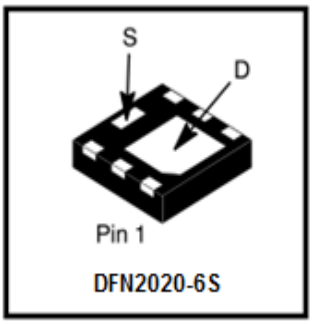
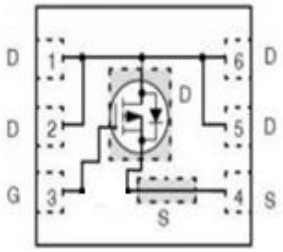
LP1481DT2AG

-12V,Single P-Channel Power MOSFET





1. FEATURES

- VDS = -12V
  RDS(ON) ≤33mΩ@VGS =-4.5V
  RDS(ON) ≤43mΩ@VGS =-2.5V
  RDS(ON) ≤56mΩ@VGS =-1.8V
- Super high density cell design for extremely low RDS(ON)
- Exceptional on-resistance and maximum DC current capability.
- 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

- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LP1481DT2AG	A21	4000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		VDS	-12	V
Gate-Source Voltage		VGS	± 12	
Continuous Drain Current(Note 1&4)	TA=25℃	ID	-4.3	A
	TA=70℃		-3.4	
Maximum Power Dissipation(Note 1&4)	TA=25℃	PD	1.4	W
	TA=70℃		0.9	
Continuous Drain Current(Note 2&4)	TA=25℃	ID	-3.0	A
	TA=70℃		-2.4	
Maximum Power Dissipation(Note 2&4)	TA=25℃	PD	0.6	W
	TA=70℃		0.4	
Pulsed Drain Current(Note 3)		IDM	-24	A
Operating Junction and Storage Temperature Range		TJ , Tstg	-55~+150	℃
Lead Temperature		TL	260	℃

5. Thermal Resistance Ratings(Ta = 25ºC)

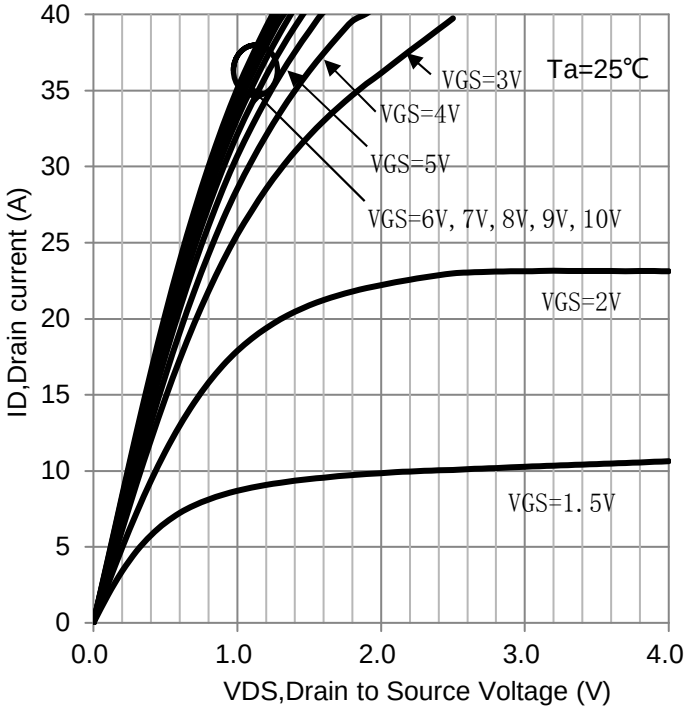
Thermal Resistance-Junction to Ambient(Note 1)	t ≤ 10 s	RθJA	64	℃/W
	Steady State		88	
Thermal Resistance-Junction to Ambient(Note 2)	t ≤ 10 s		118	
	Steady State		180	
Junction-to-Case Thermal Resistance	Steady State	RθJC	42	

