

S-LP1216DT2AG

12V P-Channel Enhancement MOSFET

1. FEATURES

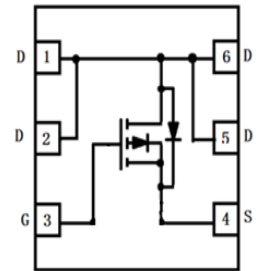
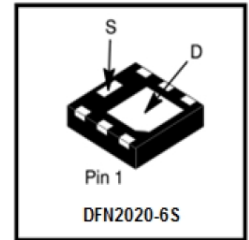
- Ultra Low RDS(on)
- This is a Pb-Free Device
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

2. APPLICATIONS

- Battery Switch
- High Side Load Switch

3. ORDERING INFORMATION

Device	Marking	Shipping
S-LP1216DT2AG	P12	4000/Tape&Reel



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

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	VDSS	-12	V
Gate-to-Source Voltage	VGS	± 12	V
Drain Current (Note 1) Steady State	ID	-8	A
Pulsed Drain Current (tp = 10 μs)	IDM	-30	A
Continuous Source Current (Diode Conduction)	IS	-4	A
Avalanche Current(L=0.1mH)	IAS	19	A
Avalanche Energy(L=0.1mH)	EAS	18.05	mJ
Power Dissipation (Note 1) Steady State	PD	1.7	W
Operating Junction and Storage Temperature Range	TJ , TSTG	-55 ~ +150	°C
Lead Temperature for Soldering Purposes (1/8" from case for 10 s)	TL	260	°C

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 1)	RθJA	74	°C/W
Maximum Junction-to-Case	RθJC	15	

1.Surface mounted on 1.5 x 1.5 FR4 board using 1 sq in pad, 2 oz Cu.

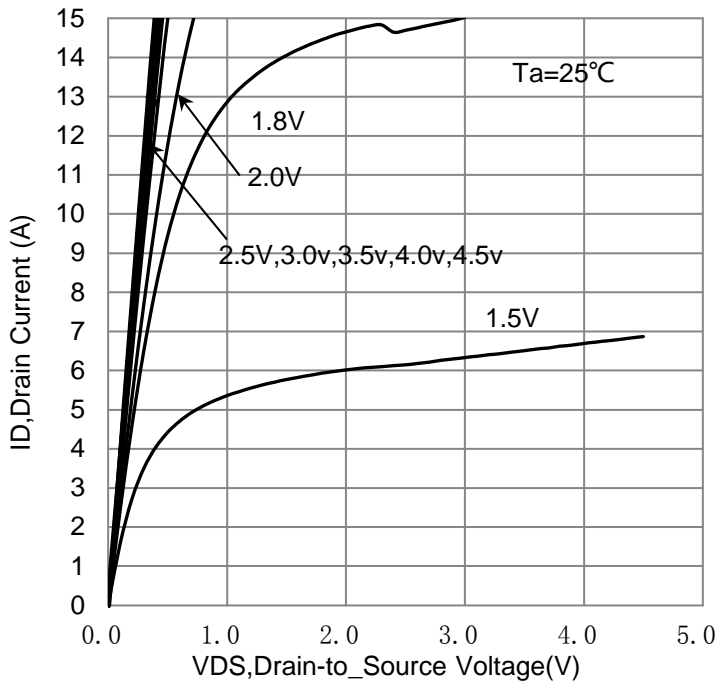
5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
Drain-Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)	V(BR)DSS	-12	-	-	V	
Gate-Source Threshold Voltage (VDS = VGS, ID = -250 μA)	VGS(th)	-0.5	-	-1	V	
Gate-Body leakage current (VDS = 0 V, VGS = ± 12 V)	IGSS	-	-	±10	μA	
Zero Gate Voltage Drain Current (VDS = -12 V, VGS = 0 V)	IDSS	-	-	-1	μA	
Drain-to-Source On-Resistance(Note 2) (VGS = -4.5 V, ID = -7 A) (VGS = -2.5 V, ID = -5 A) (VGS = -1.8 V, ID = -2 A)	RDS(ON)	-	16 19 35	19 24 48	mΩ	
Diode Forward Voltage(Note 2) (IS = -1 A, VGS = 0 V)	VSD	-	-0.7	-1.5	V	
Dynamic(Note 3)						
Total Gate Charge	(VDS = -15V, VGS = -4.5 V, ID = -4 A)	Qg	-	26	-	nC
Gate to Source Charge		Qgs	-	2.7	-	
Gate to Drain Charge		Qgd	-	10.5	-	
Turn-on Delay Time	(VDS=-15V, ID=-4A,VGEN =-4.5V,RG= 1Ω)	td(on)	-	11	-	nS
Rise Time		tr	-	19	-	
Turn-Off Delay Time		td(off)	-	160	-	
Fall Time		tf	-	92	-	
Input Capacitance	(VDS=-15V, VGS=0 V, f=1MHz)	Ciss	-	2132	-	pF
Output Capacitance		Coss	-	383	-	
Reverse Transfer Capacitance		Crss	-	343	-	
Gate-Resistance (VDS = 0 V, VGS = 0 V, f = 1 MHz)	Rg	-	7.5	-	Ω	
Source-Drain DIODE Ratings and Characteristics(TA= 25° C)						
Reverse Recovery Time (IF=-4A,dIf/dt=100A/us)	trr	-	22	-	nS	
Reverse Recovery Charge (IF=-4A,dIf/dt=100A/us)	Qrr	-	50	-	nC	

