

LDN2040DT2AG

20V N-Channel Enhancement-Mode MOSFET

1. FEATURES

- VDS= 20V
- RDS(ON)≤40mΩ, @VGS= 4.5V, ID= 3A
- RDS(ON)≤52mΩ, @VGS= 2.5V, ID= 3A
- RDS(ON)≤80mΩ, @VGS= 1.8V, ID= 3A
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LDN2040DT2AG	2DP	4000/Tape&Reel

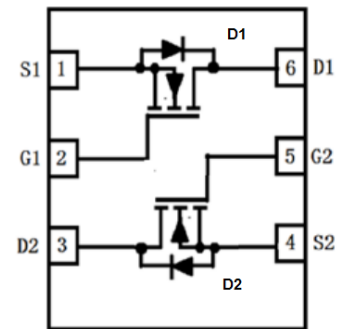
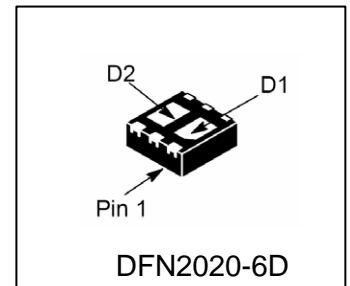
3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDS	20	V
Gate–to–Source Voltage	VGS	±12	V
Continuous Drain Current	ID	3.5	A
Pulsed Drain Current(Note 1)	IDM	14	
Avalanche Current(L=0.1mH)	IAS	6	A
Avalanche energy(L=0.1mH)	EAS	1.8	mJ
Junction and Storage temperature	TJ/Tstg	-55~+150	°C

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	TA =25°C	0.89	W
	TA =75°C	0.7	
Junction–to–Ambient – Steady State (Note 2)	RθJA	140	°C/W