6. ELECTRICAL CHARACTERISTICS (Ta= 25ºC)

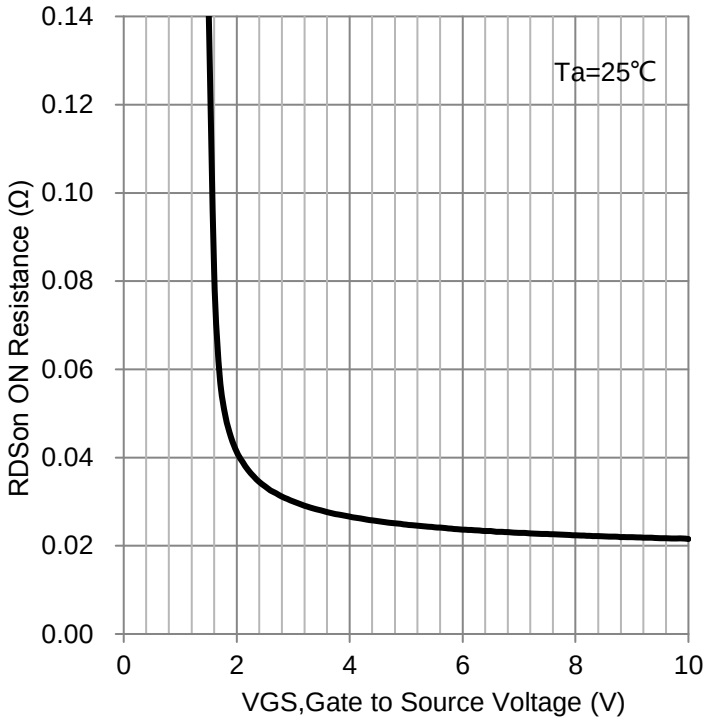
Characteristic		Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage (VGS =0V, ID =-250μA)		V(BR)DSS	-12	-	-	V
Zero Gate Voltage Drain Current (VDS =-10V, VGS =0V)		IDSS	-	-	-1	μA
Gate Leakage Current (VDS =0V, VGS =±10V)		IGSS	-	-	±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage (VDS =VGS , ID =-250μA)		VGS(th)	-0.4	-	-0.9	V
Drain-Source On-Resistance (VGS =-4.5V, ID = -8A)		RDS(ON)	-	-	33	mΩ
Drain-Source On-Resistance (VGS =-2.5V, ID = -5A)			-	-	43	
Drain-Source On-Resistance (VGS =-1.8V, ID = -2A)			-	-	56	
BODY DIODE CHARACTERISTICS						
Diode Forward Voltage (IS =1A, VGS =0V)		VSD	-	-	-1.5	V
DYNAMIC						
Input Capacitance	(VDS =-10V, VGS =0V,f=1MHz)	Ciss	-	1880	-	pF
Output Capacitance		Coss	-	437	-	
Reverse Transfer Capacitance		Crss	-	413	-	
Total Gate Charge	(VDS =-10V, VGS =-4.5V, ID =-5.5A)	Qg(TOT)	-	44.5	-	nC
Threshold Gate Charge		Qg(TH)	-	3.5	-	
Gate-Source Charge		Qgs	-	1.7	-	
Gate-Drain Charge		Qgd	-	9.25	-	
Turn-On Delay Time	(VDS =-6V, RL =3Ω, RGS =6Ω, VGS =-4.5V)	td(on)	-	33.6	-	ns
Turn-On Rise Time		tr	-	35.6	-	
Turn-Off Delay Time		td(off)	-	50	-	
Turn-Off Fall Time		tf	-	63	-	

Note : 1.Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper
2.Surface mounted on FR-4 board using minimum pad size, 1oz copper
3.Pulse width<380μs, Single pulse
4.Maximum junction temperature TJ =150°C.
5.Pulse test: Pulse width <380 μs duty cycle <2%.