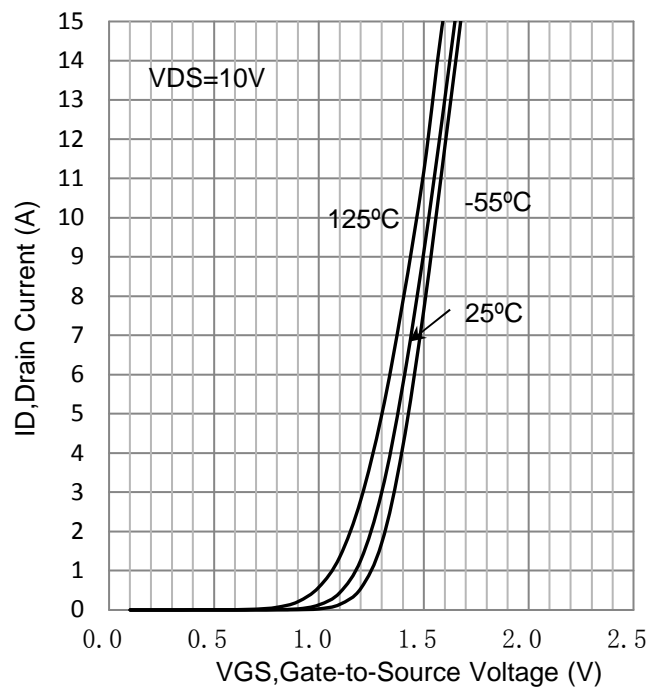
2.Pulse test: PW ≤ 300us duty cycle ≤ 2%.