1. Repetitive Rating: Pulse width limited by the maximum junction temperature.
2. 1-in² 2oz Cu PCB board.

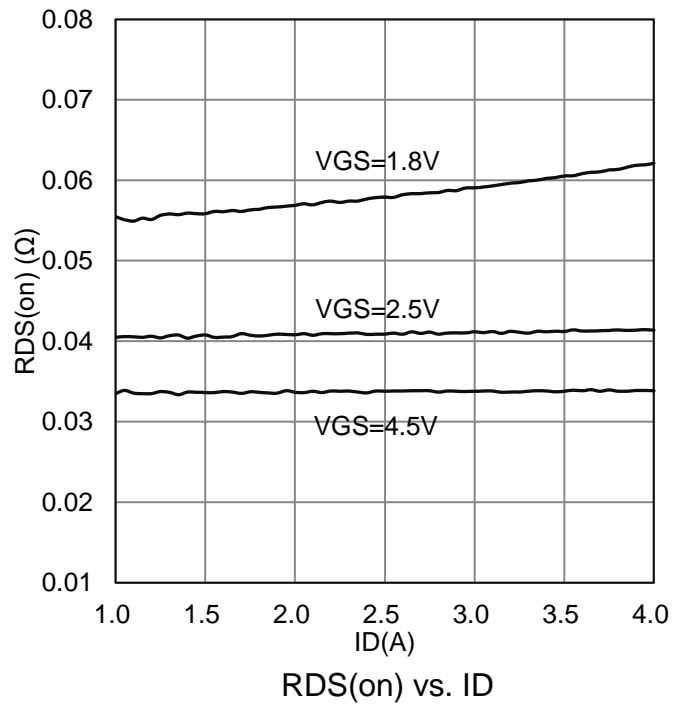
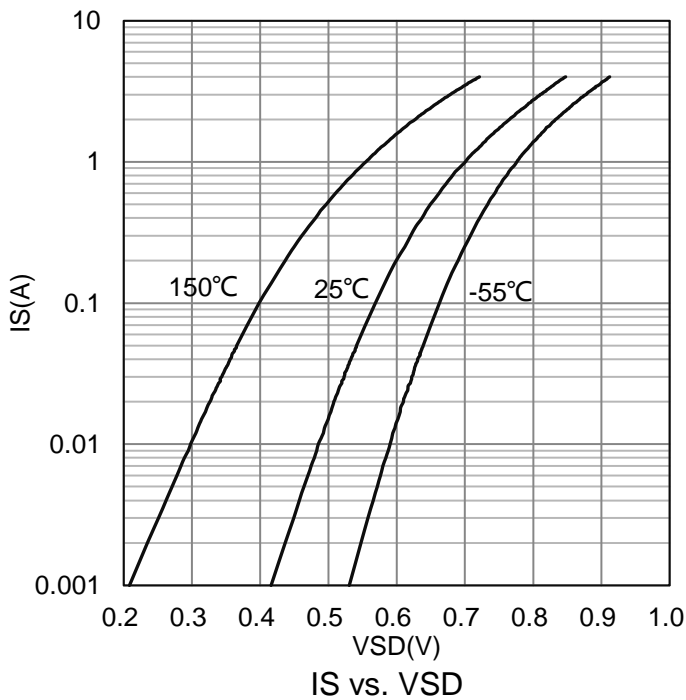
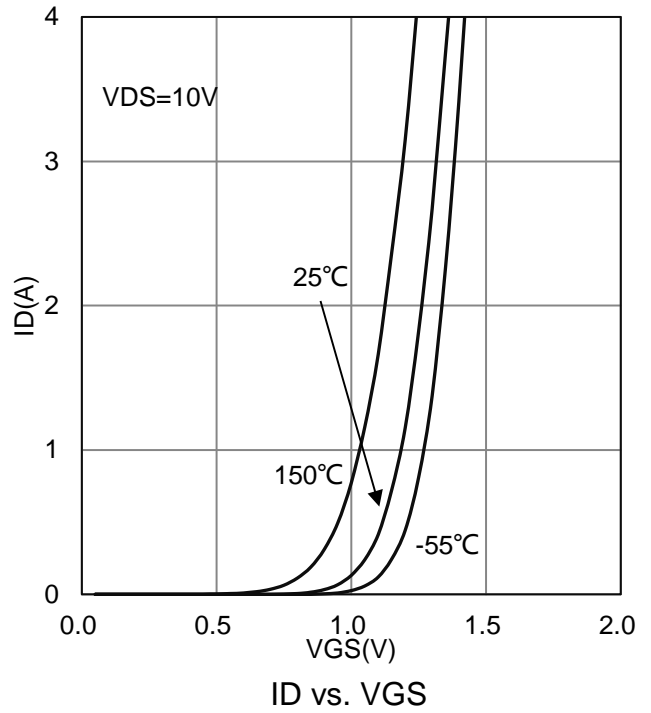
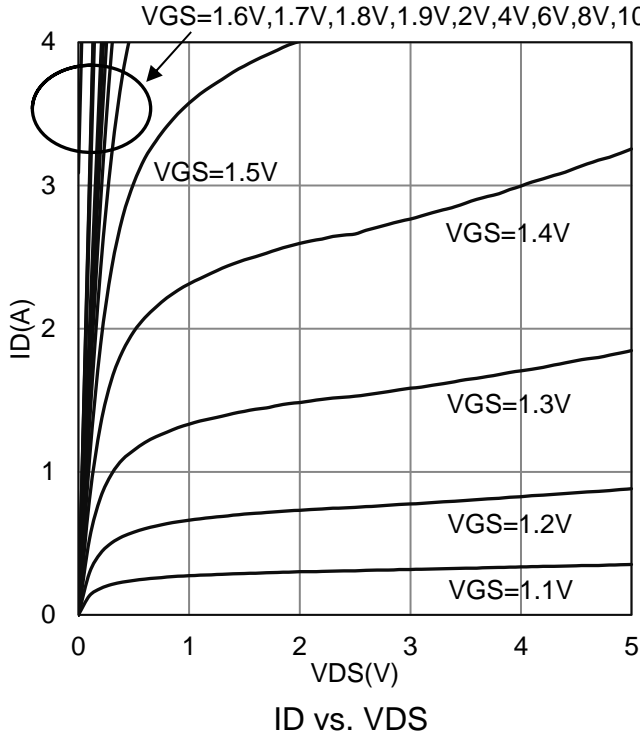