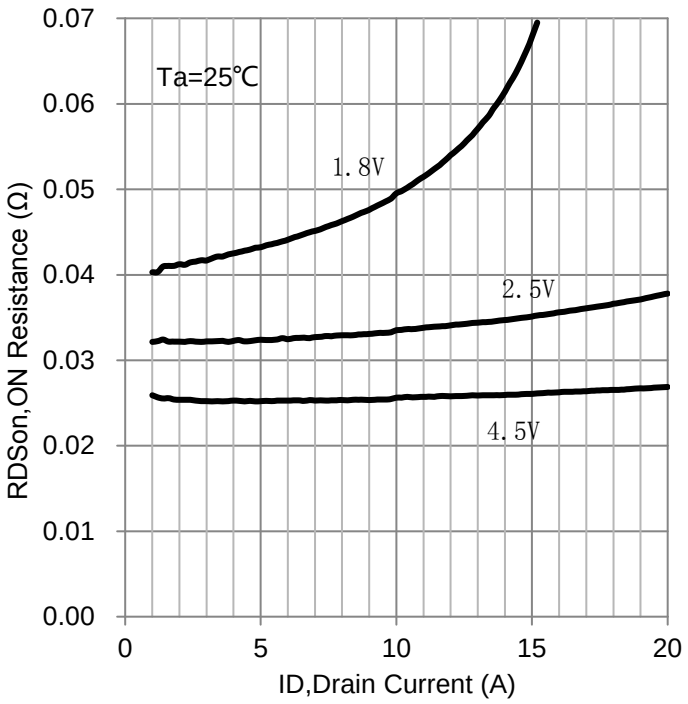
7. ELECTRICAL CHARACTERISTICS CURVES



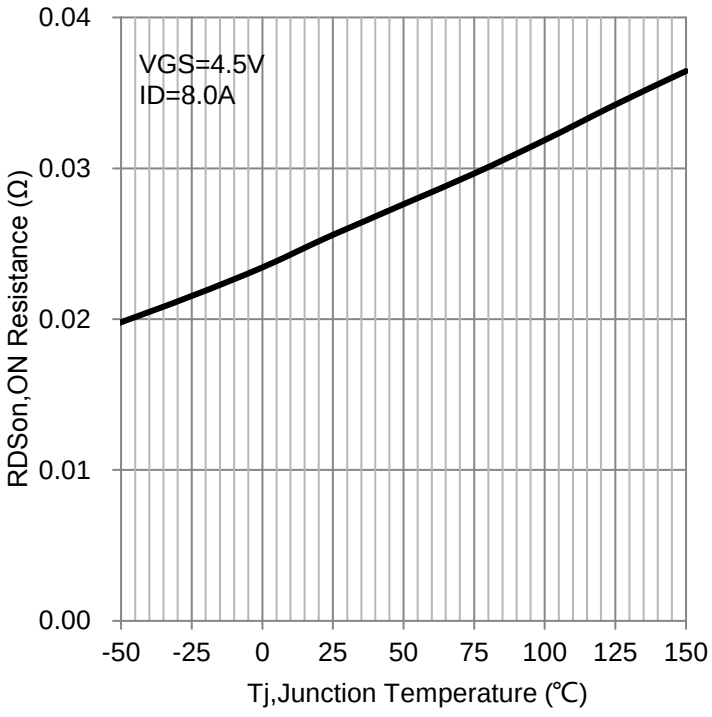
ID vs. VDS



RDSon vs. VGS

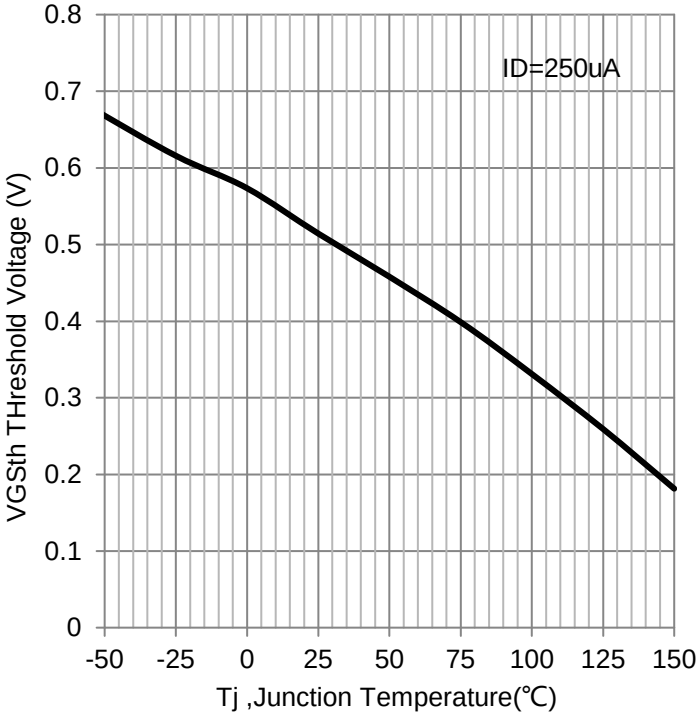


RDSon vs. ID

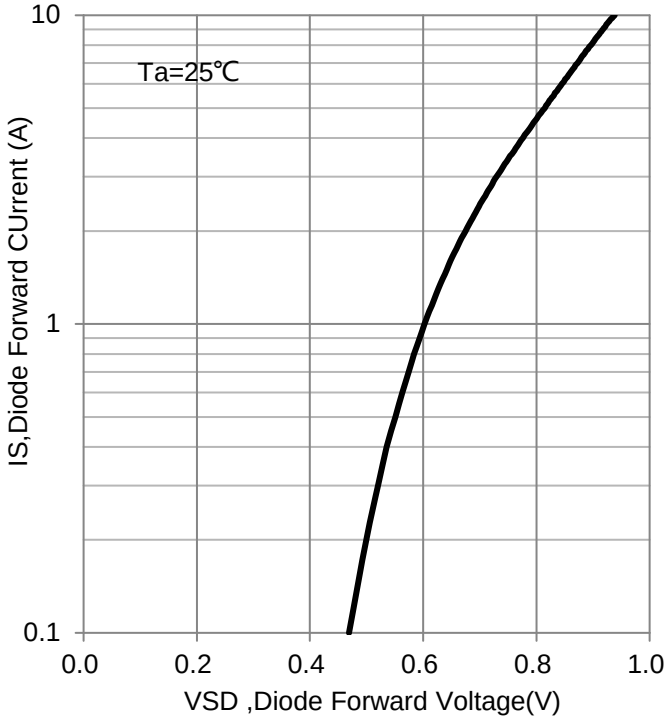


RDSon vs. Tj

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