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

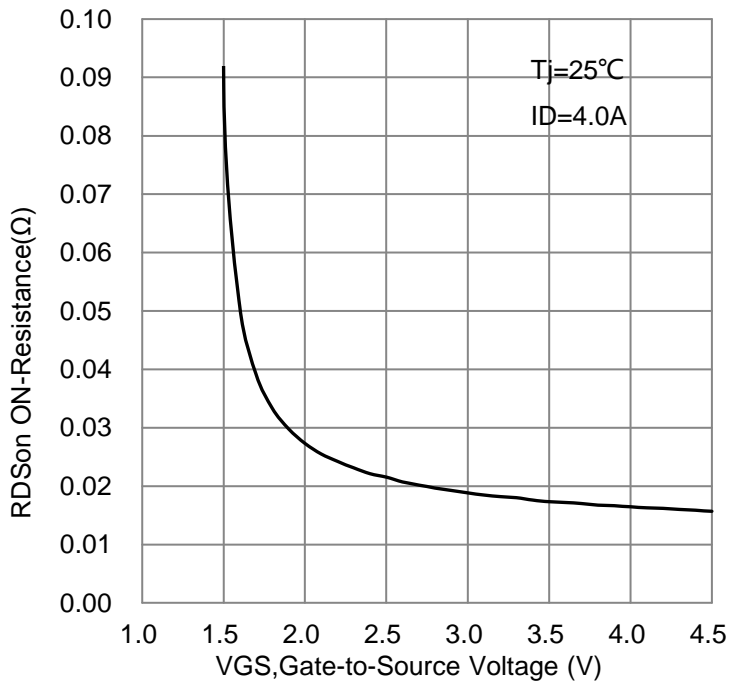
7.ELECTRICAL CHARACTERISTICS CURVES



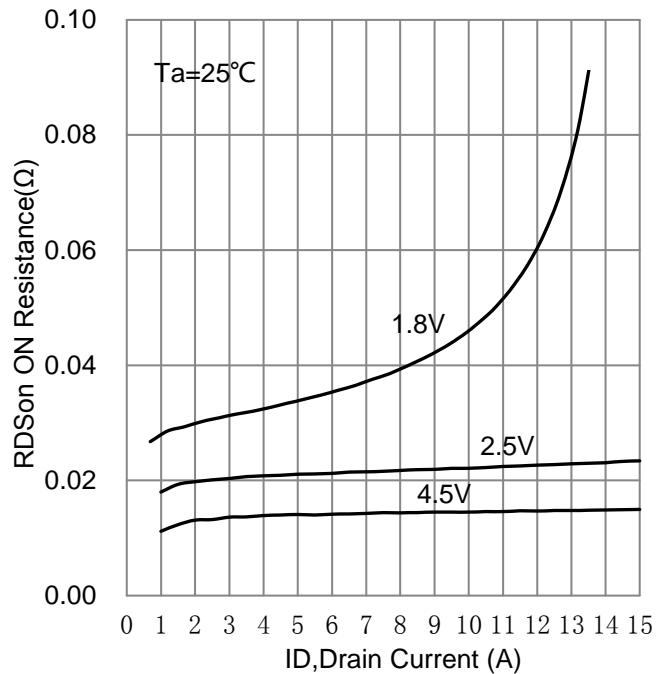
On-Region Characteristics



Transfer Characteristics

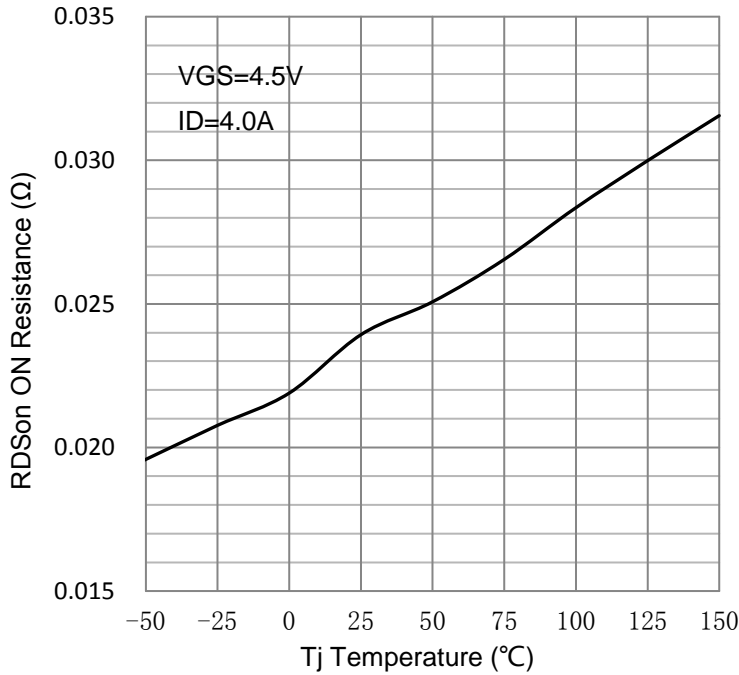


