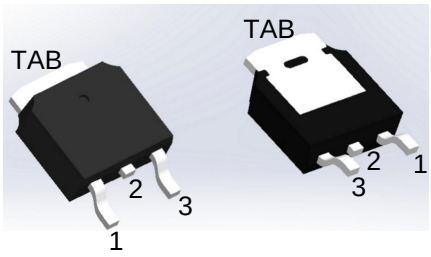
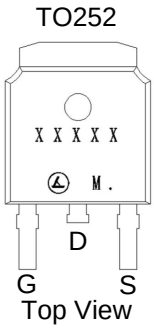
S-LN70N04D2

40V N-Channel Power MOSFET



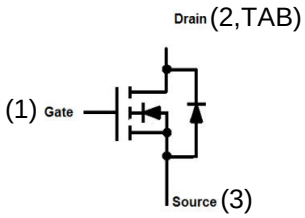


1. FEATURES

- 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

- White LED boost converters
- DC/DC Conversion Circuits
- Motor Drives



3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
S-LN70N04D2	70N04	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(Note 1)	TC=25℃	ID	70	A
	TC=100℃		46	
Pulsed Drain Current (Note 2)		IDM	280	A
Avalanche Current		IAS	33	A
Avalanche Energy(L=0.1mH)		EAS	54.45	mJ
Power Dissipation(Note 1)	TC=25℃	PD	60	W
	TC=100℃		30	
Operating Junction and Storage Temperature Range		TJ/TSTG	-55~+175	℃

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction-to-Ambient(Note 1)	RθJA	52	℃/W
Junction-to-Case	RθJC	2.5	

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

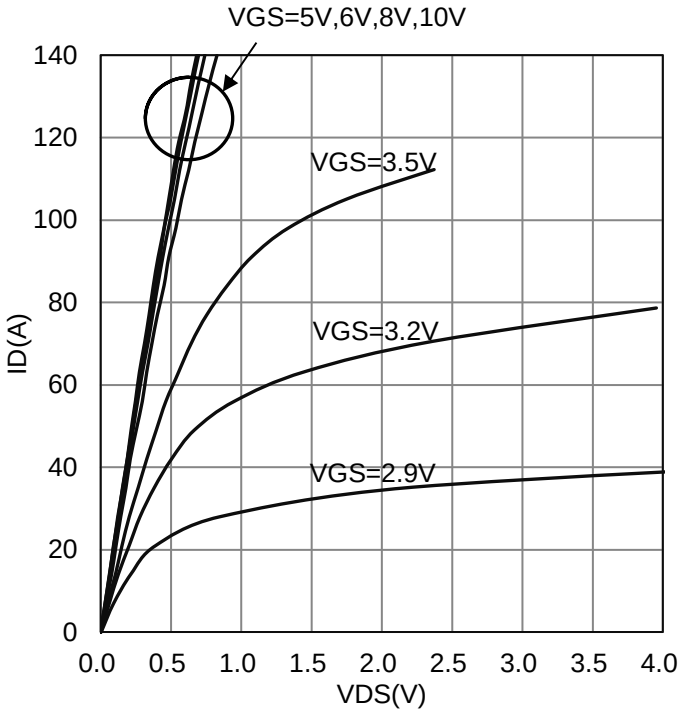
2.Pulse width limited by maximum junction temperature.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

