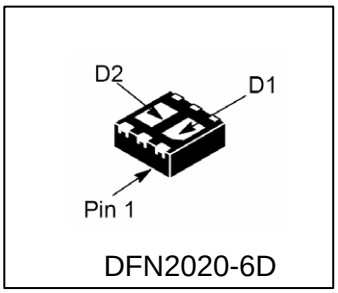
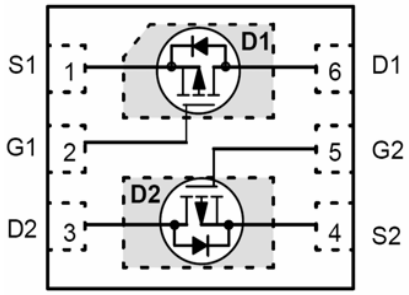
LDP2013DT1G

20V P-Channel Enhancement-Mode MOSFET



DFN2020-6D



1. FEATURES

- VDS = -20V
- RDS(ON),VGS@-4.5V,IDS@-2A≤100mΩ
- RDS(ON),VGS@-2.5V,IDS@-1.8A≤130mΩ
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- Simple drive requirement
- Small package outline
- Surface mount device

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LDP2013DT1G	DP3	4000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	-20	V
Gate–to–Source Voltage – Continuous	VGS	±12	V
Drain Current – Continuous TA = 25°C – Pulsed (Note 1)	 ID IDM	 -3 -12	A

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Power Dissipation	PD	1.4	W
Thermal Resistance, Junction–to–Ambient(Note 2)	RΘJA	85	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C

1.Repetitive Rating: Pulse width limited by the maximum junction temperature.

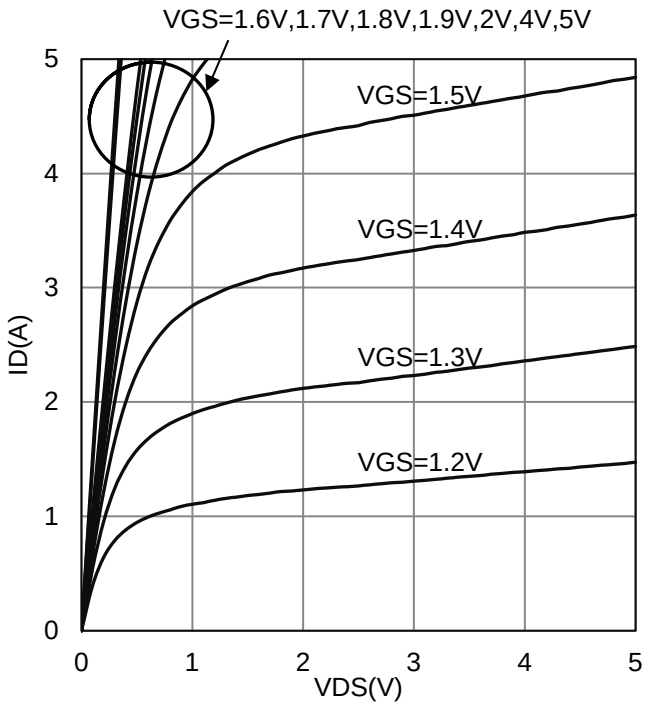
2.1-in² 2oz Cu PCB board.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