On-Resistance vs. Gate-to-Source Voltage

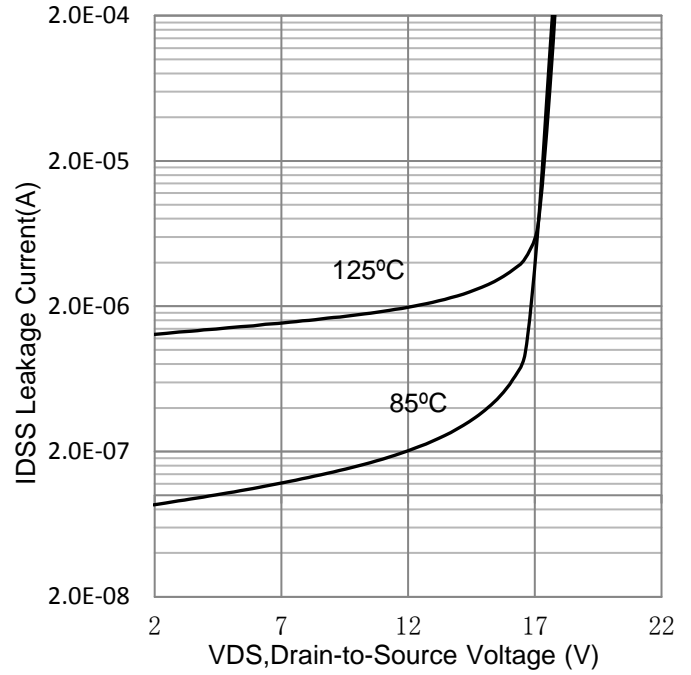


On-Resistance vs. Drain Current and Gate Voltage

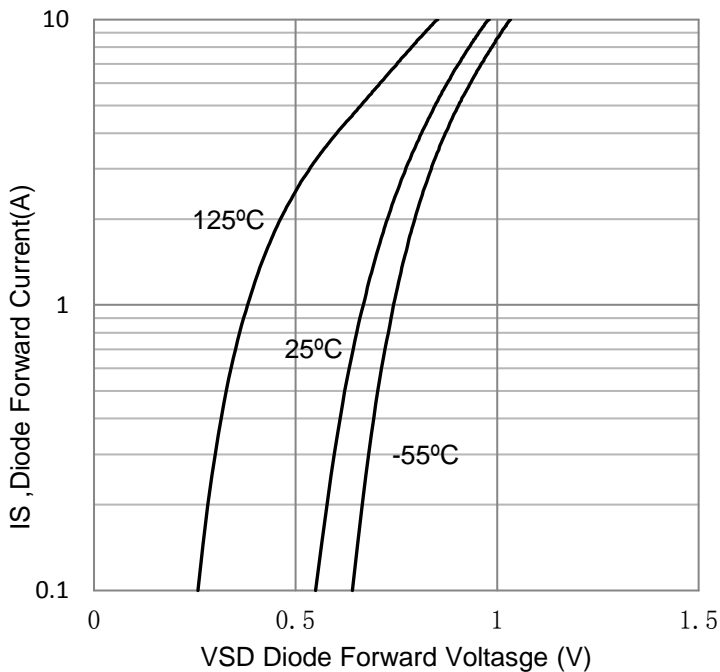
7. ELECTRICAL CHARACTERISTICS CURVES (Con.)



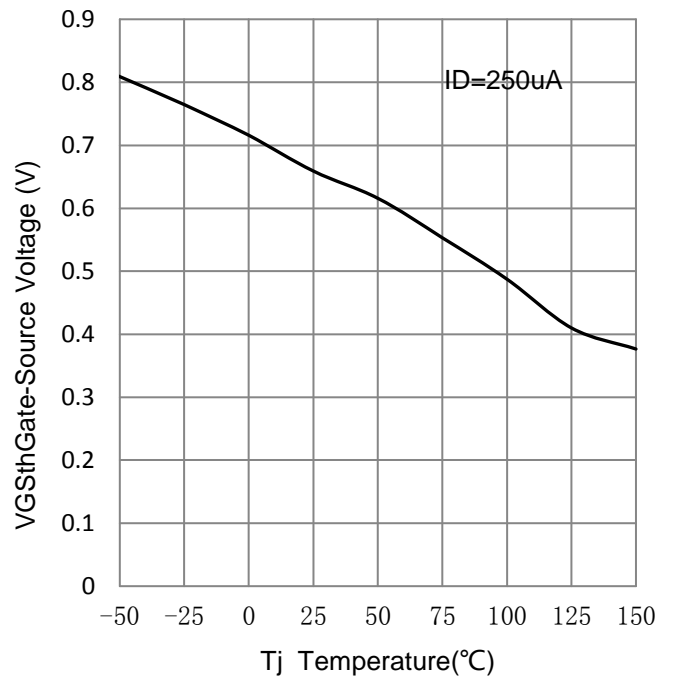
On-Resistance Variation with Temperature



