

P2501D

20V P-Channel Enhancement-Mode MOSFET

1. FEATURES

- $V_{DS} = -20V$
- $R_{DS(ON)} \leq 110m\Omega, V_{GS@-4.5V}$
- $R_{DS(ON)} \leq 150m\Omega, V_{GS@-2.5V}$
- Super high density cell design for extremely low $R_{DS(ON)}$
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Load Switch
- DSC

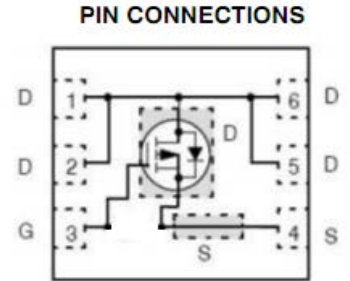
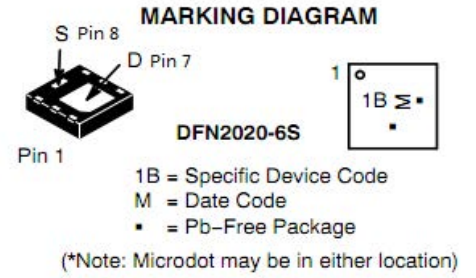
3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
P2501D	1B	4000/Tape&Reel

4. MAXIMUM RATINGS($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DSS}	-20	V
Gate-to-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	$T_A = 25^\circ C$	-4
		$T_A = 70^\circ C$	-2.4
Pulsed Drain Current	I_{DM}	-14	A
Maximum Power Dissipation	P_D	$T_A = 25^\circ C$	0.7
		$T_A = 70^\circ C$	0.45
Operating and Storage Temperature Range	T_J, T_{stg}	$-55 \sim +150$	$^\circ C$
Thermal Resistance-Junction to Ambient(Note1)	$R_{\theta JA}$	175	$^\circ C/W$

1.The device mounted on 1 in² FR4 board with 2oz copper.

