

LP50N03D2

P-Channel 30-V (D-S) MOSFET

1. FEATURES

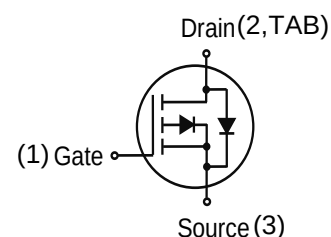
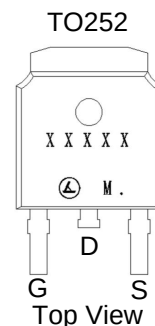
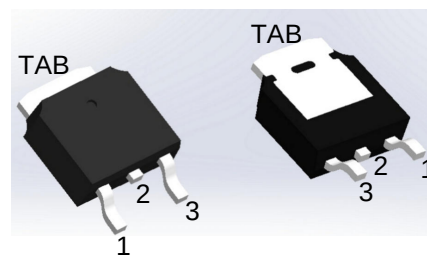
- Low RDS(on) trench technology.
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.
- ESD protected

2. APPLICATION

- Load Switches
- DC/DC Conversion
- Motor Drives

3. ORDERING INFORMATION

Device	Marking	Shipping
LP50N03D2	LP50N03D2	



4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDSS	-30	V
Gate-to-Source Voltage		VGS	±25	V
Avalanche Current		IAS	38	A
Avalanche energy L=0.1mH		EAS	72.2	mJ
Continuous Drain Current(Note 1)	TA =25°C	ID	-14.3	A
	TA =100°C		-9.5	
Pulsed Drain Current (Note 2)		IDM	-57	
Power Dissipation(Note 1)	TA =25°C	PD	2.5	W
	TA =100°C		1.25	
Operating Junction Temperature		TJ	-55 ~+150	°C
Storage Temperature Range		Tstg	-55 ~+150	

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-to-Ambient	RθJA	60	°C/W
Thermal Resistance Junction-to-Case	RθJC	3.5	

Note: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.

