

S-LP120N04D2

40V 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.
- S-prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

2. APPLICATIONS

- Load switch

3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
S-LP120N04D2	120N04D2	2500pcs/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25°C)

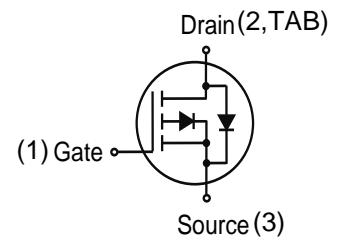
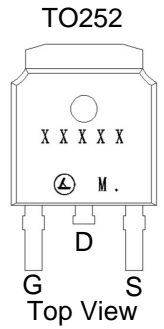
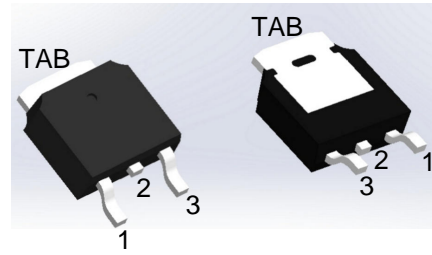
Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	-40	V
Gate-to-Source Voltage		VGS	± 20	V
Continuous Drain Current	TC=25°C	ID	-120	A
	TC=100°C		-77	
Pulsed Drain Current (Note 2)		IDM	-480	A
Avalanche Current		IAS	29	A
Avalanche Energy(L=1mH)		EAS	420.5	mJ
Power Dissipation(Note 1)	TC=25°C	PD	125	W
	TC=100°C		50	
Operating Junction and Storage Temperature Range		Tj/Tstg	-55~+150	°C

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction-to-Ambient(Note 1)	RθJA	50	°C/W
Junction-to-Case	RθJC	1	

