

P2405D

S-P2405D

30V P-Channel Enhancement-Mode MOSFET

1. FEATURES

- VDS = -30V
- RDS(ON), Vgs@-10V, Ids@-4.2A = 70mΩ
- RDS(ON), Vgs@-4.5V, Ids@-4.0A = 85mΩ
- RDS(ON), Vgs@-2.5V, Ids@-1.0A = 130mΩ
- 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

- Advanced trench process technology
- High density cell design for ultra low on-resistance.

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
P2405D	5D	4000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25°C)

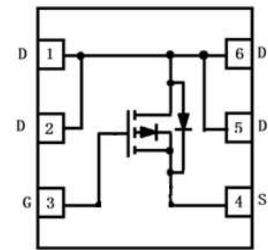
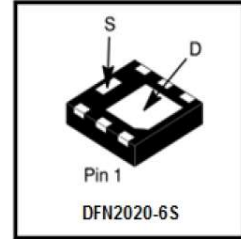
Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	-30	V
Gate–to–Source Voltage – Continuous	VGS	± 12	V
Drain Current			A
– Continuous TA = 25°C	ID	-4.2	
– Pulsed (Note 1)	IDM	-30	

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Power Dissipation	PD	1.4	W
Thermal Resistance, Junction–to–Ambient(Note 2)	RθJA	140	°C/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)
OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = -250μA)	VBRDSS	-30	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = -24 V)	IDSS	-	-	-1	μA
Gate–Body Leakage Current, Forward (VGS = 12 V)	IGSSF	-	-	100	nA
Gate–Body Leakage Current, Reverse (VGS = -12 V)	IGSSR	-	-	-100	nA

ON CHARACTERISTICS (Note 3)

Forward Transconductance (VDS = -5V, ID = -5A)	gfs	7.0	11	-	S
Gate Threshold Voltage (VDS = VGS, ID = -250μA)	VGS(th)	-0.6	-	-1.3	V
Static Drain–Source On–State Resistance (VGS = -10 V, ID = -4.2 A) (VGS = -4.5 V, ID = -4 A) (VGS = -2.5 V, ID = -1 A)	RDS(on)	-	53 64 86	70 85 130	mΩ

DYNAMIC CHARACTERISTICS

Input Capacitance (VGS = 0 V, f = 1.0MHz, VDS = -15 V)	Ciss	-	826.18	-	pF
Output Capacitance (VGS = 0 V, f = 1.0MHz, VDS = -15 V)	Coss	-	90.74	-	pF
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz, VDS = -15 V)	Crss	-	53.18	-	pF