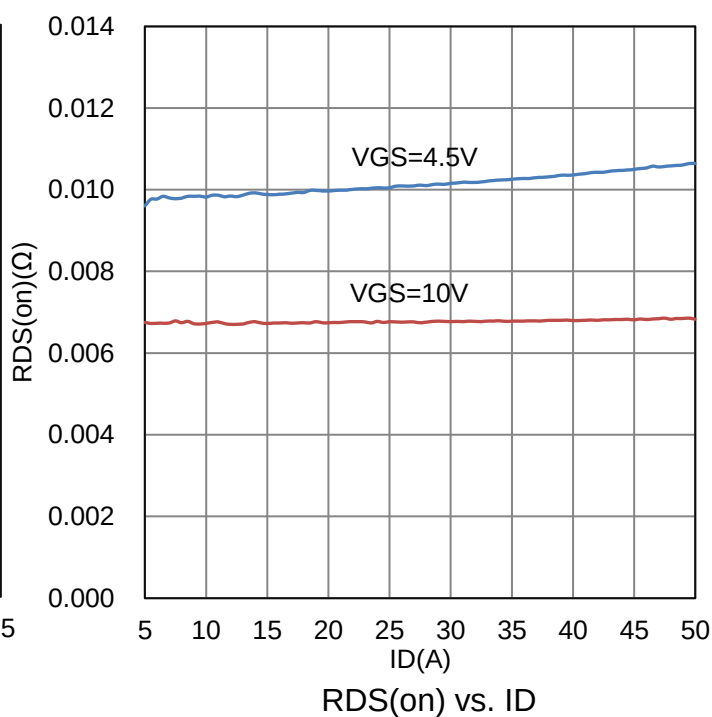
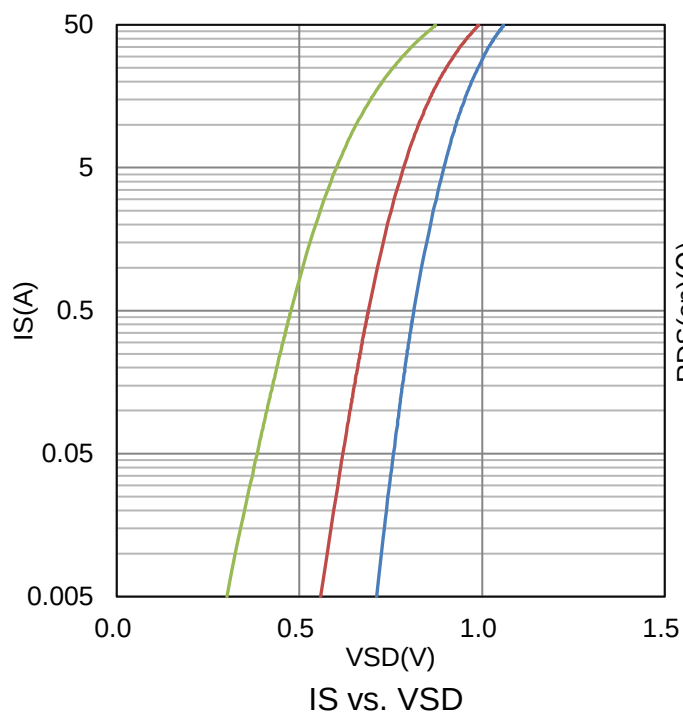
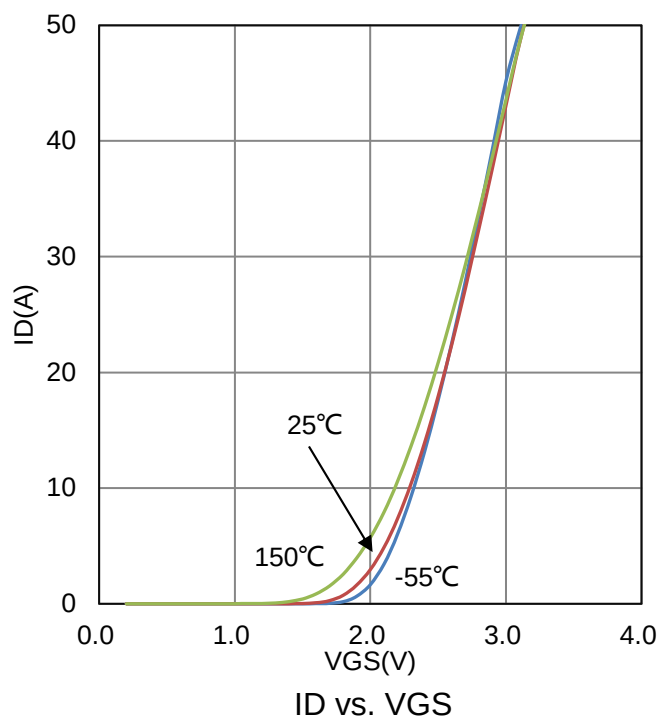
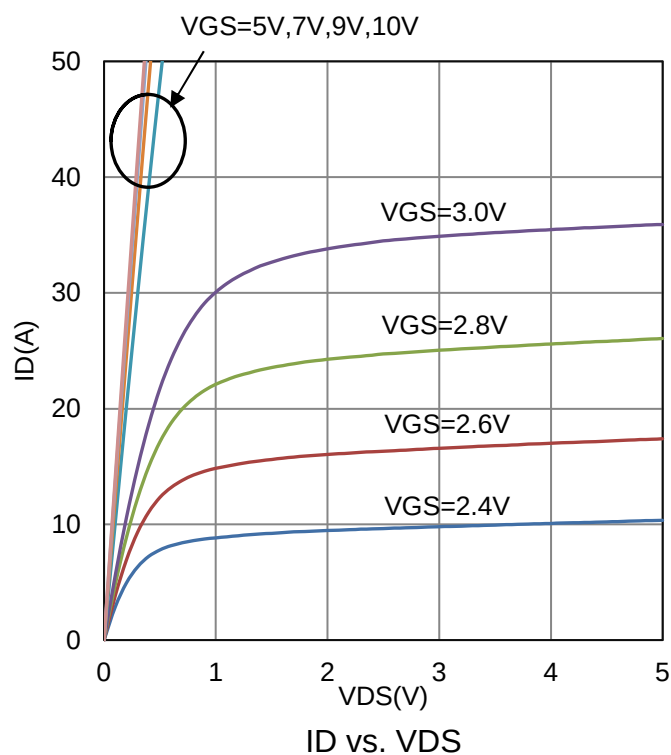
6. ELECTRICAL CHARACTERISTICS