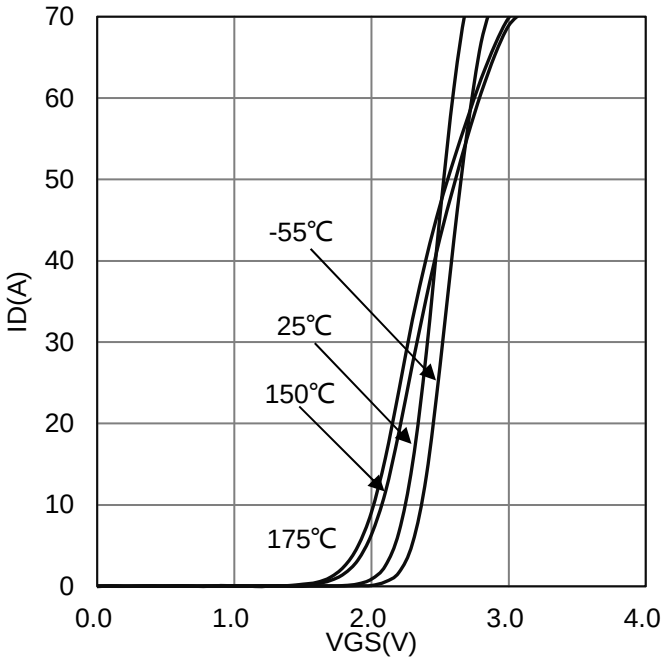
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage (VGS = 0 V, ID = 250 μA)		BVDSS	40	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 uA)		VGS(th)	1	-	2.5	V
Gate-Body Leakage (VDS = 0 V, VGS = ±20 V)		IGSS	-	-	± 100	nA
Zero Gate Voltage Drain Current (VDS = 32 V, VGS = 0 V)		IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 11 A) (VGS = 4.5 V, ID = 8.8 A)		RDS(on)	- -	- -	6 8	mΩ
Diode Forward Voltage(Note 3) (IS = 2 A, VGS = 0 V)		VSD	-	0.8	1.2	V
Dynamic						
Total Gate Charge	(VDS = 20 V, VGS = 4.5 V,ID = 11 A)	Qg	-	33.8	-	nC
Gate-Source Charge		Qgs	-	11	-	
Gate-Drain Charge		Qgd	-	15	-	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	4146	-	pF
Output Capacitance		Coss	-	322	-	
Reverse Transfer Capacitance		Crss	-	272	-	
Turn-On Delay Time	(VDS = 20 V, RL = 1.9 Ω,ID = 11 A,VGEN = 10 V, RGEN = 6 Ω)	td(on)	-	22	-	ns
Rise Time		tr	-	36	-	
Turn-Off Delay Time		td(off)	-	210	-	
Fall Time		tf	-	86	-	
Gate Resistance (VDS = 0 V,VGS = 0 V,f = 1.0MHz)		Rg	-	0.6	-	Ω

