

S-LP80N04D2

40V P-Channel Power MOSFET

1. FEATURES

- Low RDS(on) trench technology
- 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 Switches
- DC-DC conversion
- Motor Drives

3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
S-LP80N04D2	80N04D2	2500pcs/Tape&Reel

4. MAXIMUM RATINGS

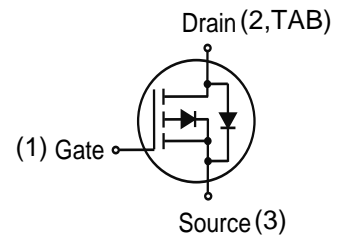
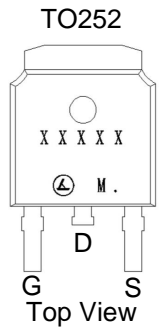
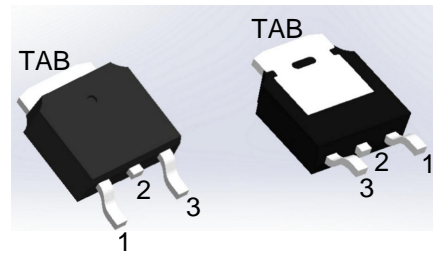
Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	-40	V
Gate-to-Source Voltage		VGS	± 20	V
Continuous Drain Current	TC=25°C	ID	-95	A
	TC=100°C		-67	
Pulsed Drain Current (Note 2)		IDM	-380	A
Avalanche Current		IAS	42.6	A
Avalanche Energy(L=0.1mH)		EAS	90.7	mJ
Power Dissipation	TC=25°C	PD	100	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	1.2	

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.