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage (VGS=0 , ID = -250 uA)		V(BR)DSS	-30			V
Gate-Source Threshold Voltage (VDS = VGS , ID = -250 uA)		VGS(th)	-1	-1.3	-3	V
Gate-Body Leakage (VDS = 0 V, VGS = ± 25 V)		IGSS	-	-	± 10	μA
Zero Gate Voltage Drain Current (VDS = -24 V, VGS = 0 V)		IDSS	-	-	-1	μA
Drain-Source On-Resistance(Note 3) (VGS = -10 V, ID = -8 A) (VGS = -4.5 V, ID = -6 A)		RDS(on)	- -	7.5 10.5	9 13	mΩ
Diode Forward Voltage(Note 3) (IS = -2.3 A, VGS = 0 V)		VSD	-	-0.8	-1.2	V
Dynamic(Note 4)						
Total Gate Charge	(VDS = -15 V, VGS = -4.5 V,ID = -13.6 A)	Qg	-	37	-	nC
Gate-Source Charge		Qgs	-	11	-	
Gate-Drain Charge		Qgd	-	14	-	
Input Capacitance	(VDS = -15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	4445	-	pF
Output Capacitance		Coss	-	445	-	
Reverse Transfer Capacitance		Crss	-	426	-	
Turn-On Delay Time	(VDS=-15 V, RL=1.2 Ω,ID=- 13.6 A,VGEN=-10 V,RGEN=6 Ω)	td(on)	-	16	-	ns
Rise Time		tr	-	19	-	
Turn-Off Delay Time		td(off)	-	142	-	
Fall Time		tf	-	68	-	
Gate Resistance (VDS=0V ,VGS=0V, f=1.0MHz)		Rg	-	3	-	Ω
Source-Drain DIODE Ratings and Characteristics						
Continuous Current(Note 1)		IS			-14.3	A
Plused Current(Note 1)		ISM			-57	A
Reverse Recovery Time (IF=IS,dIf/dt=100A/us)		trr		62		ns
Reverse Recovery Charge (IF=IS,dIf/dt=100A/us)		Qrr		68		nC