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

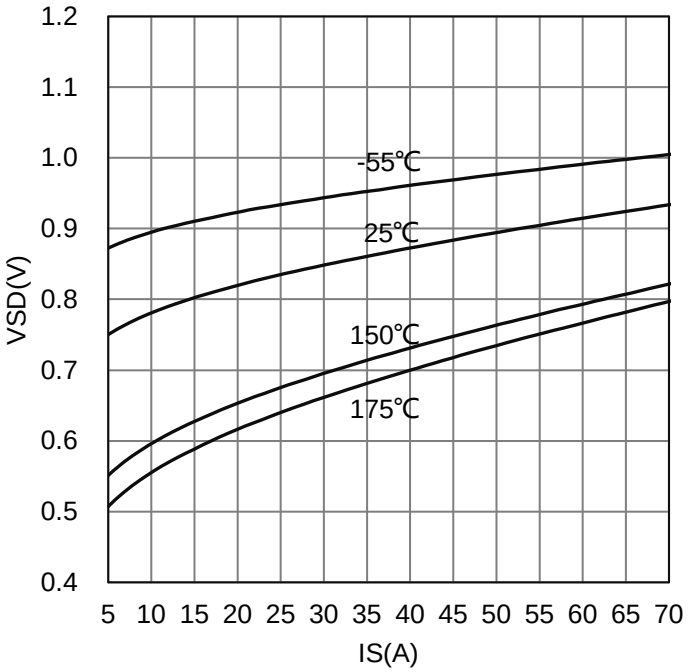
7. ELECTRICAL CHARACTERISTICS CURVES



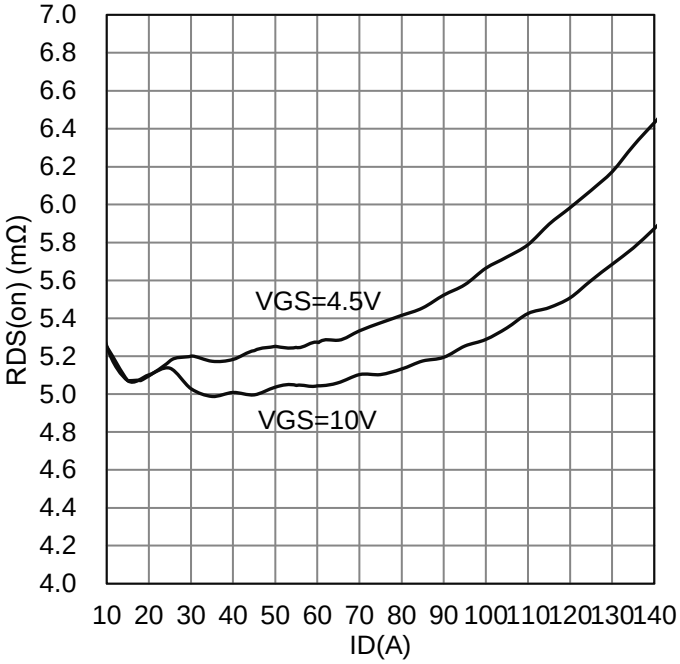
ID vs. VDS



ID vs. VGS