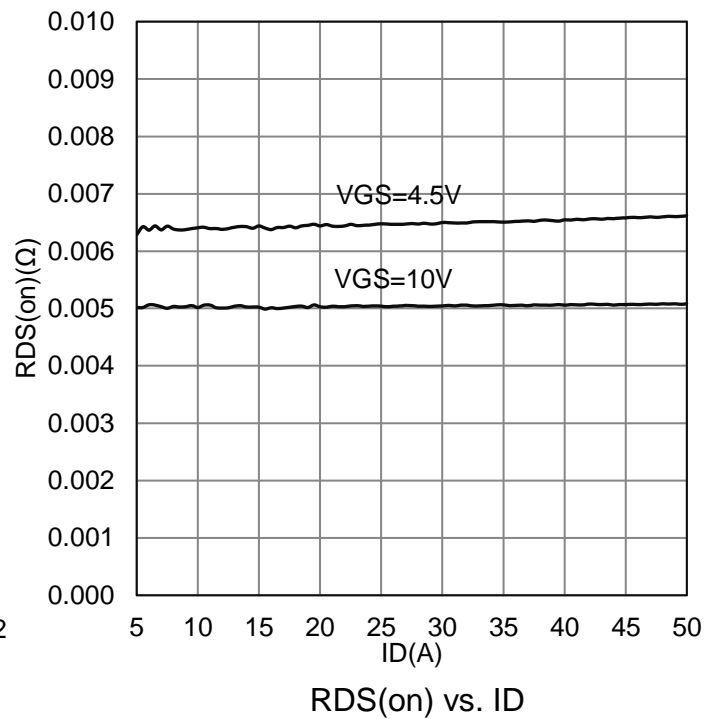
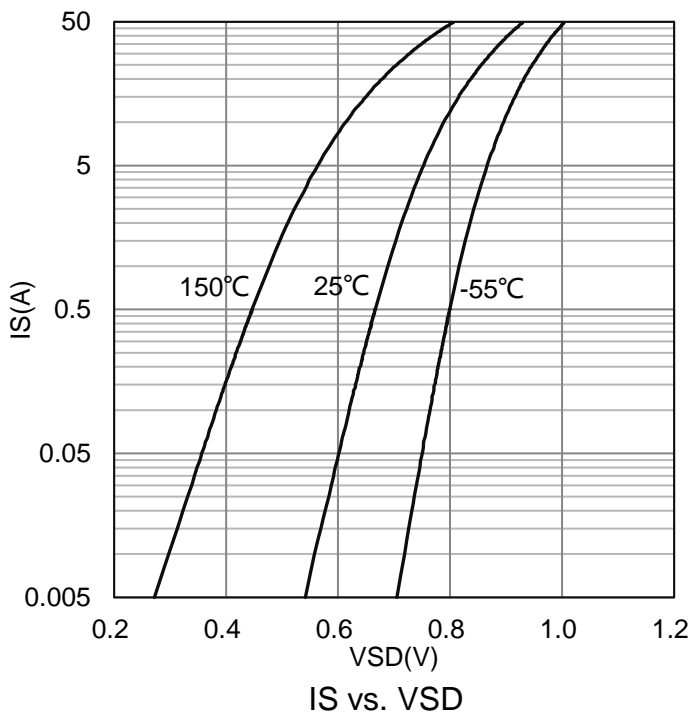
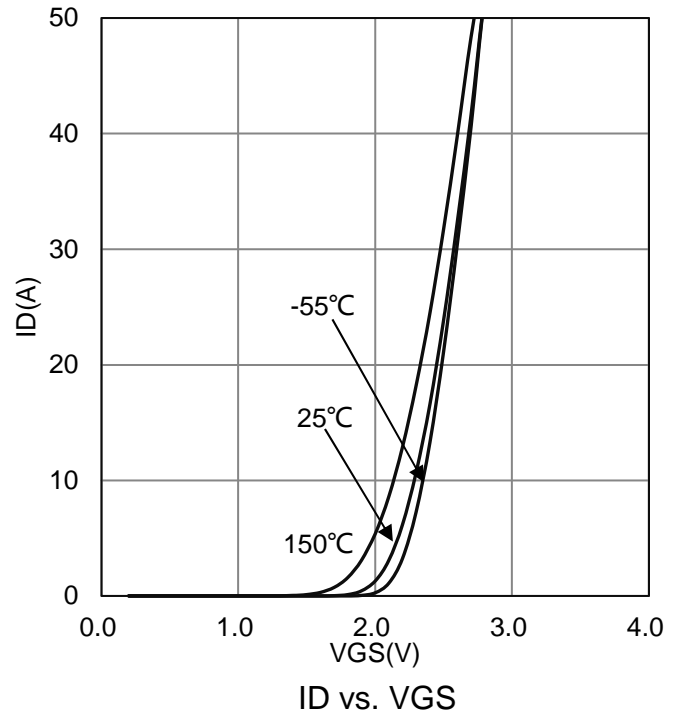
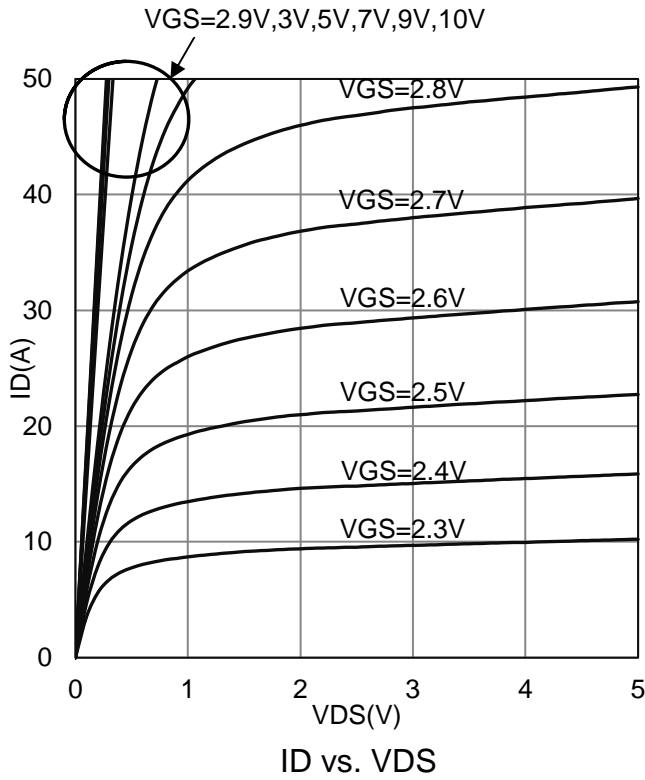