Drain-to-Source Leakage Current vs. Voltage

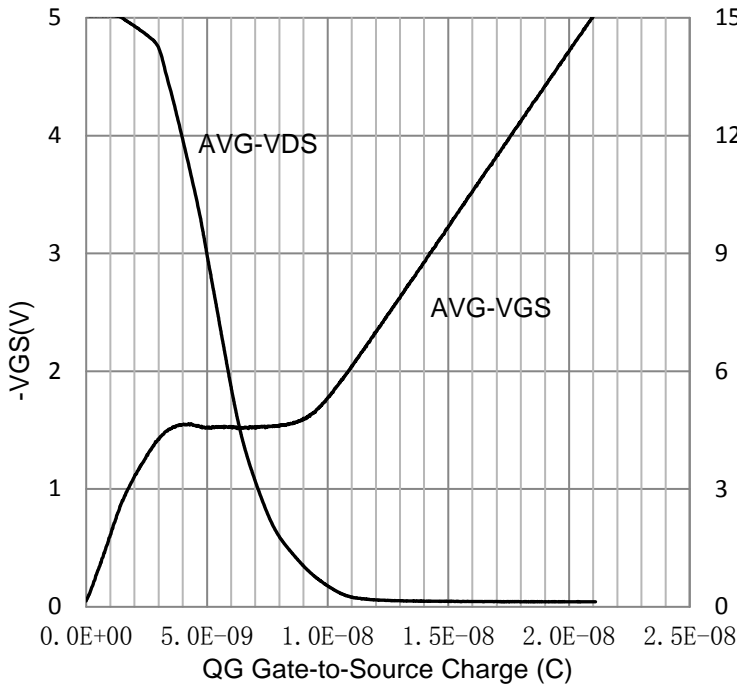


Diode Forward Voltage vs. Current

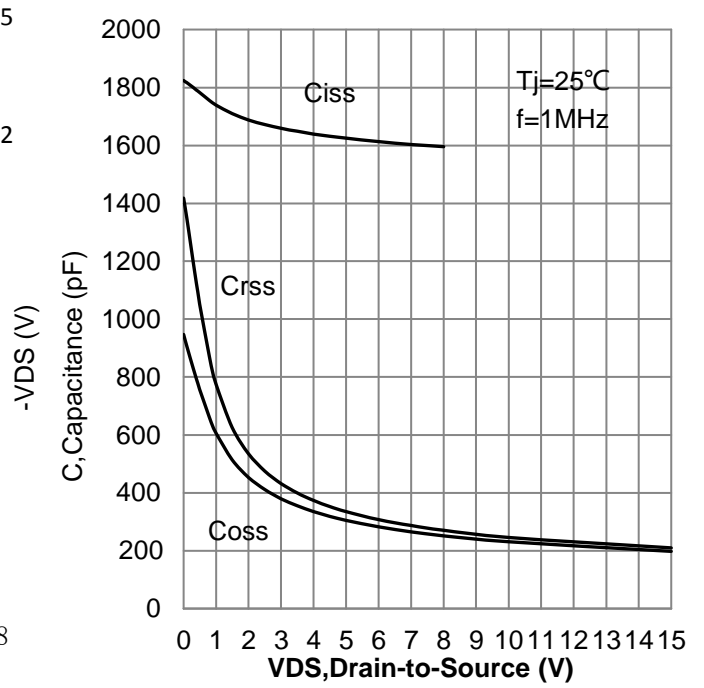


Threshold Voltage

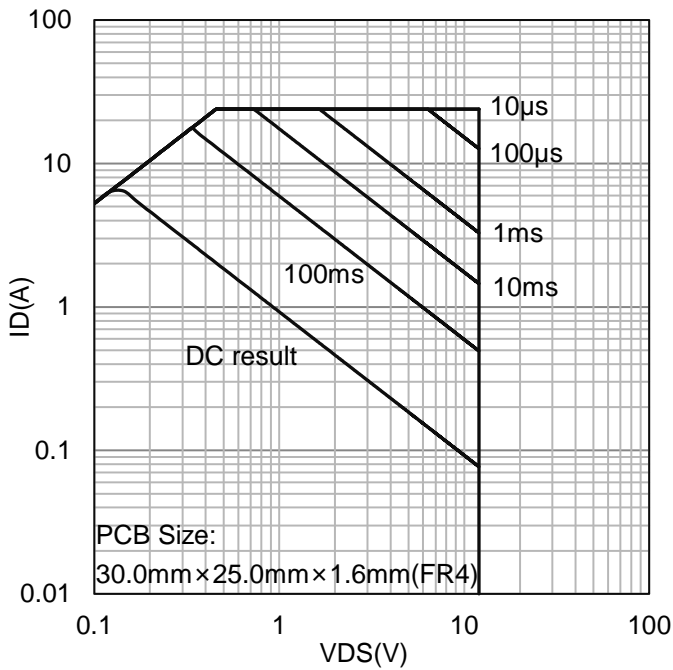
7.ELECTRICAL CHARACTERISTICS CURVES (Con.)