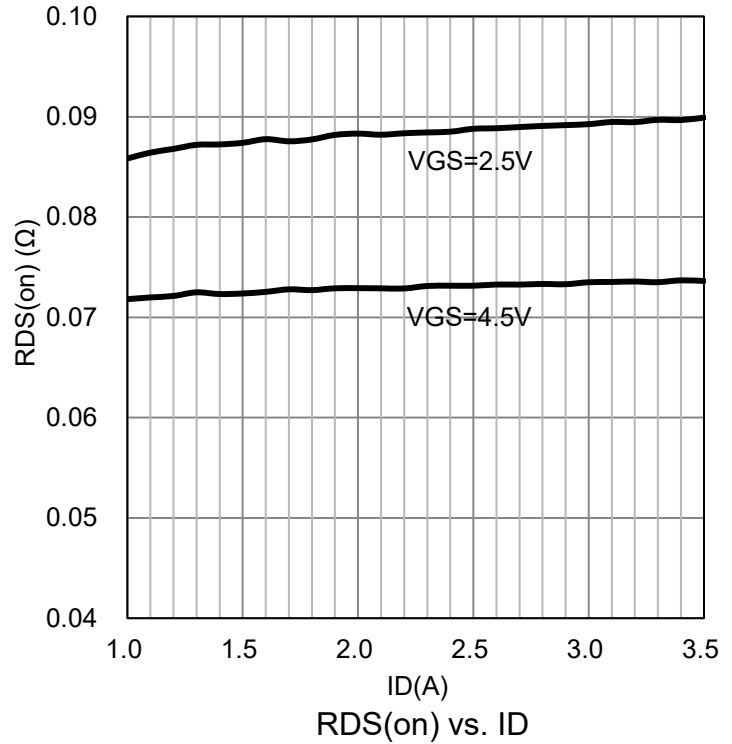
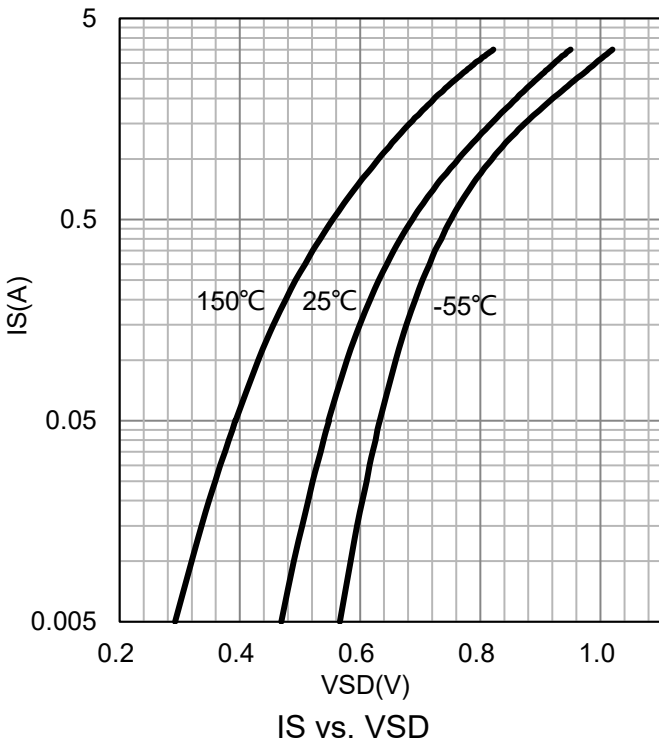
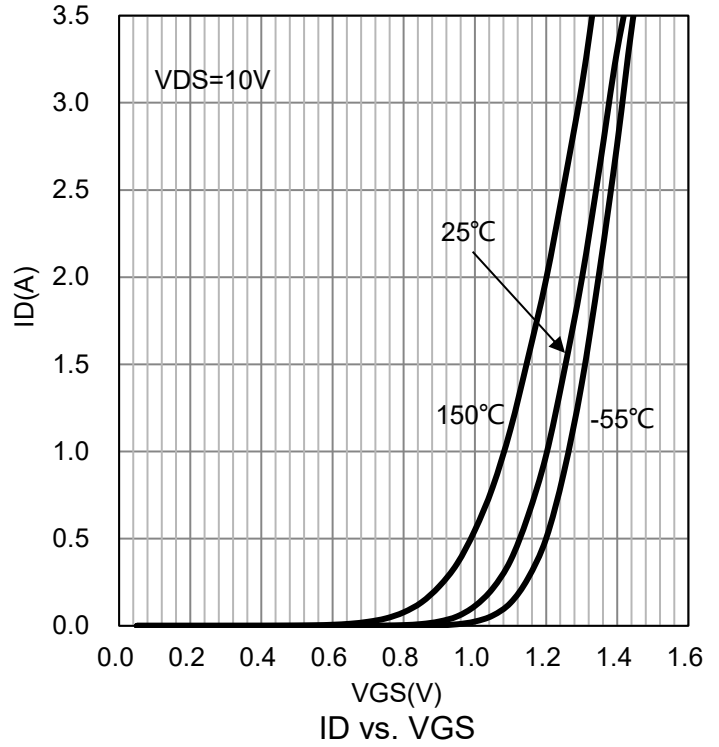
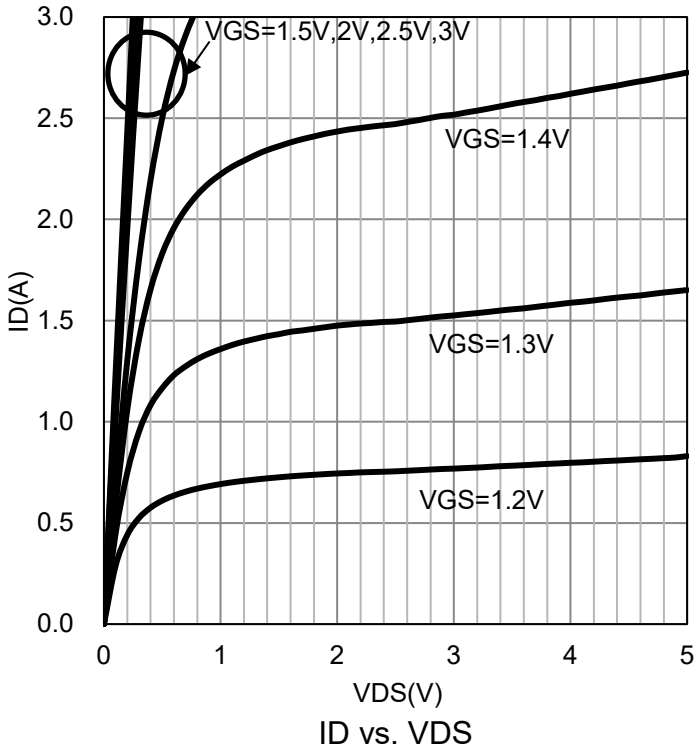