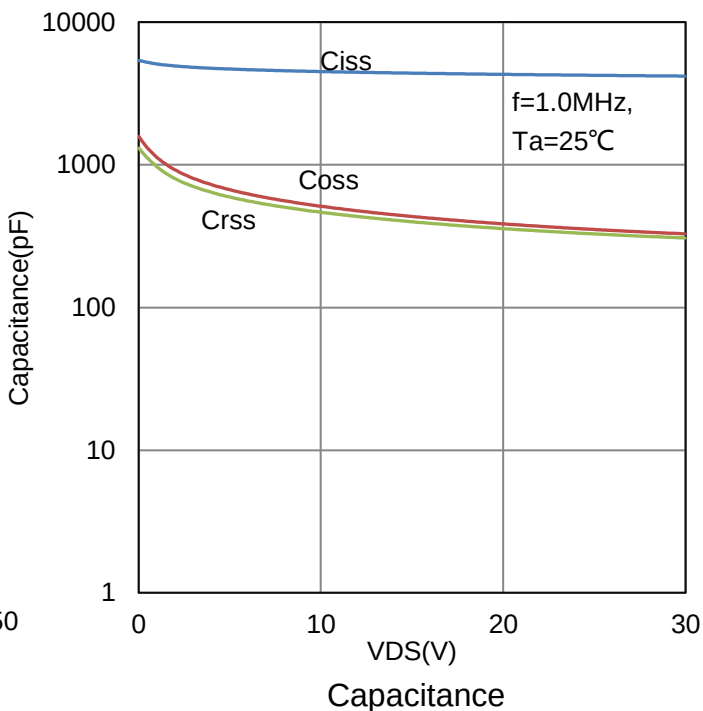
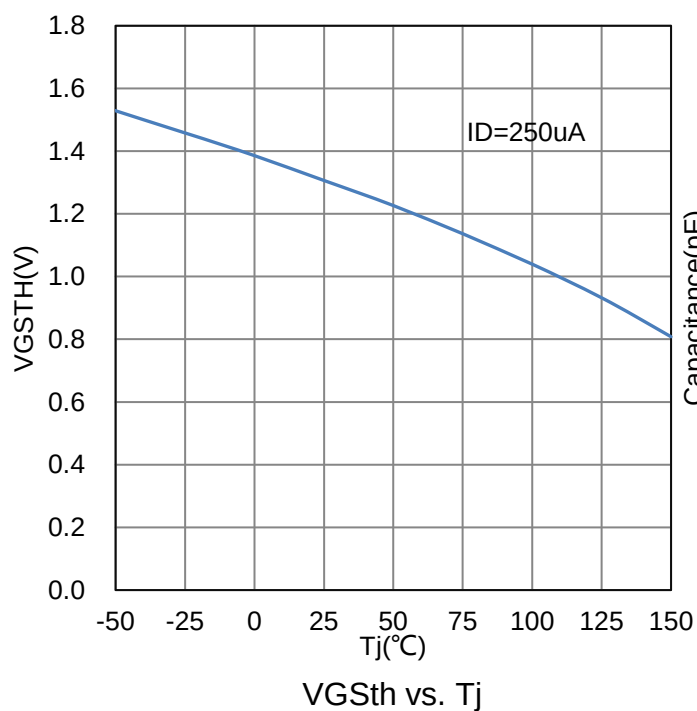
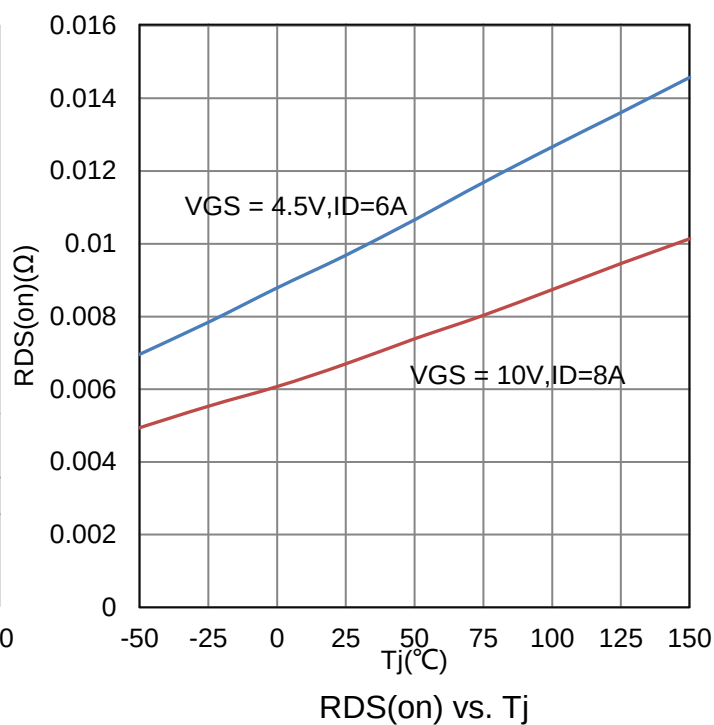
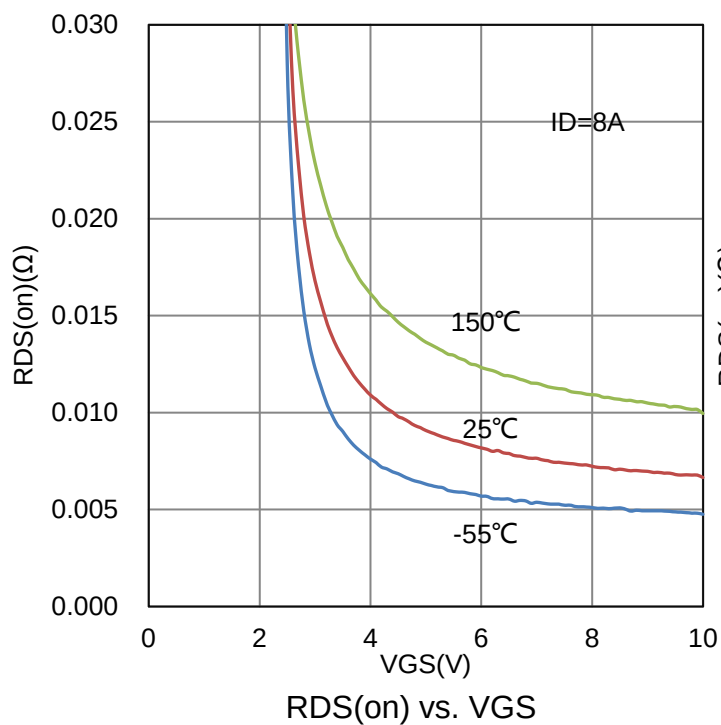
3. Pulse test: $PW \leq 300\mu s$ duty cycle $\leq 2\%$.