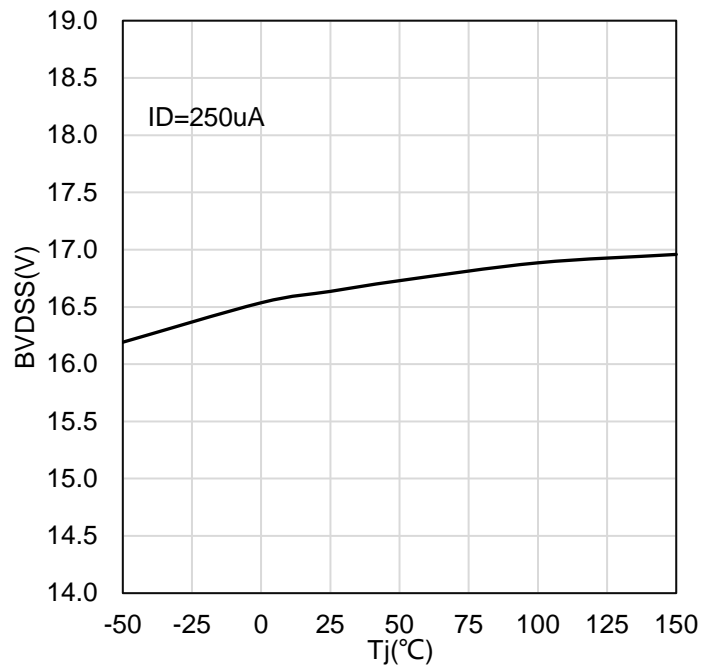
Gate-to-Source and Drain-to-Source Voltage vs. Total Charge