5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

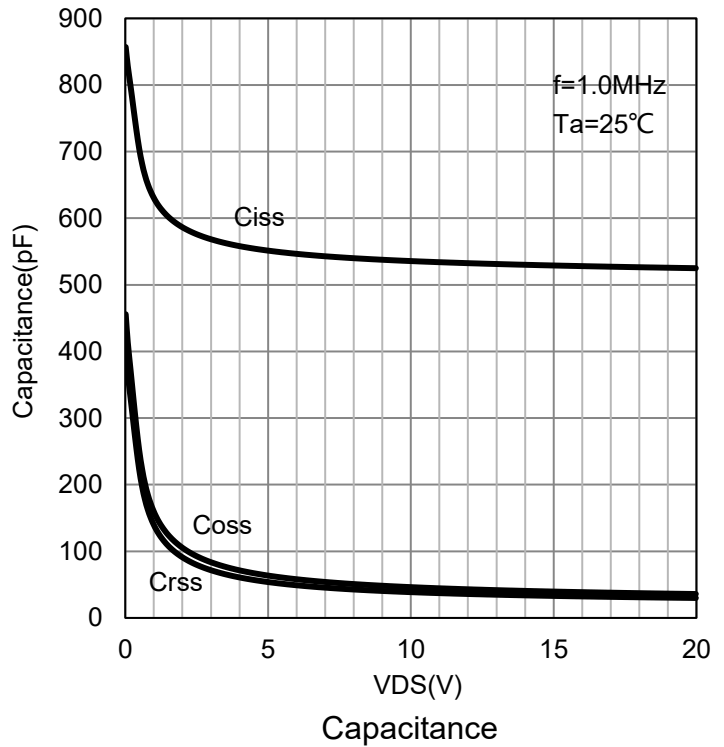
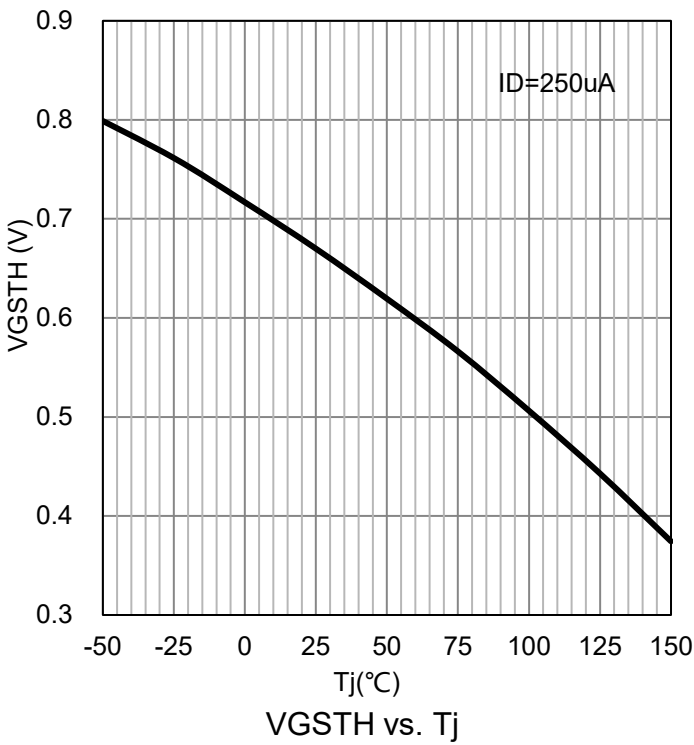
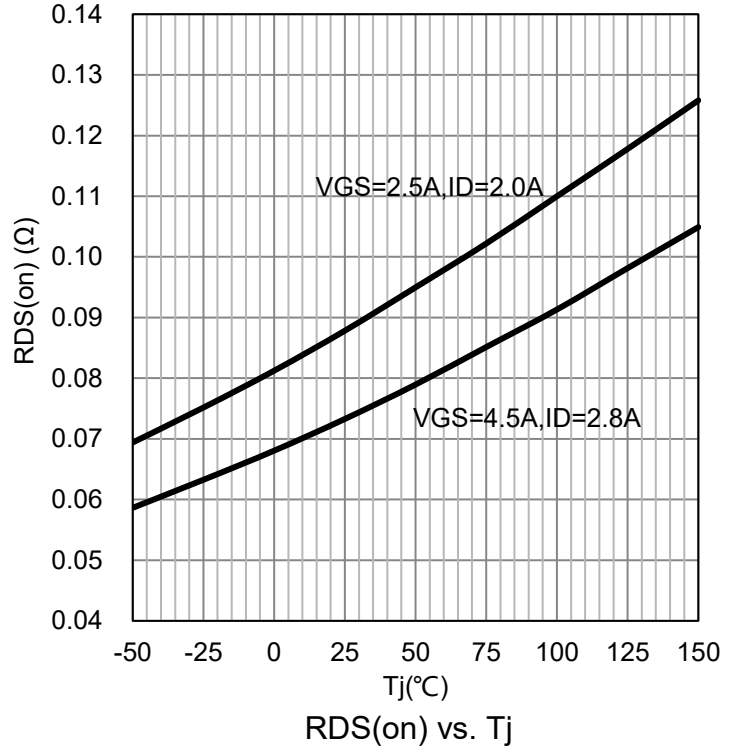
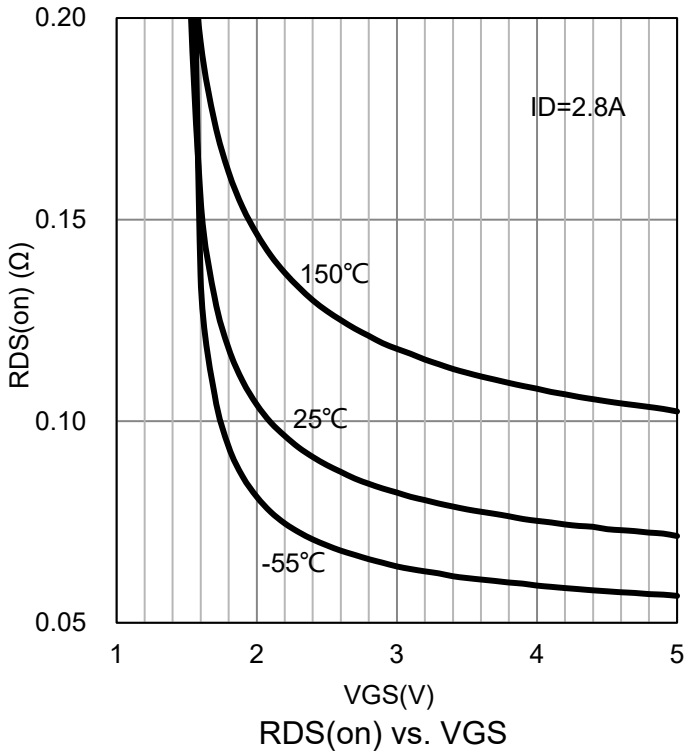
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
STATIC						
Drain–Source Breakdown Voltage (VGS = 0, ID = -250μA)	VBRDSS	-20	-	-	V	
Gate Threshold Voltage (VGS = VDS , ID = -250μA)	VGS(th)	-0.4	-0.6	-1	V	
Zero Gate Voltage Drain Current (VDS = -20V, VGS = 0V)	IDSS	-	-	-1	μA	
Gate–to–Source Leakage Current (VDS = 0 V, VGS = ±8 V)	IGSS	-	-	±100	nA	
Static Drain–Source On–State Resistance (VGS = -4.5V, ID = -2.8 A) (VGS = -2.5V, ID = -2 A)	RDS(on)	-	90 110	110 150	mΩ	
Forward Diode Voltage (VGS = 0 V, IS = -1A)	VSD	-	-0.7	-1.4	V	
DYNAMIC						
Total Gate Charge	(VGS = -4.5V, VDS = -6V, ID = -2.8A)	Qg	-	7.2	-	nC
Gate–to–Source Charge		Qgs	-	2.2	-	
Gate–to–Drain Charge		Qgd	-	1.2	-	
Gate Resistance (VDS = 0V, VGS = 0V, f=1MHz)	Rg	-	7.5	-	Ω	
Input Capacitance	(VDS = -15V, VGS = 0V, f=1MHz)	Ciss	-	480	-	pF
Output Capacitance		Coss	-	46	-	
Reverse Transfer Capacitance		Crss	-	10	-	
Turn–On Delay Time	(VDS = -6V, RL = 6Ω, VGS = -4.5V, RG = 6Ω)	td(on)	-	50	-	ns
Turn–On Rise Time		tr	-	30	-	
Turn–Off Delay Time		td(off)	-	40	-	
Turn–Off Fall Time		tf	-	11	-	