6. ELECTRICAL CHARACTERISTICS

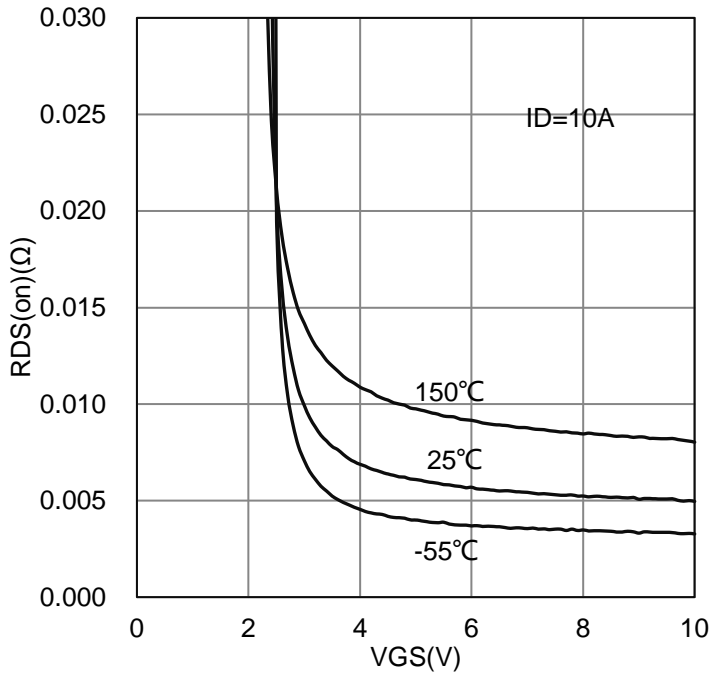
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
Drain–Source Breakdown Voltage (VGS = 0 V, ID = -250 μ A)	V(BR)DSS	-40	-	-	V	
Zero Gate Voltage Drain Current (VDS= -32 V, VGS= 0 V)	IDSS	-	-	-1	μ A	
Gate–Body Leakage Current (VDS = 0 V, VGS = \pm 20 V)	IGSS	-	-	\pm 100	nA	
Gate Threshold Voltage (VDS = VGS, ID = -250 μ A)	VGS(th)	-1.2	-1.8	-2.5	V	
Static Drain–Source On–State Resistance(Note 3) (VGS = -10 V, ID = -10 A) (VGS = -4.5 V, ID = -7 A)	RDS(on)	-	-	6.0 8.6	m Ω	
Dynamic						
Input Capacitance	(VDS = -20 V, VGS = 0 V, f = 1MHz)	Ciss	-	8021	12032	pF
Output Capacitance		Coss	-	550	825	
Reverse Transfer Capacitance		Crss	-	574	861	
Total Gate Charge	(VDS = -20 V, VGS = -10 V, ID = -10 A)	Qg	-	151	227	nC
Gate–Source Charge		Qgs	-	16.2	25	
Gate–Drain Charge		Qgd	-	28	42	
Turn–On Delay Time	(VDS= -20 V, RL = 2 Ω , ID = -10 A, VGEN = -10 V, RGEN = 6 Ω)	td(on)	-	26	-	ns
Rise Time		tr	-	30	-	
Turn–Off Delay Time		td(off)	-	358	-	
Fall Time		tf	-	100	-	
Gate Resistance (VDS = 0 V, VGS = 0 V, f = 1.0MHz)	Rg	-	2	-	Ω	
Diode characteristics						
Continuous Current TC = 25°C	IS	-	-	-95	A	
Plused Current TC = 25°C	ISM	-	-	-380	A	
Diode Forward Voltage (IS = -20 A, VGS = 0 V)	VSD	-	-0.85	-1.2	V	
Reverse Recovery Time (VR=-10V, IF=-4A, dIF/dt=80A/us)	trr	-	58	-	ns	
Reverse Recovery Charge (VR=-10V, IF=-4A, dIF/dt=80A/us)	Qrr	-	45	-	nC	
Reverse Recovery Current (VR=-10V, IF=-4A, dIF/dt=80A/us)	IRRM	-	1.58	-	A	