Capacitance variation

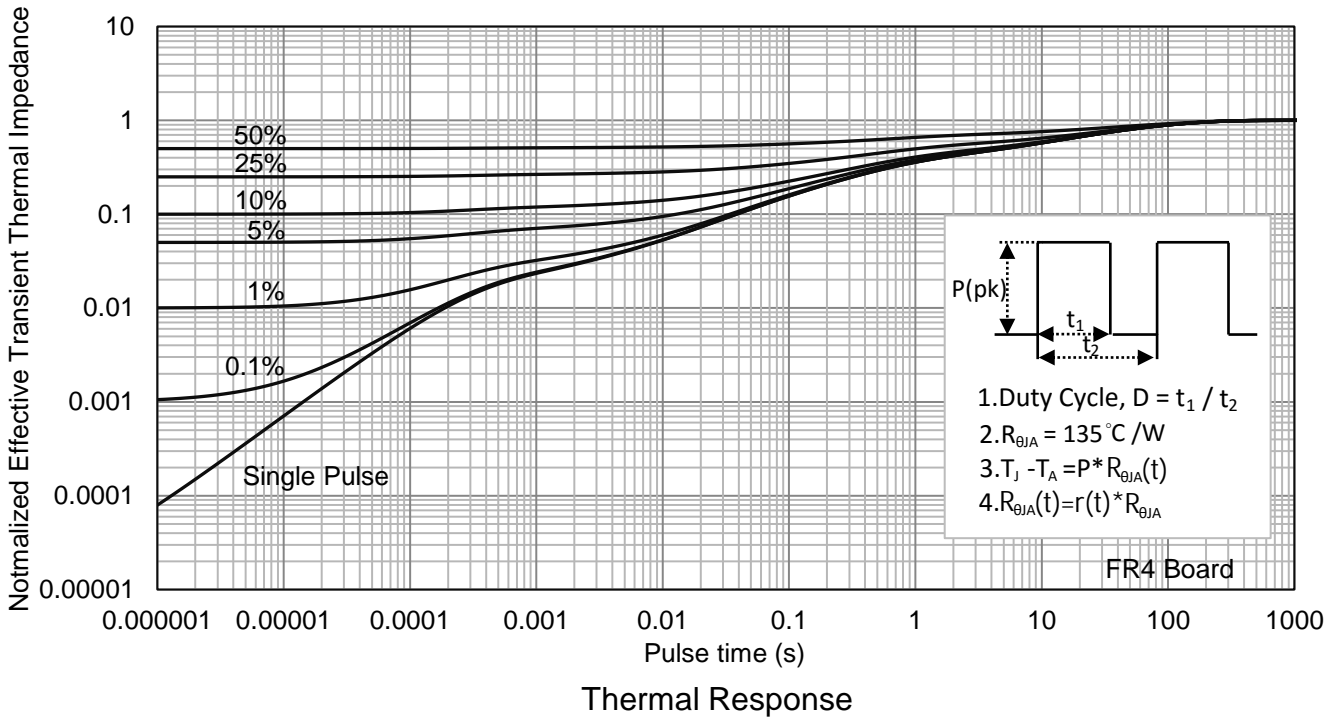


Safe Operating Area

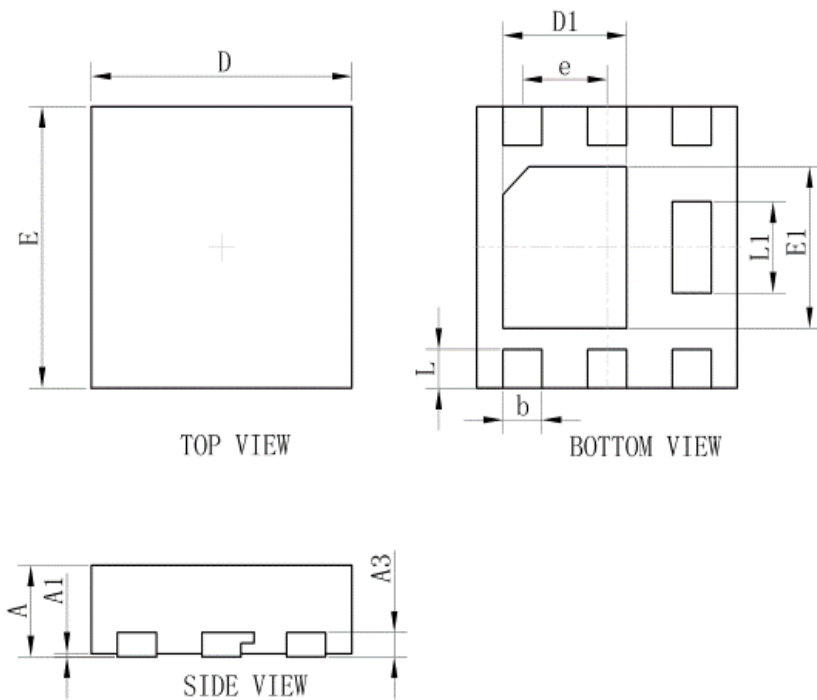


BVDSS vs. Tj

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

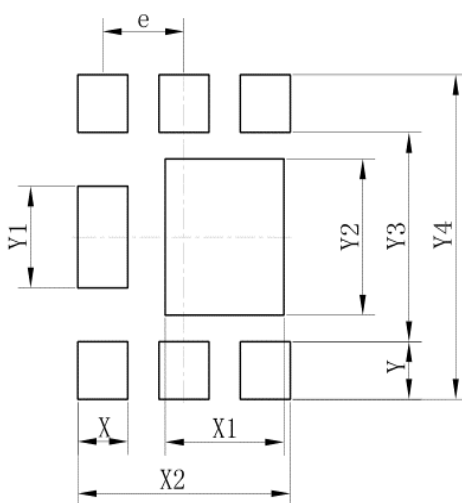


8. OUTLINE AND DIMENSIONS



DFN2020-6S			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.01	0.03	0.05
b	0.25	0.30	0.35
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	0.65TYP.		
L	0.23	0.28	0.33
L1	0.60	0.65	0.70
D1	0.90	0.95	1.00
E1	1.10	1.15	1.20
A3	0.152REF		
All Dimensions in mm			

9. SOLDERING FOOTPRINT



DFN2020-6S	
Dim	(mm)
X	0.40
X1	0.95
X2	1.70
e	0.65
Y	0.43
Y1	0.75
Y2	1.15
Y3	1.54
Y4	2.39

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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