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

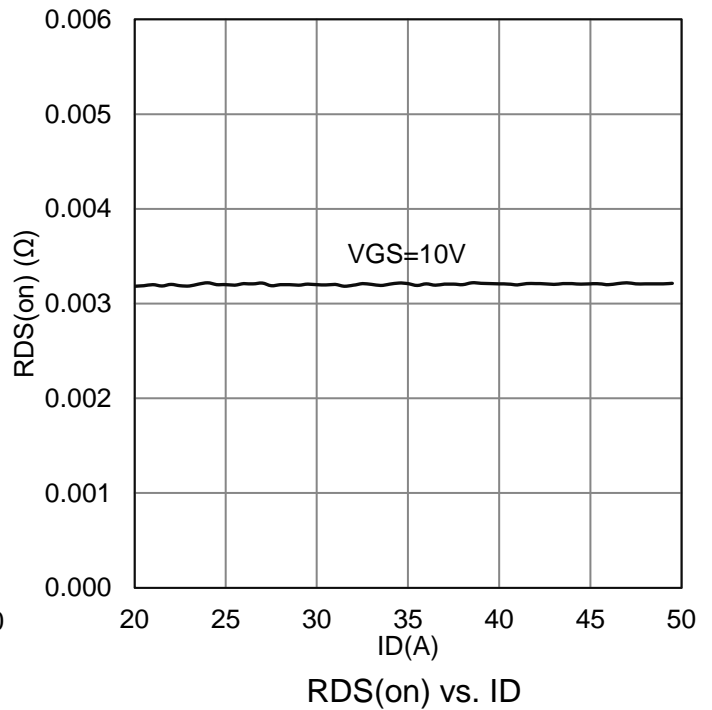
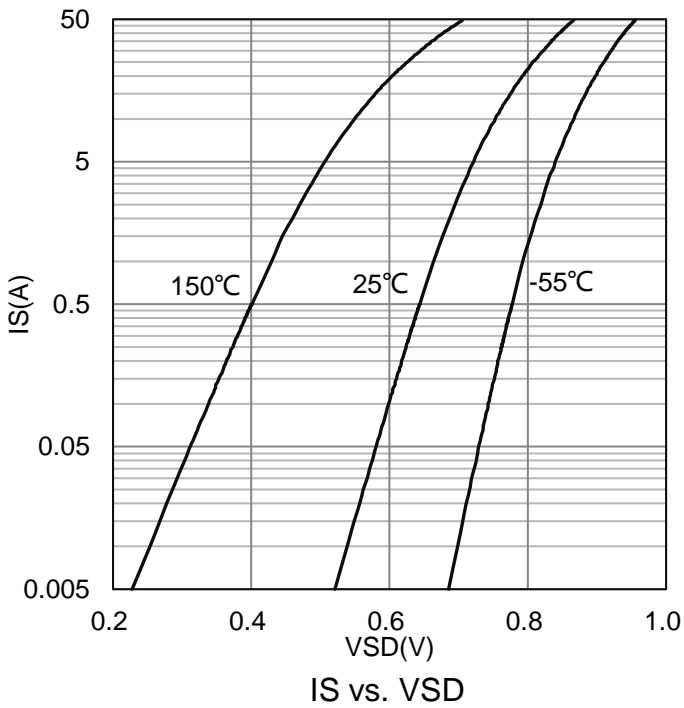
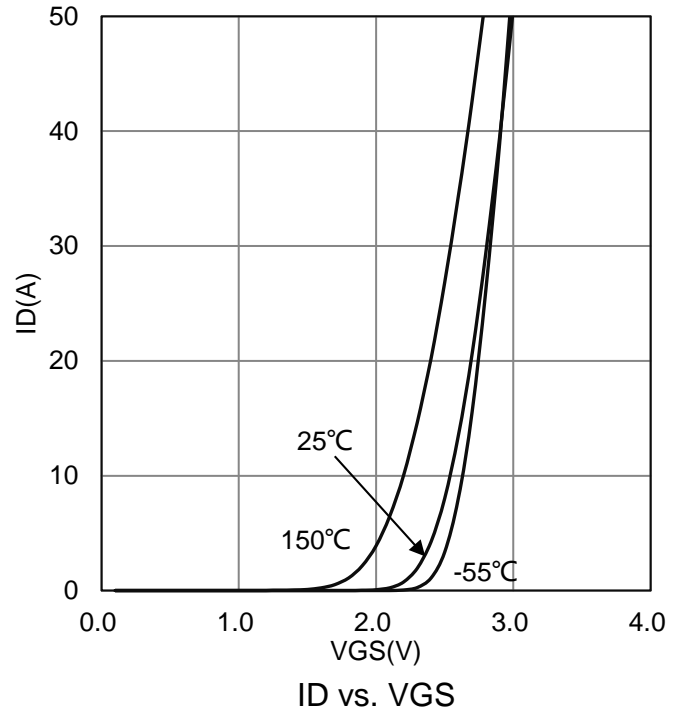
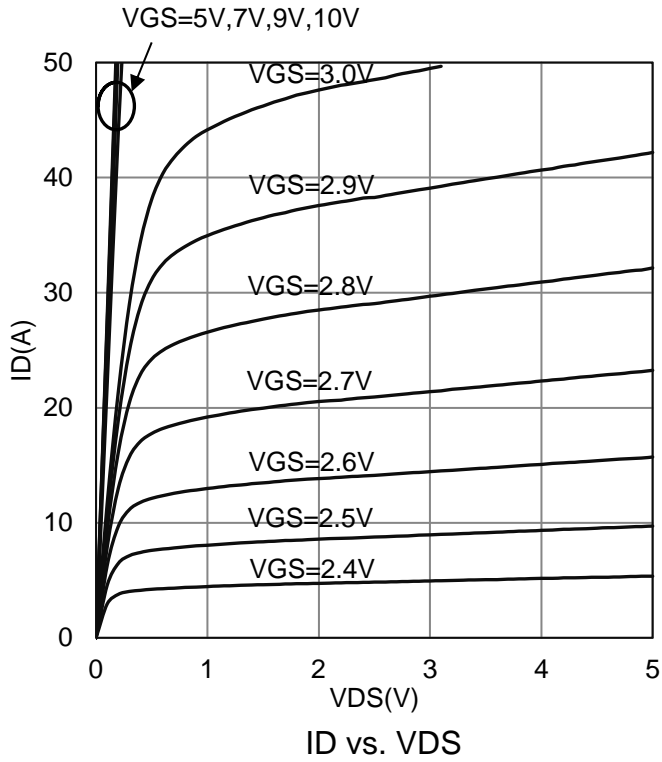