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

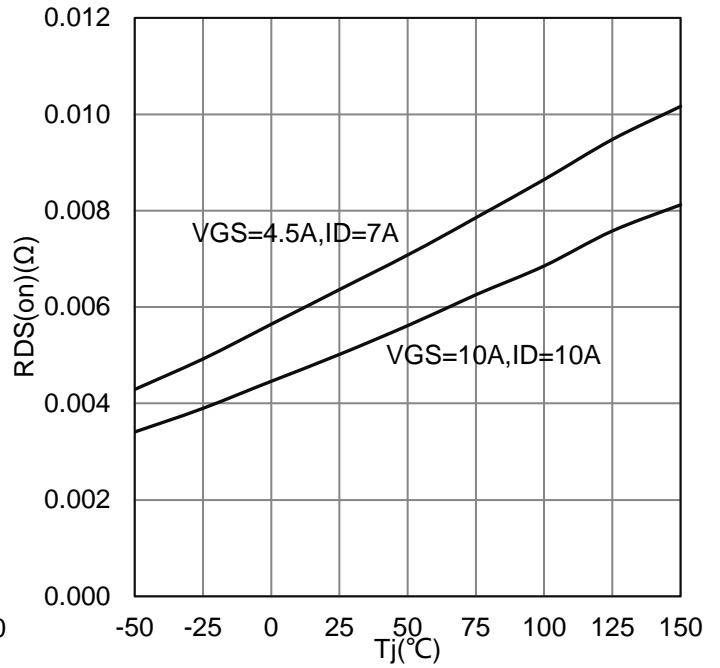
7. ELECTRICAL CHARACTERISTICS CURVES



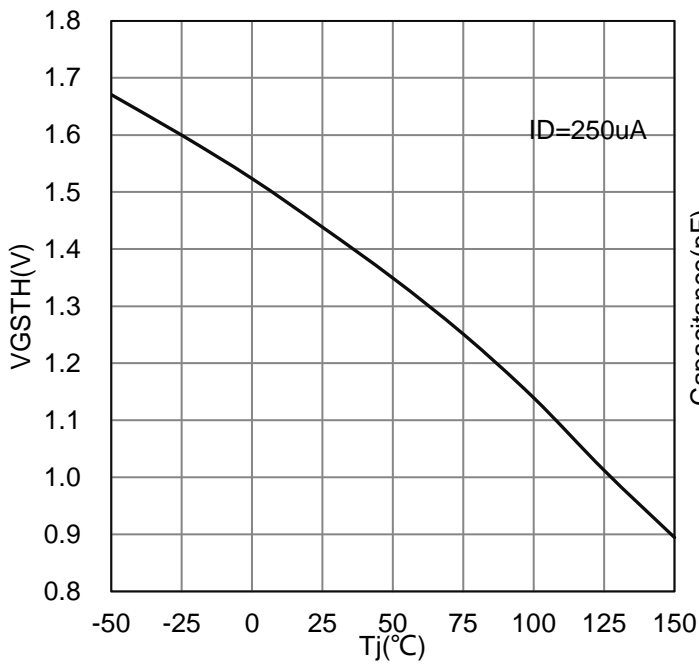
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