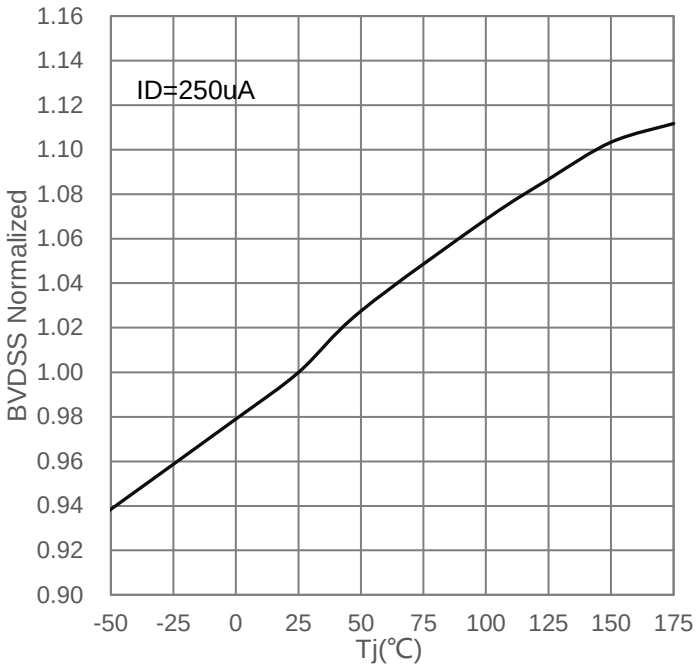


VSD vs. IS

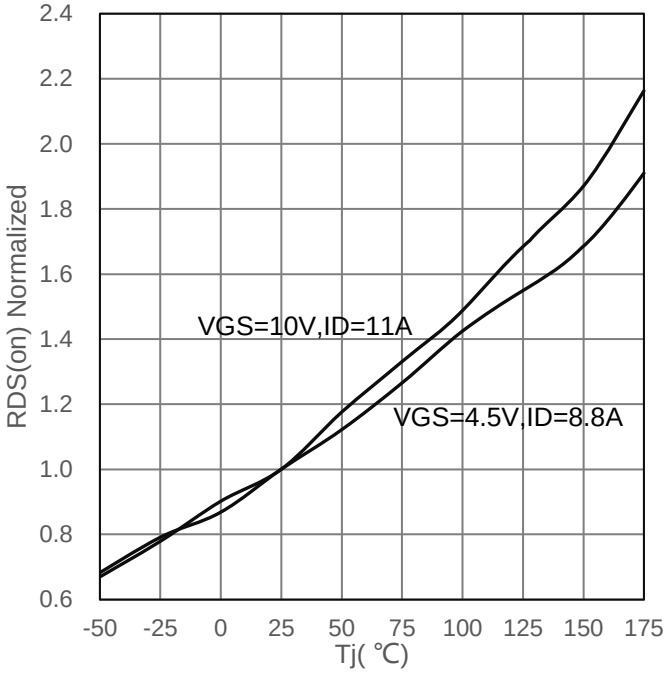


RDS(on) vs. ID

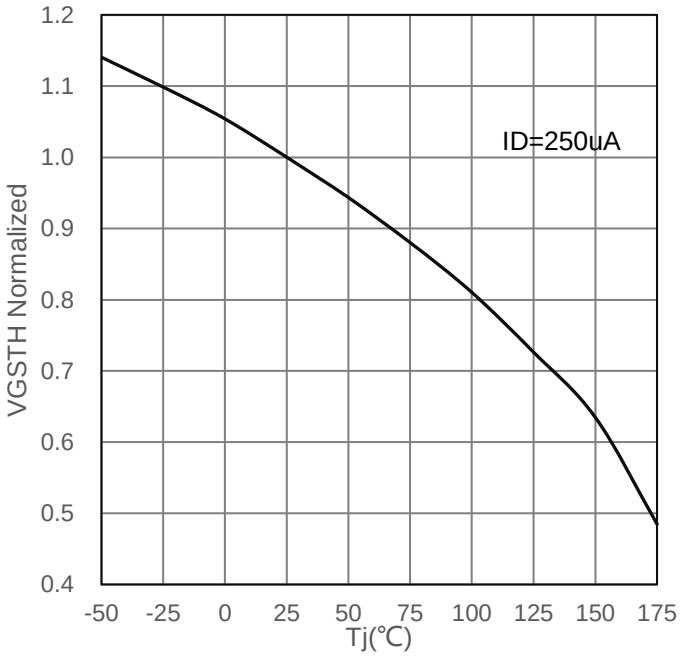
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