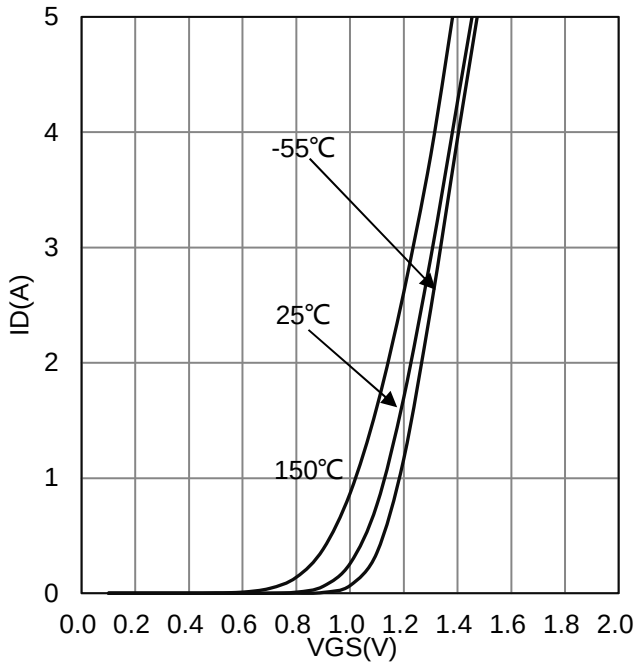
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain–Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)		VBRDSS	-20	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID =-250 μA)		VGS(th)	-0.4	-	-0.9	V
Gate-Body Leakage Current (VDS = 0 V, VGS = ± 12 V)		IGSS	-	-	± 100	nA
Zero Gate Voltage Drain Current (VDS = -16 V, VGS = 0 V)		IDSS	-	-	-1	uA
Drain-Source On-Resistance(Note 3) (VGS = -4.5 V, ID = -2 A) (VGS = -2.5 V, ID = -1.8 A)		RDS(ON)	- -	- -	100 130	mΩ
Diode Forward Voltage (IS = -1 A, VGS = 0 V)		VSD	-0.4	-0.8	-1.2	V
Dynamic						
Total Gate Charge	(VDS = -10 V, VGS = -4.5 V,ID = -2 A)	Qg	-	5.4	-	nC
Gate to Source Charge		Qgs	-	0.6	-	
Gate to Drain Charge		Qgd	-	1.6	-	
Turn-on Delay Time	(VDS= -10 V,ID = -1 A,RL = 10 Ω,VGS = -4.5 V, RG = 6.2 Ω)	td(on)	-	4.5	-	nS
Rise Time		tr	-	6.2	-	
Turn-Off Delay Time		td(off)	-	95	-	
Fall Time		tf	-	47	-	
Input Capacitance	(VDS = -10 V, VGS = 0 V, f= 1MHz)	Ciss	-	497	-	pF
Output Capacitance		Coss	-	55	-	
Reverse Transfer Capacitance		Crss	-	47	-	