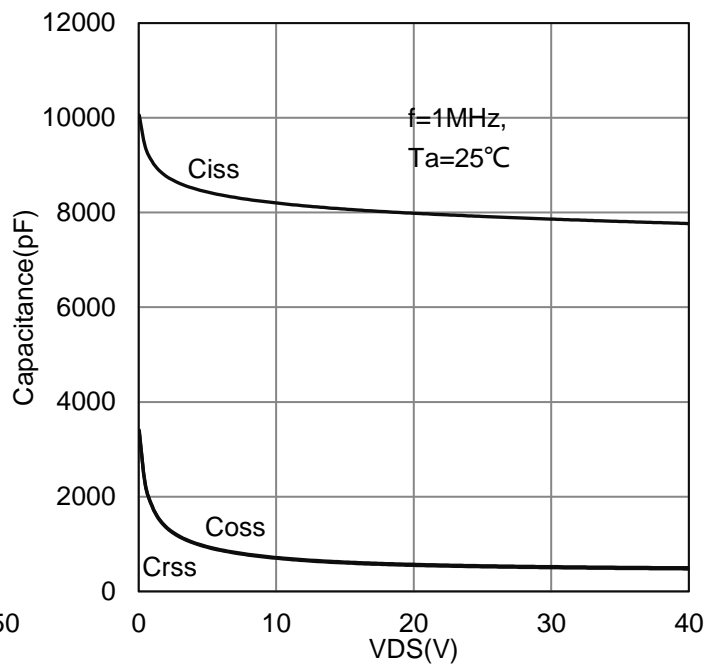
$R_{DS(on)}$ vs. V_{GS}



$R_{DS(on)}$ vs. T_j

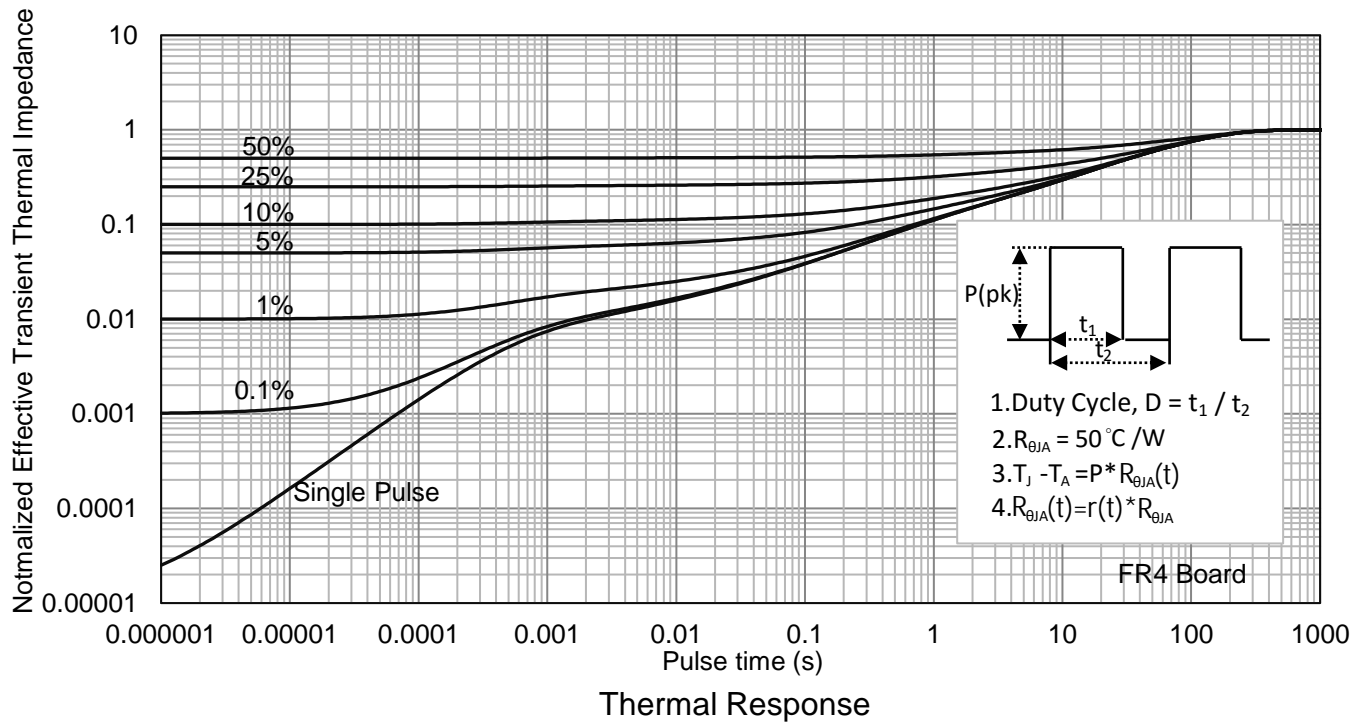
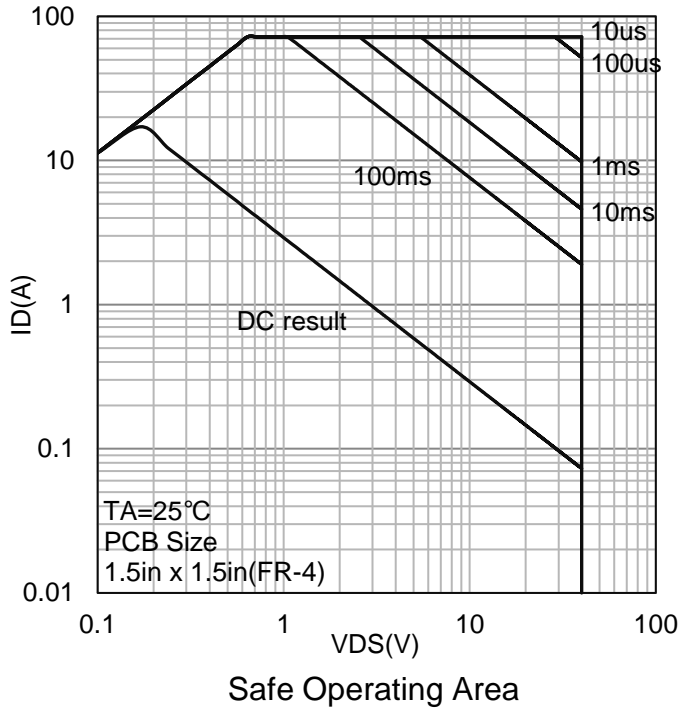