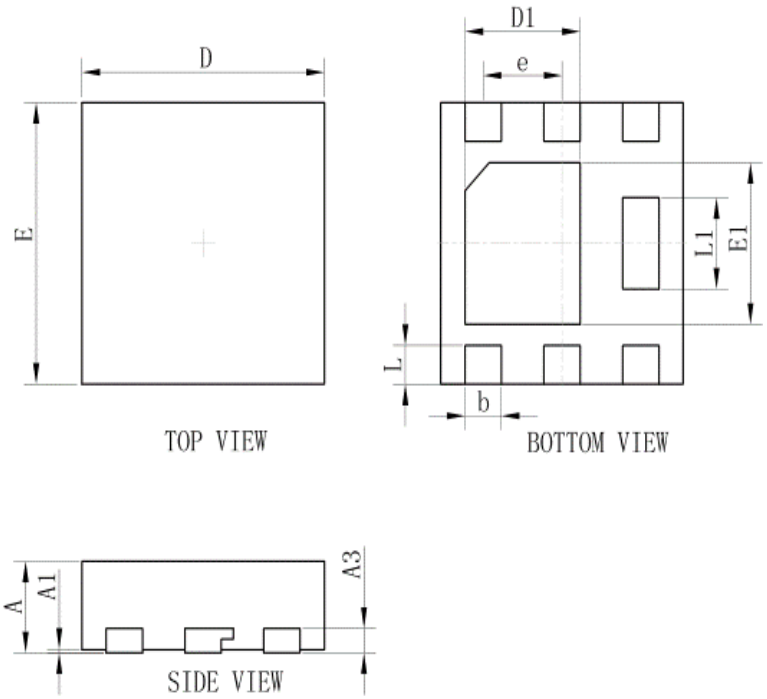


VGSth vs. Tj



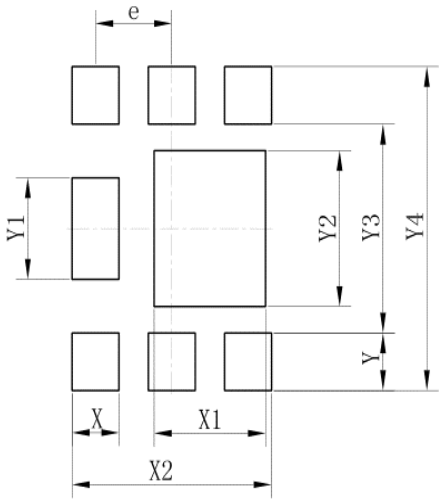
IS vs. VSD

8.OUTLINE AND DIMENSIONS



DFN2020-6S			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.01	0.03	0.05
A1	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	0.65
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