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

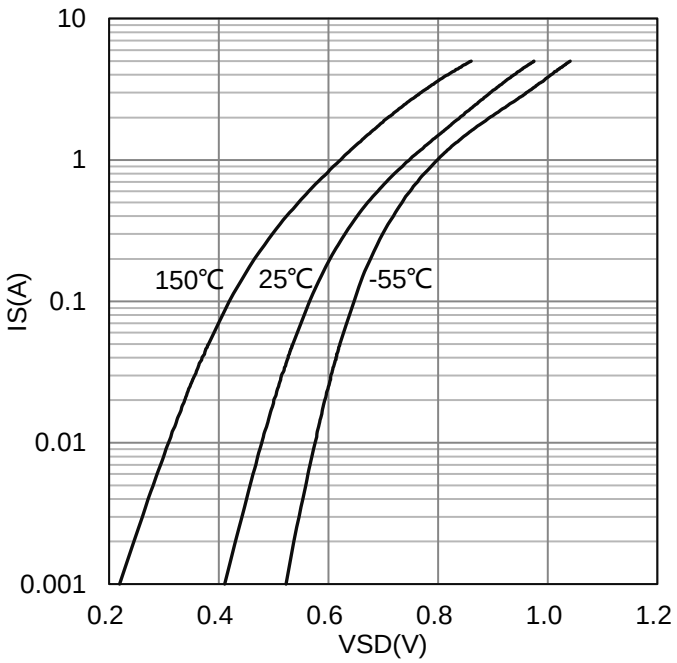
7. ELECTRICAL CHARACTERISTICS CURVES



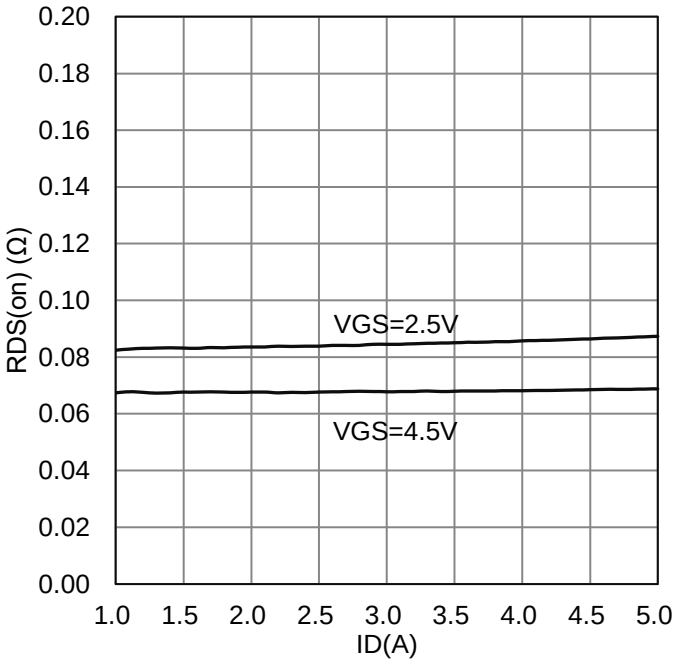
ID vs. VDS



ID vs. VGS

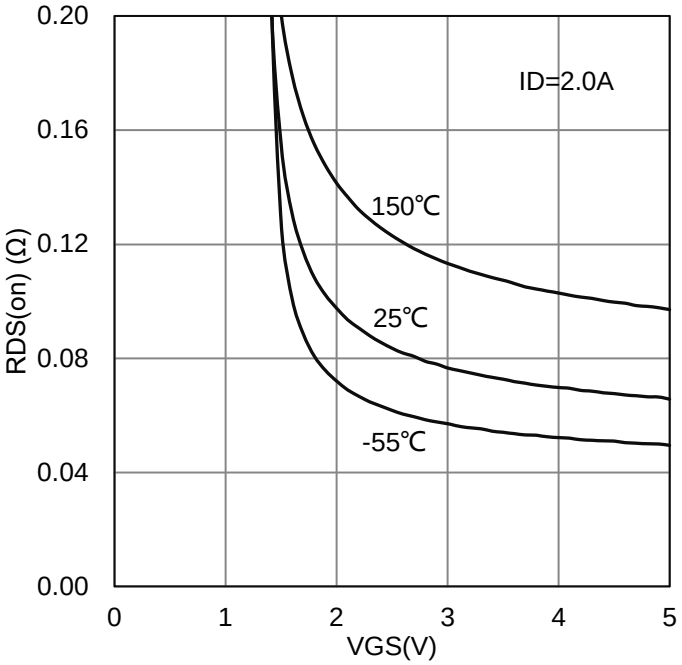


IS vs. VSD

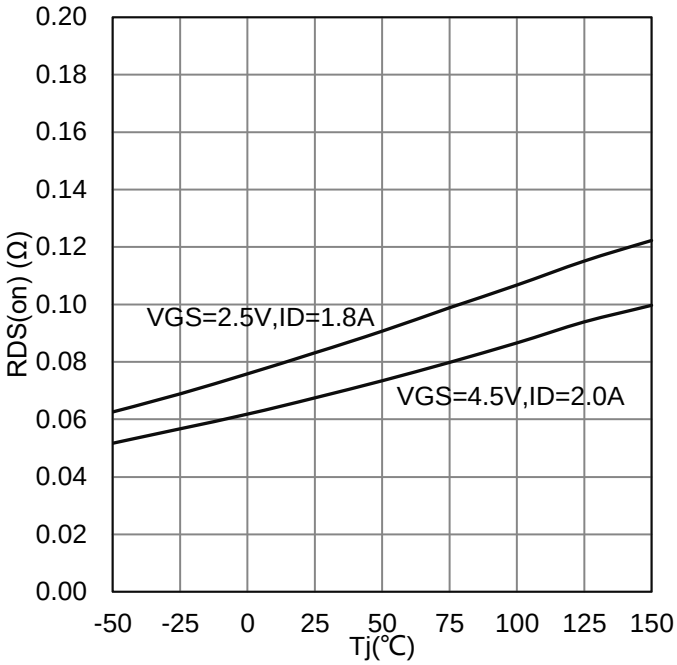


RDS(on) vs. ID

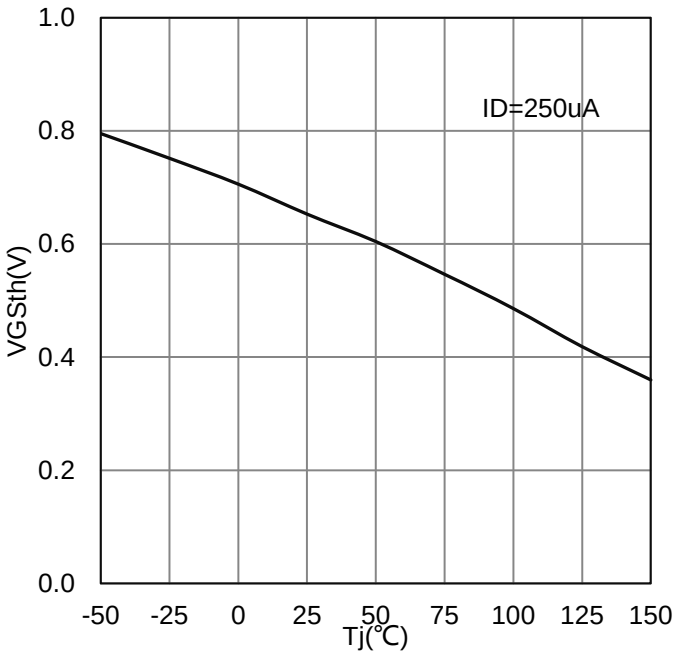
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