V_{GStH} vs. T_j

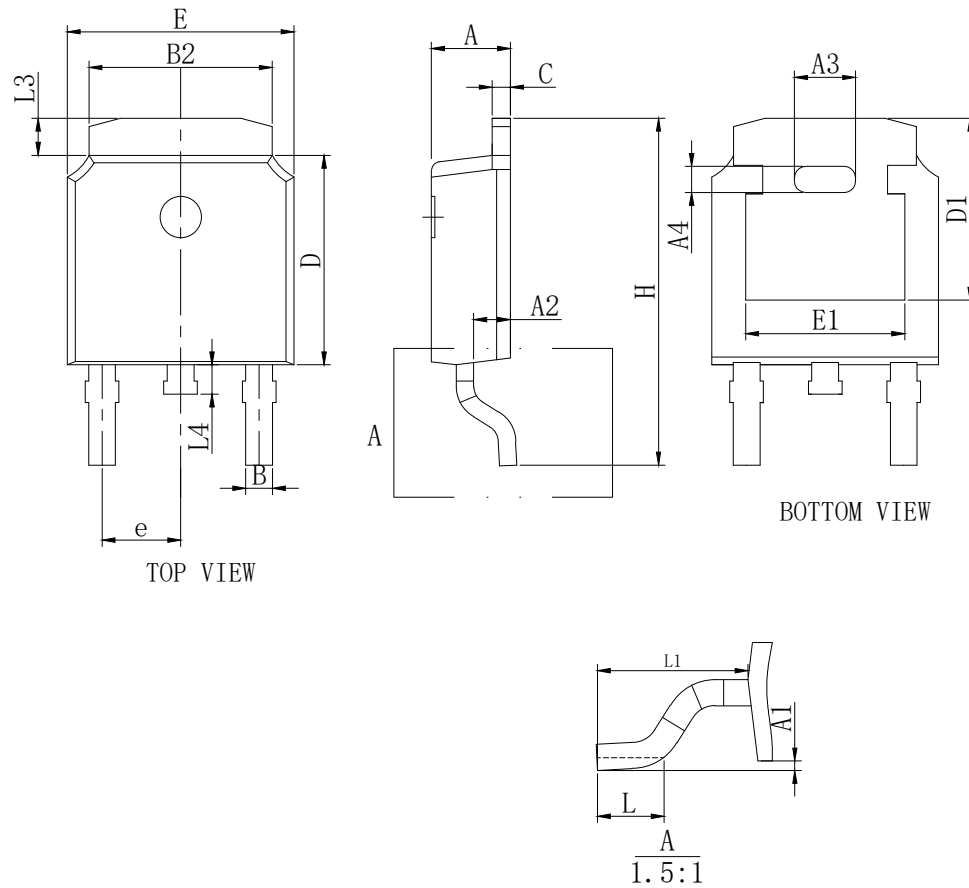


Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

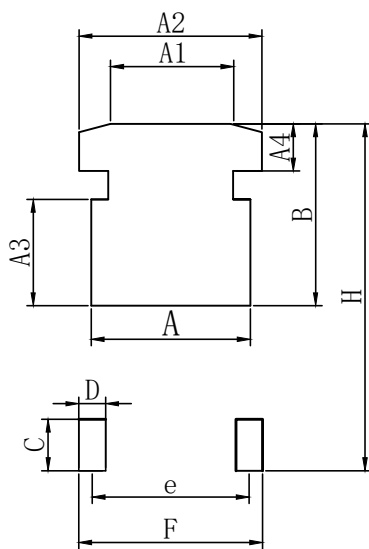


8.OUTLINE AND DIMENSIONS



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

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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