5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

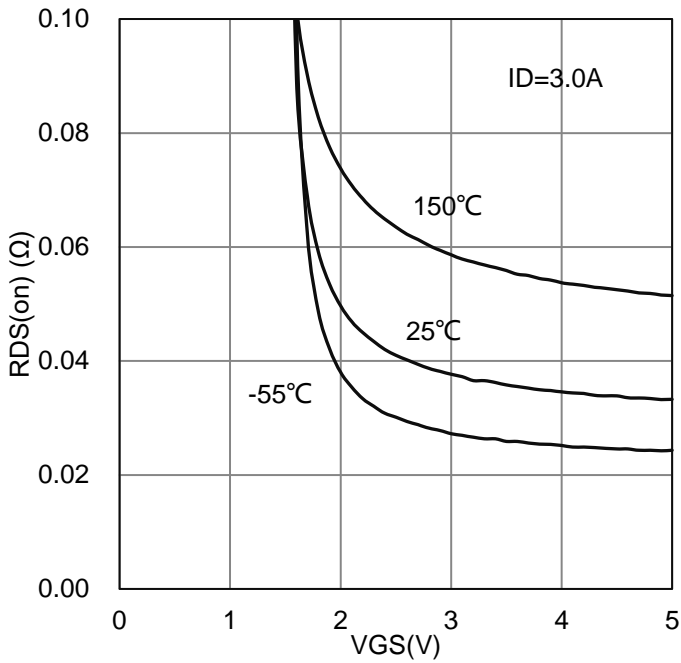
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
Drain-Source Breakdown Voltage (VGS = 0, ID = 250μA)	V(BR)DSS	20	-	-	V	
Zero Gate Voltage Drain Current (VDS = -20V, VGS = 0V)	IDSS	-	-	1	μA	
Gate-Source Threshold Voltage (VDS = VGS, ID = 250 uA)	VGS(th)	0.40	0.65	1	V	
Gate-Body Leakage Current (VDS = 0 V, VGS = ±12 V)	IGSS	-	-	±100	nA	
Drain-Source On-Resistance Resistance(Note 3) (VGS = 4.5V, ID = 3A) (VGS = 2.5V, ID = 3A) (VGS = 1.8V, ID = 3A)	RDS(on)	-	33 41 43	40 52 80	mΩ	
Dynamic						
Total Gate Charge	(VDS = 10V, ID = 3A, VGS = 4.5V)	Qg	-	3.3	-	nC
Gate-Source Charge		Qgs	-	0.6	-	
Gate-Drain Charge		Qgd	-	0.9	-	
Turn-On Delay Time	(VDD = 10V, RL=10 Ω, ID = 1A, VGEN = 5 V, RG = 3.1 Ω)	td(on)	-	3.6	-	ns
Rise Time		tr	-	2.4	-	
Turn-Off Delay Time		td(off)	-	10.7	-	
Fall Time		tf	-	2.4	-	
Input Capacitance	(VDS = 10 V, VGS = 0 V, f = 1 MHz)	Ciss	-	264	-	pF
Output Capacitance		Coss	-	40	-	
Reverse Transfer Capacitance		Crss	-	35	-	
Diode Forward Voltage (IS = 1A, VGS = 0V)	VSD	-	-	1.5	V	