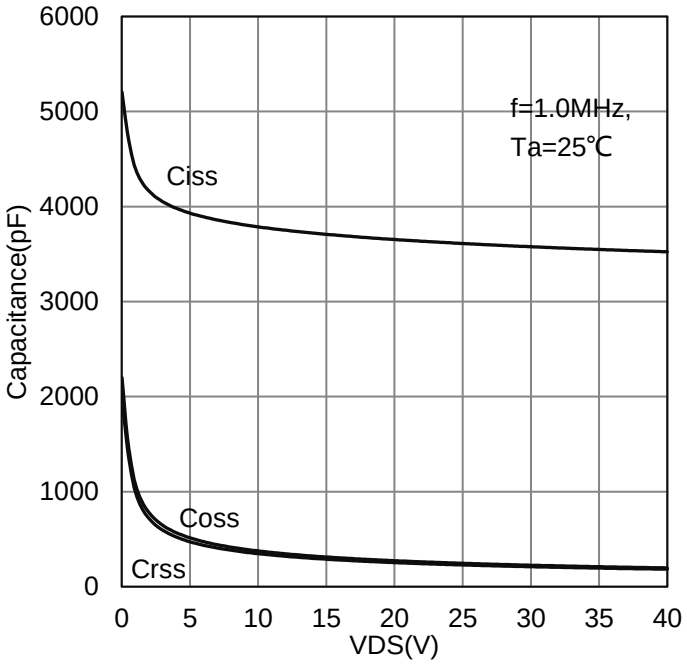
BVDSS vs. Tj



RDS(on) vs. Tj

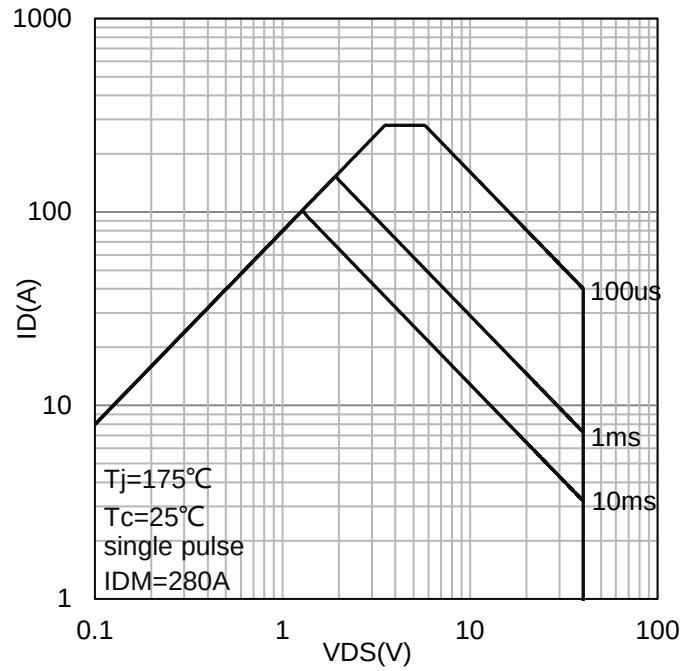


VGSth vs. Tj

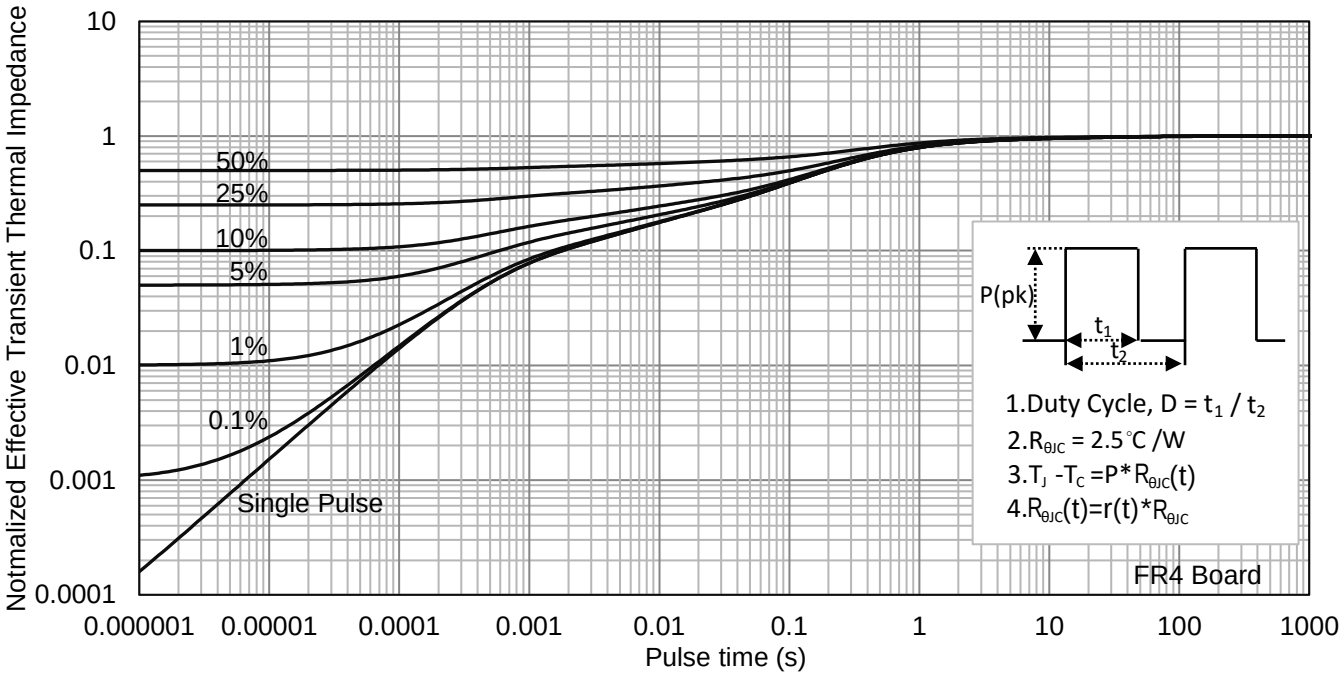


Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

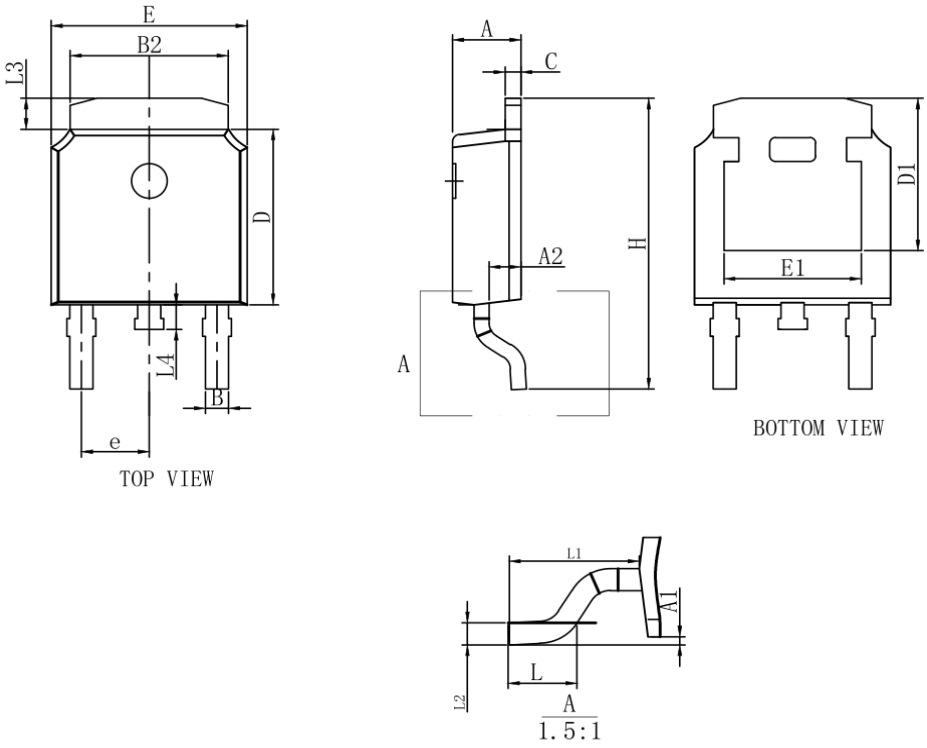


Safe Operating Area



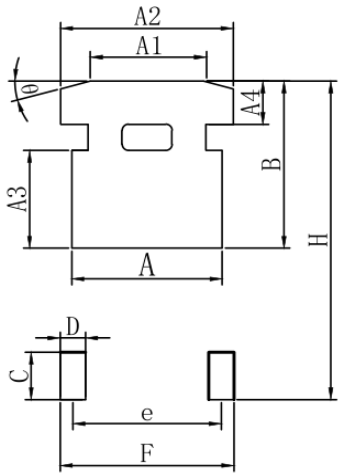
Thermal Response

8.OUTLINE AND DIMENSIONS



DIM	MILLIMETERS		
	MIN	NOM	MAX
A	2.15	2.30	2.45
A1	-	-	0.20
A2	0.90	1.07	1.17
B	0.68	0.78	0.88
B2	5.20	5.33	5.46
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	9.85	10.10	10.35
L	1.30	1.50	1.70
L1	2.90REF		
L2	0.51BSC		
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

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