4. Guaranteed by design, not subject to production testing.

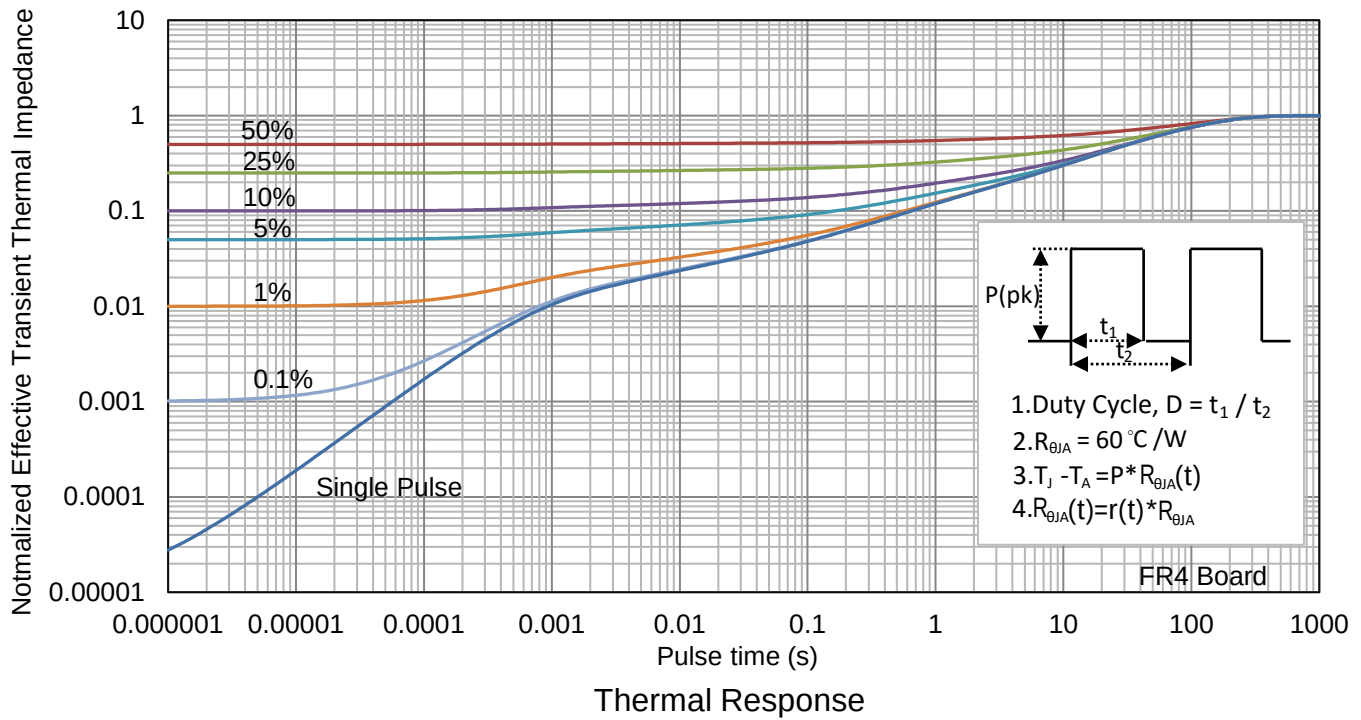
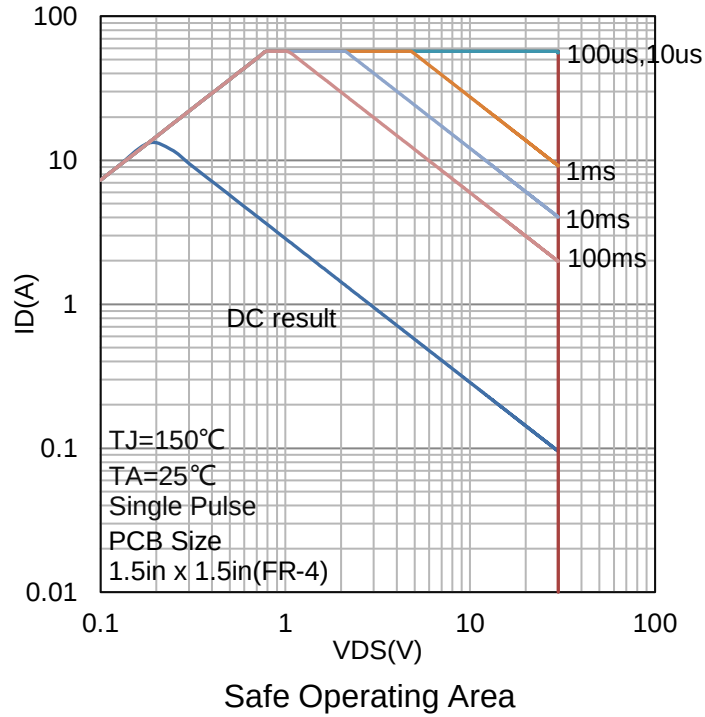
7. ELECTRICAL CHARACTERISTICS CURVES