6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

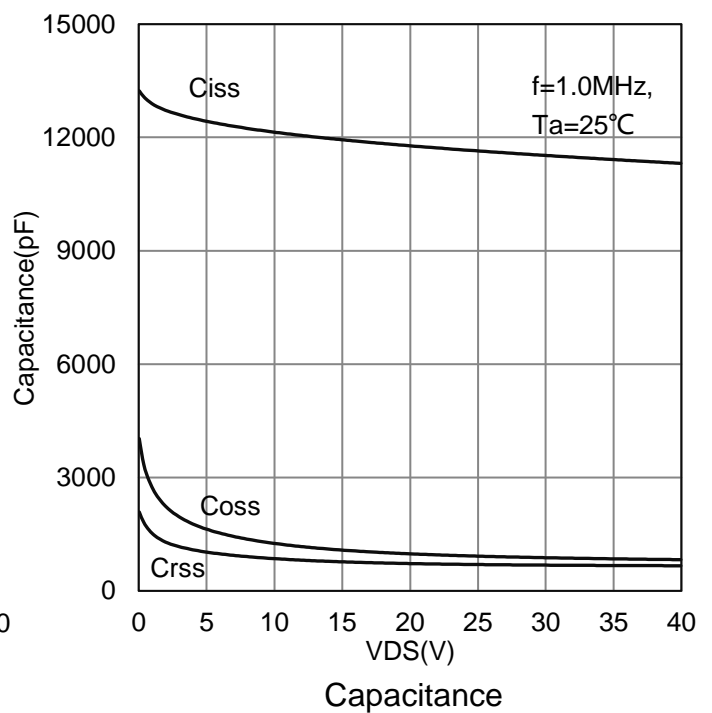
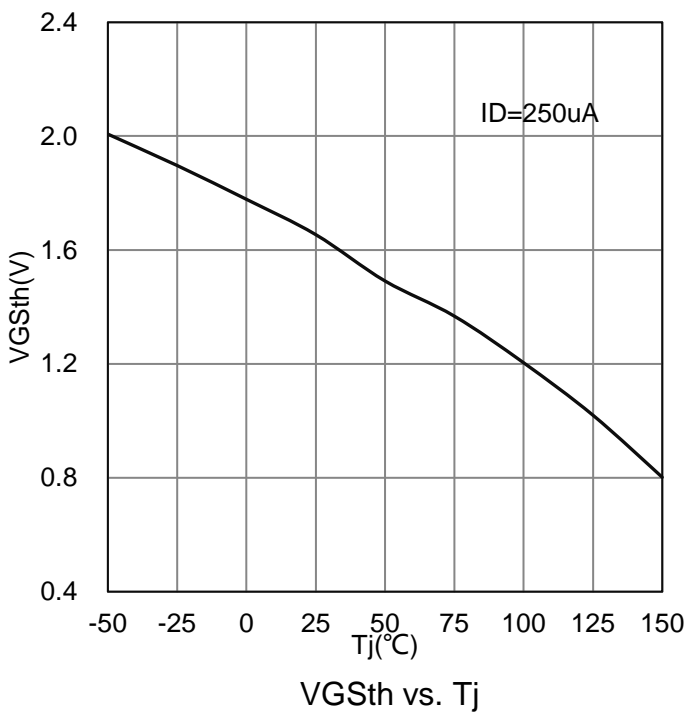
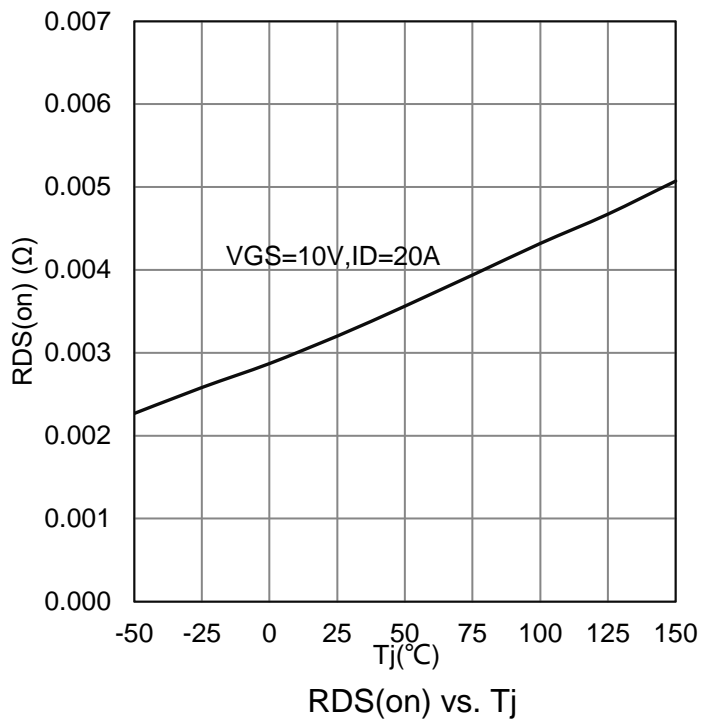
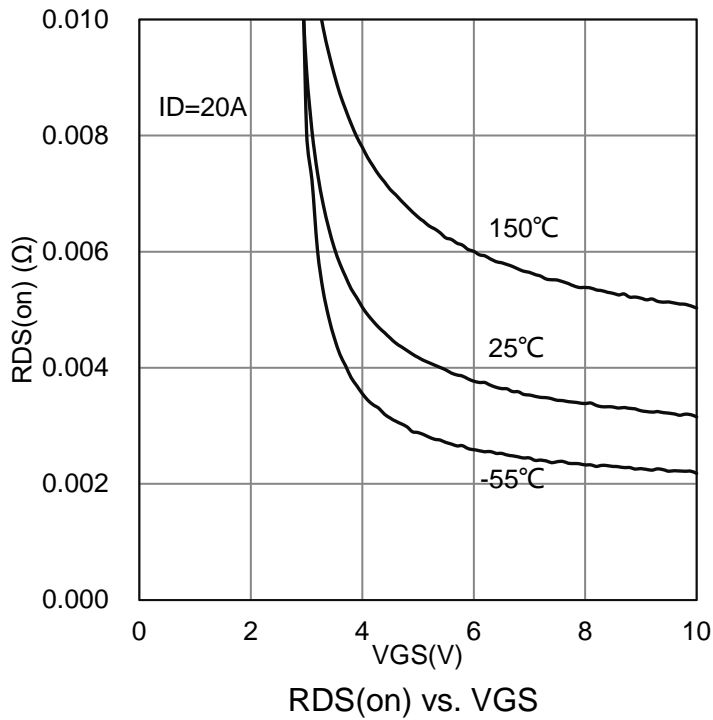
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain–Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)	V(BR)DSS	-40	-	-	V
Zero Gate Voltage Drain Current (VDS= -32 V, VGS= 0 V)	IDSS	-	-	-1	μA
Gate–Body Leakage Current (VDS = 0 V, VGS = ± 20 V)	IGSS	-	-	±10	uA
Gate Threshold Voltage (VDS = VGS, ID = -250 μA)	VGS(th)	-1	-	-3	V
Static Drain–Source On–State Resistance(Note 3) (VGS = -10 V, ID = -20 A)	RDS(on)	-	-	4.2	mΩ
Diode Forward Voltage (VGS = 0 V, IS = -1 A)	VSD	-	-	-1.2	V
Dynamic					
Input Capacitance	(VDS = -15 V, VGS = 0 V, f = 1MHz)	Ciss	-	12202	pF
Output Capacitance		Coss	-	1067	
Reverse Transfer Capacitance		Crss	-	767	
Total Gate Charge	(VDS = -20 V, VGS = -4.5 V, ID = -20 A)	Qg	-	101	nC
Gate-Source Charge		Qgs	-	33	
Gate-Drain Charge		Qgd	-	40	
Turn-On Delay Time	(VDS= -20 V, RL = 1 Ω, ID = -20 A, VGEN = -10 V, RGEN = 6 Ω)	td(on)	-	33	ns
Rise Time		tr	-	52	
Turn-Off Delay Time		td(off)	-	468	
Fall Time		tf	-	140	
Gate Resistance (VDS = 0 V, VGS = 0 V, f = 1.0MHz)	Rg	-	5	-	Ω