3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

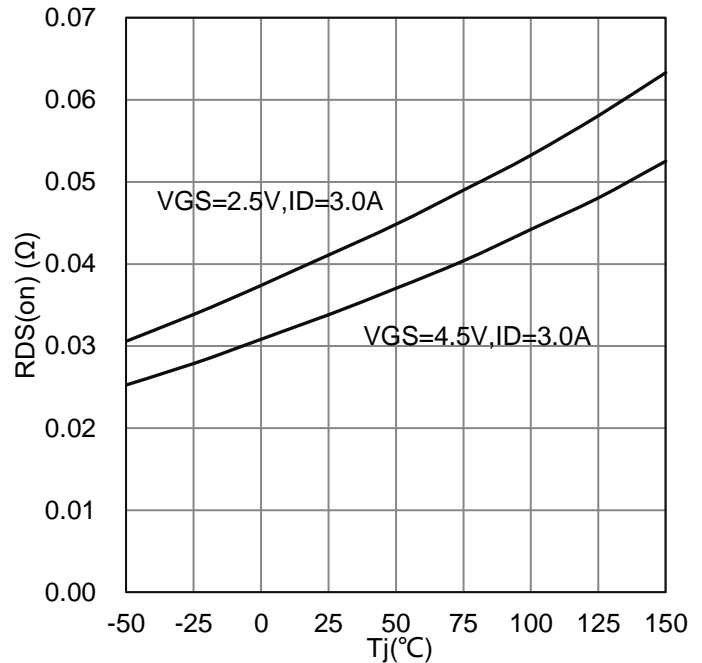
7. ELECTRICAL CHARACTERISTICS CURVES



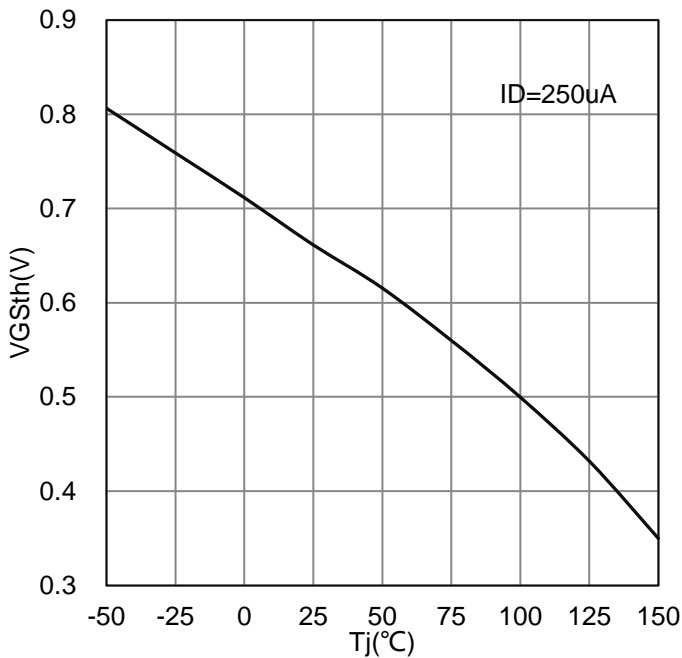
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