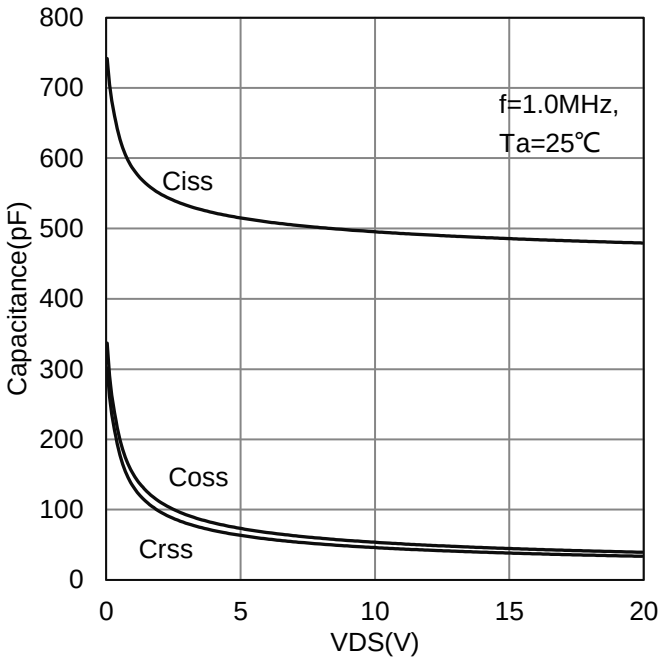
RDS(on) vs. VGS



RDS(on) vs. Tj

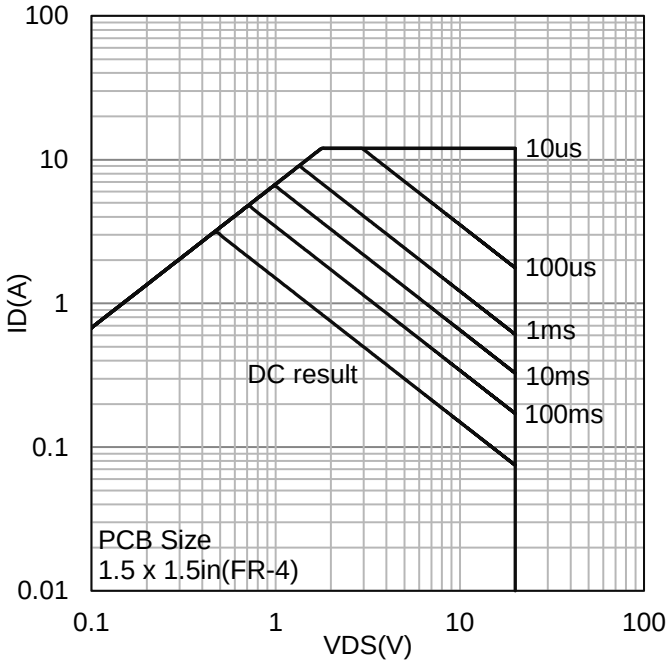


VGSth vs. Tj

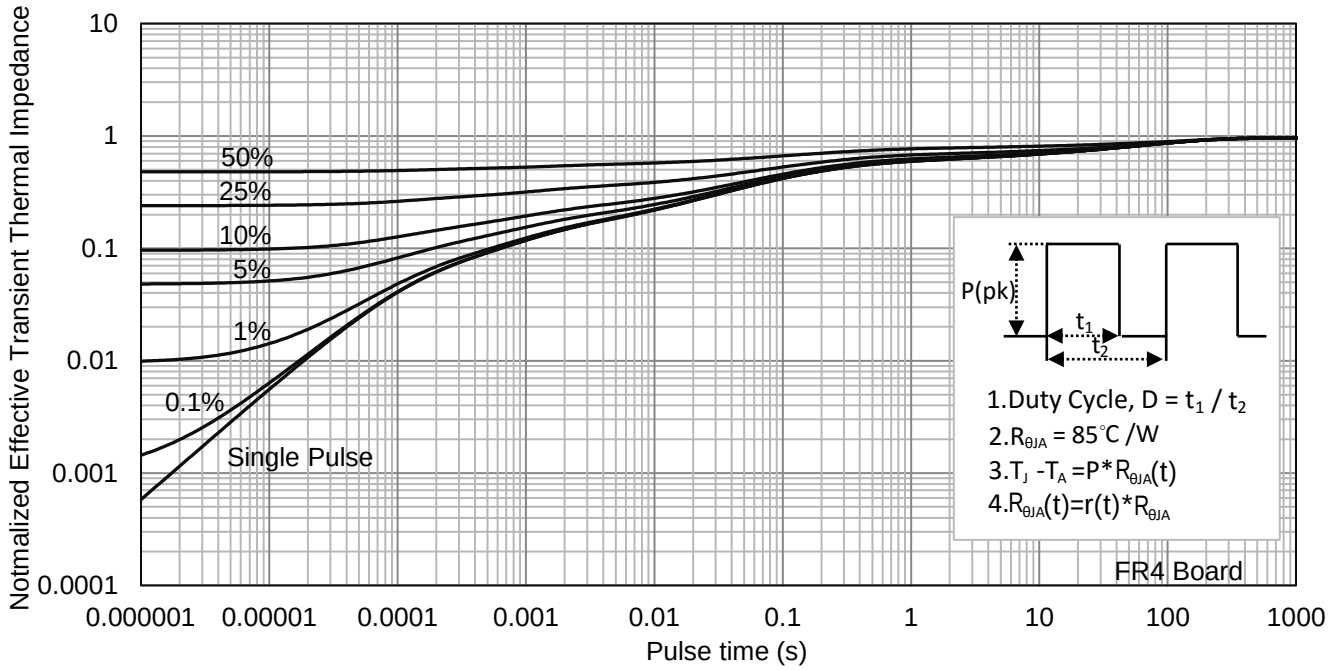


Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



Safe Operating Area



Thermal Response

8.OUTLINE AND DIMENSIONS (Unit:mm)

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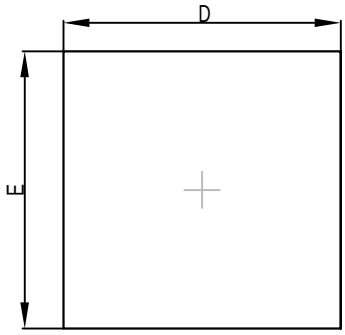
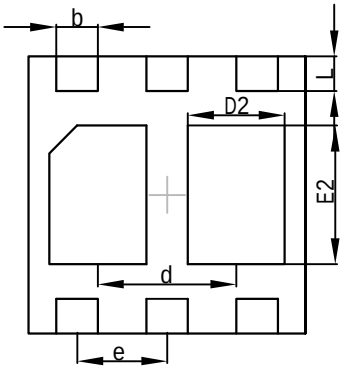
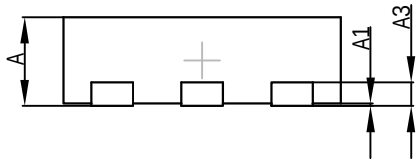


TOP VIEW



BOTTOM VIEW



SIDE VIEW

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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

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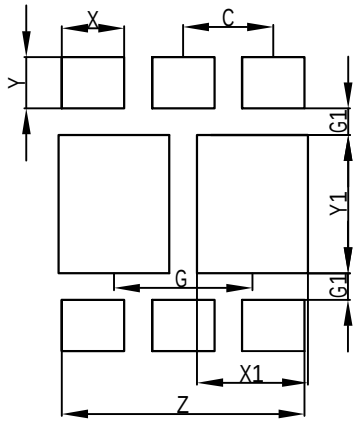

Dimensions	(mm)
X	0.45
Y	0.37
X1	0.80
Y1	1.00
C	0.65
G	1.00
G1	0.19
Z	1.75

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