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

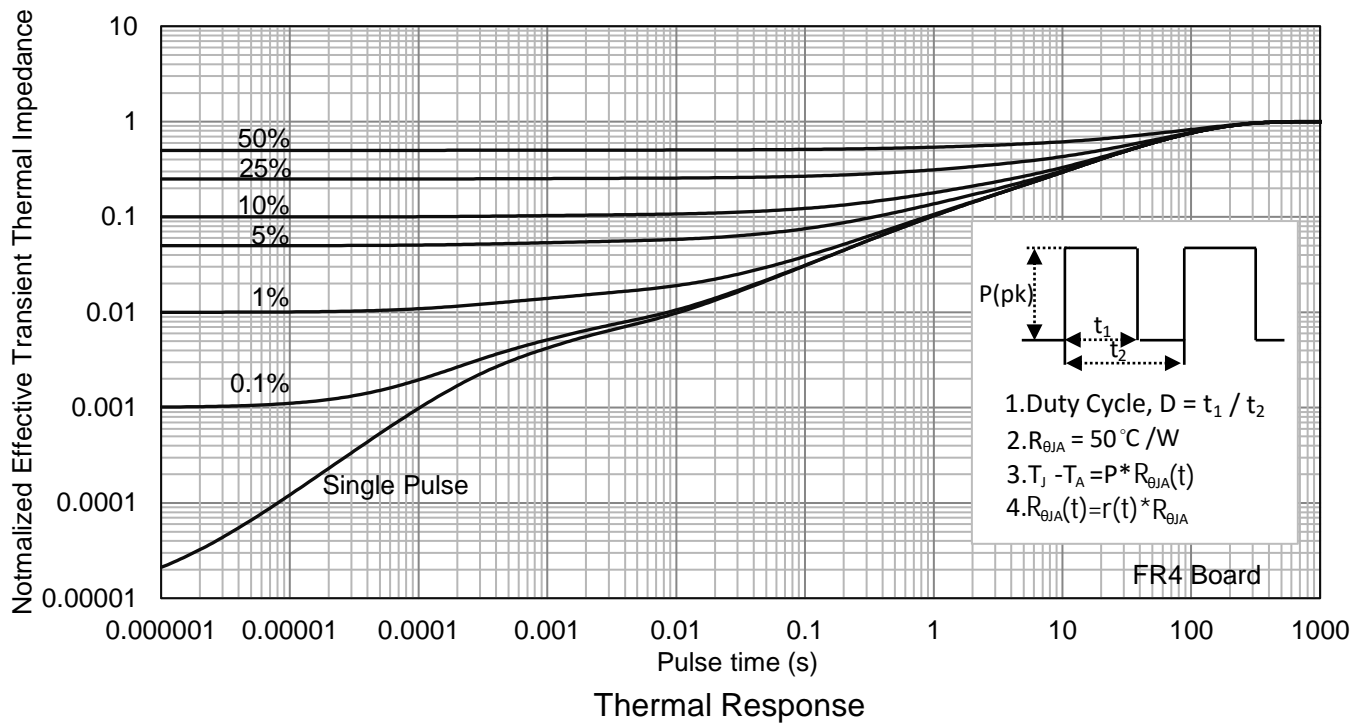
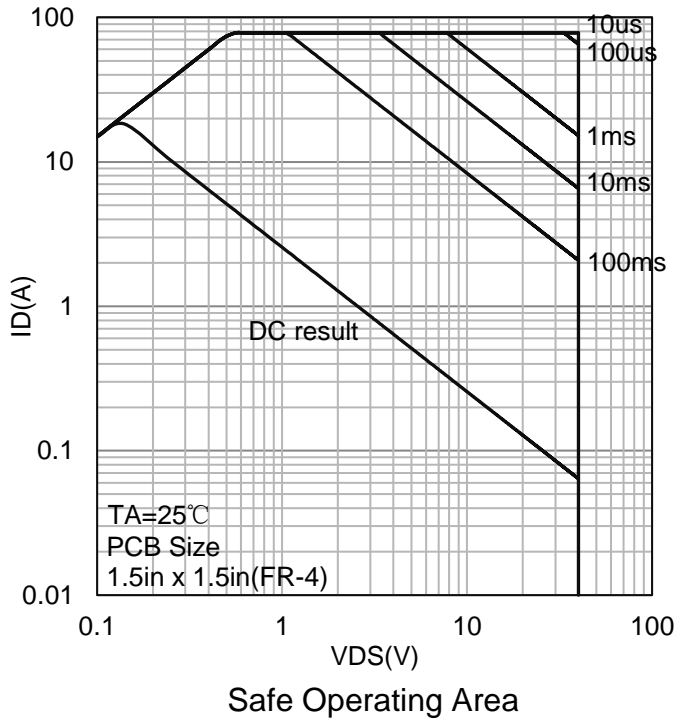
7. ELECTRICAL CHARACTERISTICS CURVES



