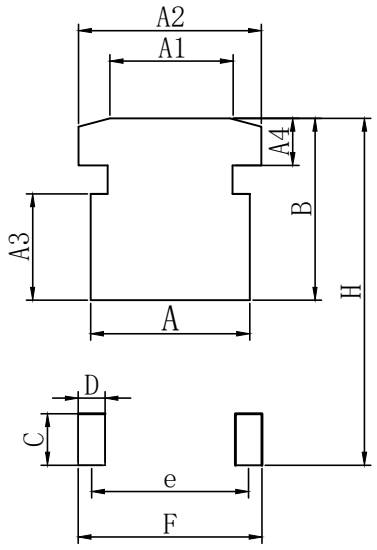
Thermal Response

8.OUTLINE AND DIMENSIONS



DIM	MILLIMETERS		
	MIN	NOM	MAX
A	2.15	2.30	2.45
A1	0	-	0.20
A2	0.90	1.07	1.17
A3	1.58	1.78	1.98
A4	0.56	0.76	0.96
B	0.68	0.78	0.88
B2	5.20	5.33	5.46
C	0.49	-	0.58
D	5.90	6.10	6.30
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	4.83	5.03
e	2.286BSC		
H	9.8	10.10	10.4
L	1.09	1.29	1.49
L1	2.90REF		
L3	0.88	1.08	1.28
L4	0.55	0.80	1.05

9.SOLDERING FOOTPRINT



DIM	MIN(mm)
A	6.03
A1	4.50
A2	6.46
A3	4.10
A4	2.37
B	6.50
C	2.50
D	1.68
e	4.57(TYP)
H	12.35
F	6.25

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