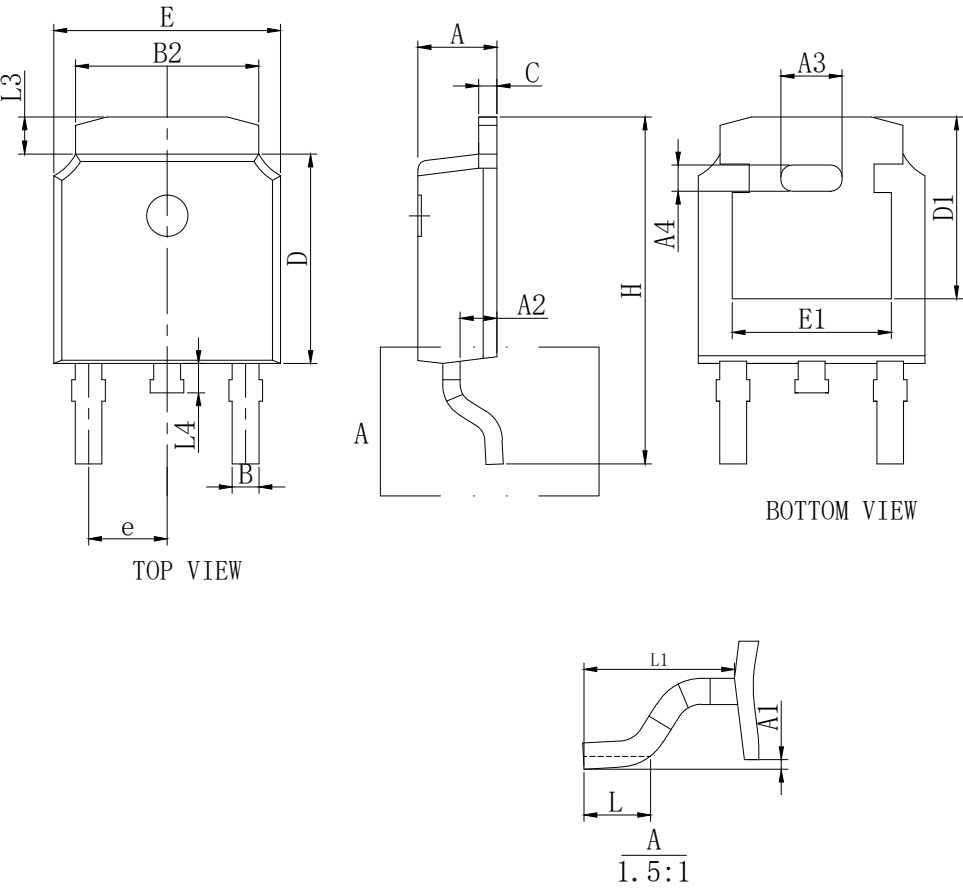
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



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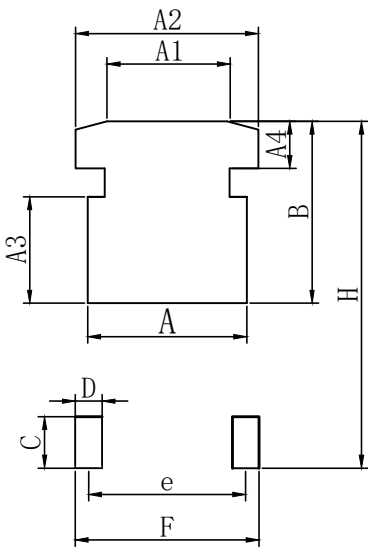


8.OUTLINE AND DIMENSIONS



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	4.57(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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