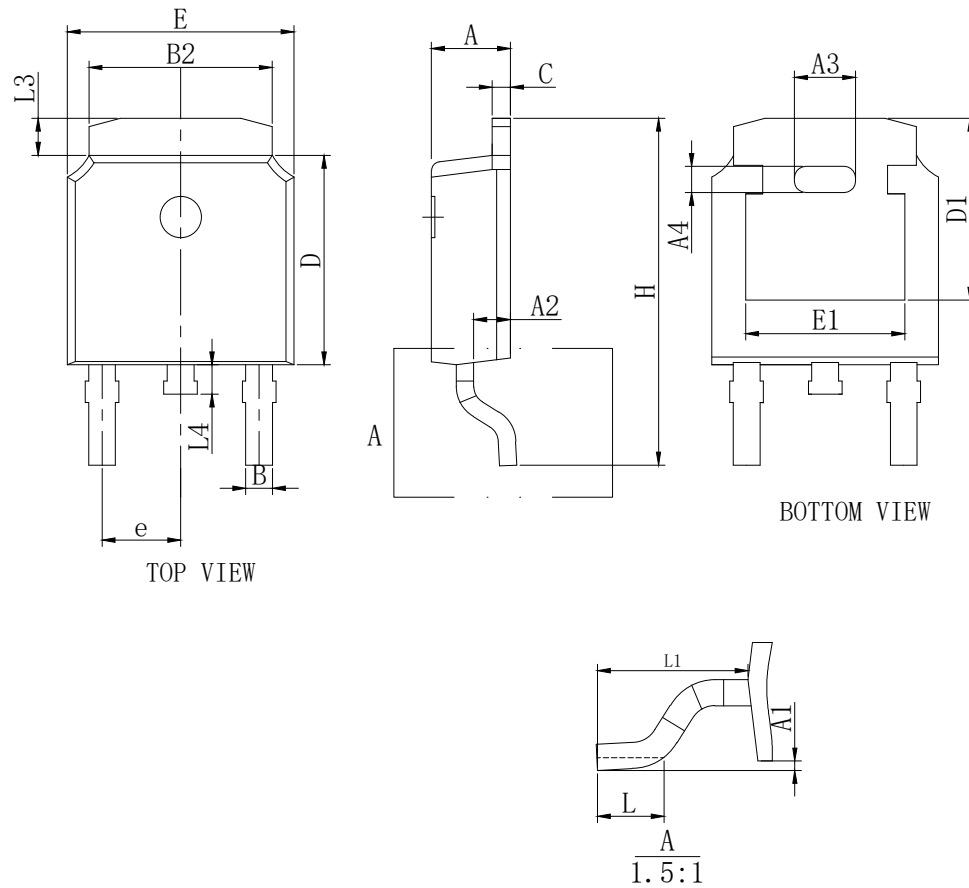
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



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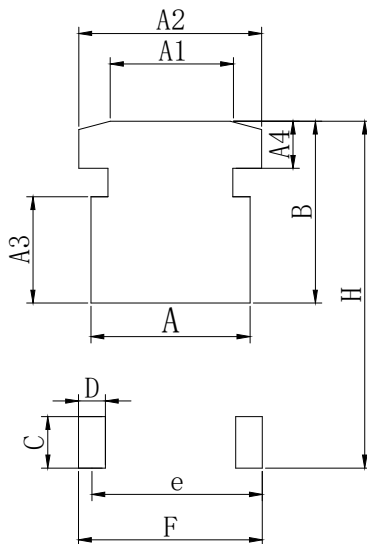


8. OUTLINE AND DIMENSIONS



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	4.80
H	12.35
F	5.95

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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