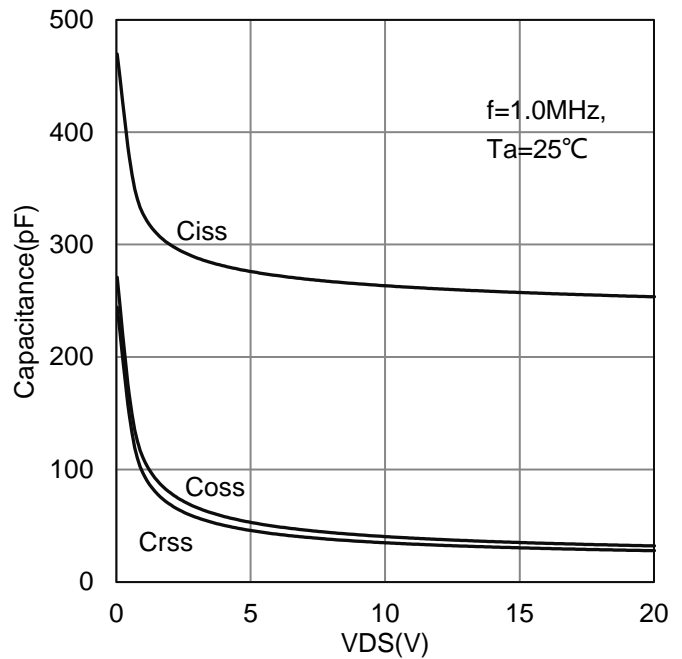
RDS(on) vs. VGS



RDS(on) vs. Tj

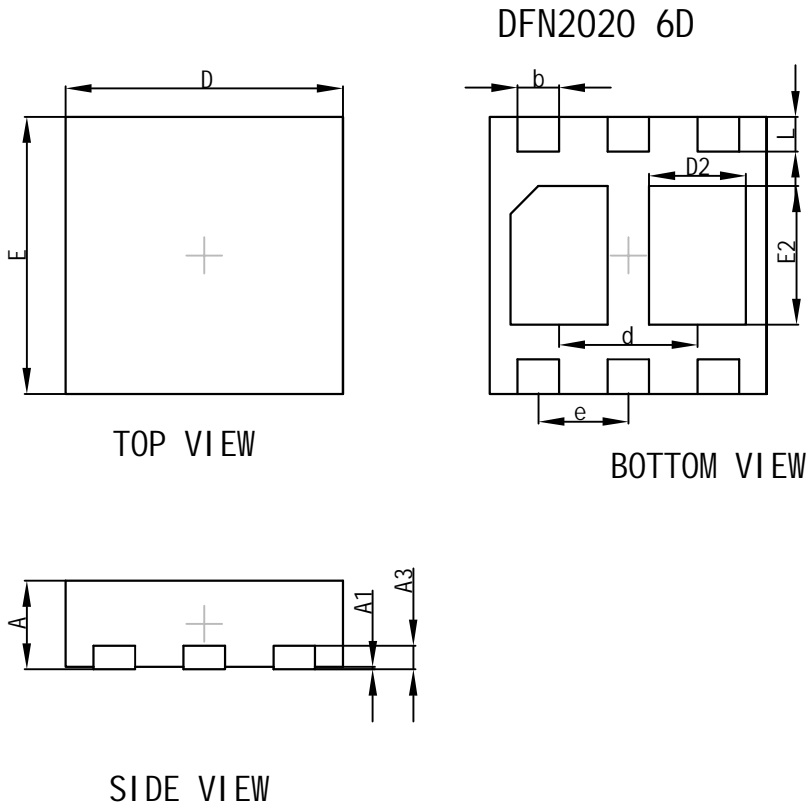


VGSth vs. Tj



Capacitance

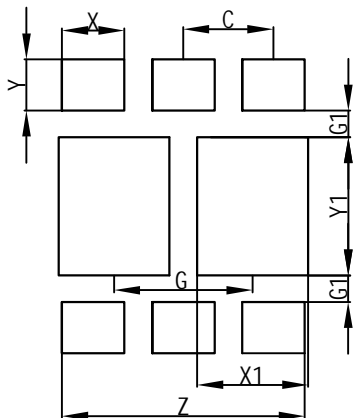
8. OUTLINE AND DIMENSIONS (Unit:mm)



DFN2020 6D			
Dim	Min	Typ	Max
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	-	0.65	-
L	0.20	0.25	0.30
b	0.25	0.30	0.35
d	-	1.00	-
A	0.60	0.65	0.70
A1	0	0.02	0.05
A3	-	0.152	-
E2	0.95	1.00	1.05
D2	0.65	0.70	0.75
All Dimensions in mm			

9. SOLDERING FOOTPRINT

DFN2020 6D



Dimensions	(mm)
X	0.45
Y	0.37
X1	0.80
Y1	1.00
C	0.65
G	1.00
G1	0.19
Z	1.75

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