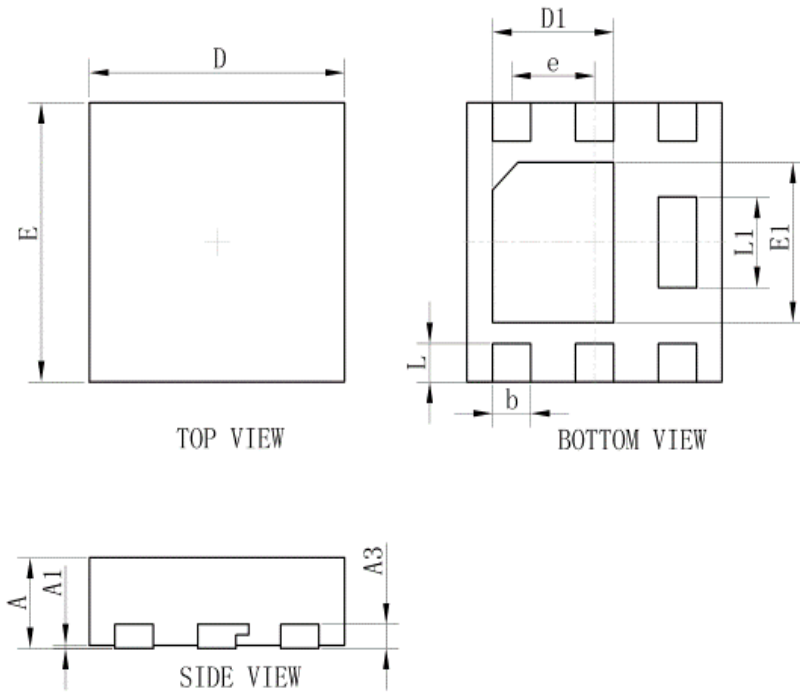
2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.



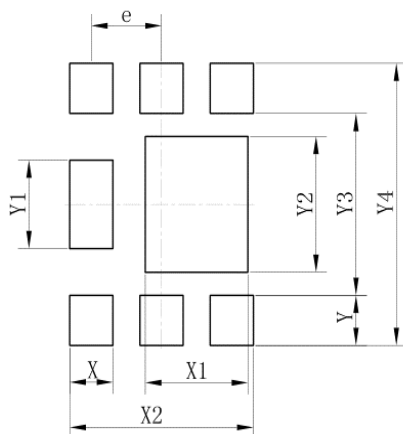
6.ELECTRICAL CHARACTERISTICS CURVES


6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



7.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	0.65
D1	0.90	0.95	1.00
E1	1.10	1.15	1.20
A3	0.152REF		
All Dimensions in mm			

8.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