SWITCHING CHARACTERISTICS

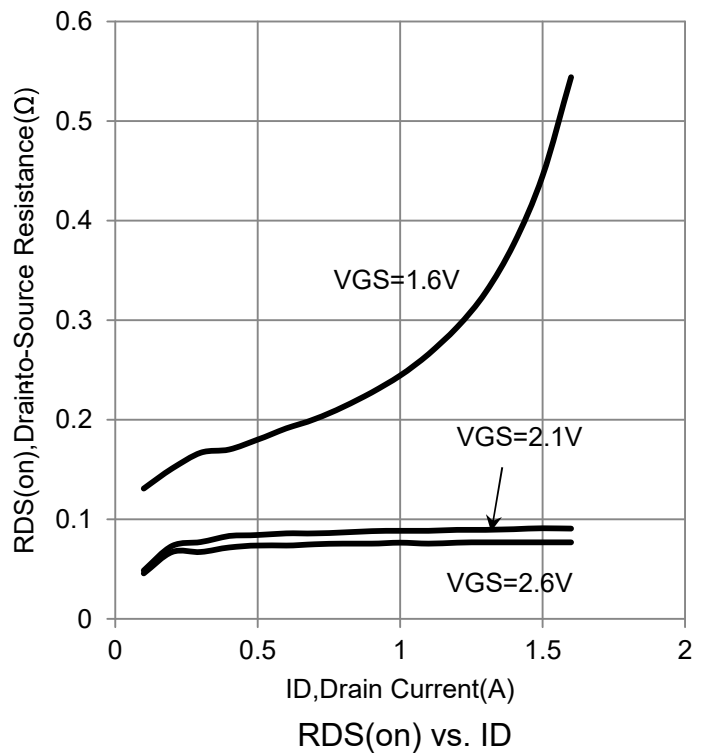
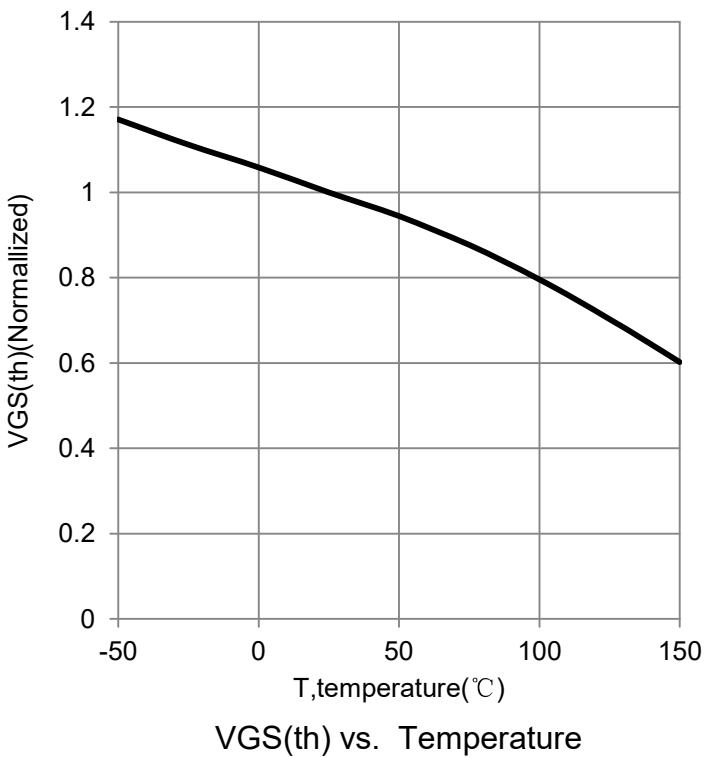
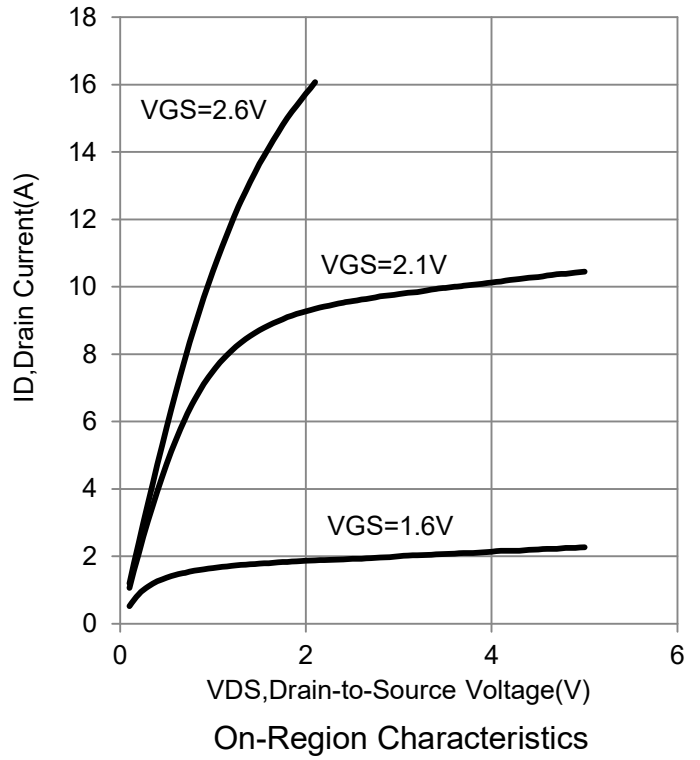
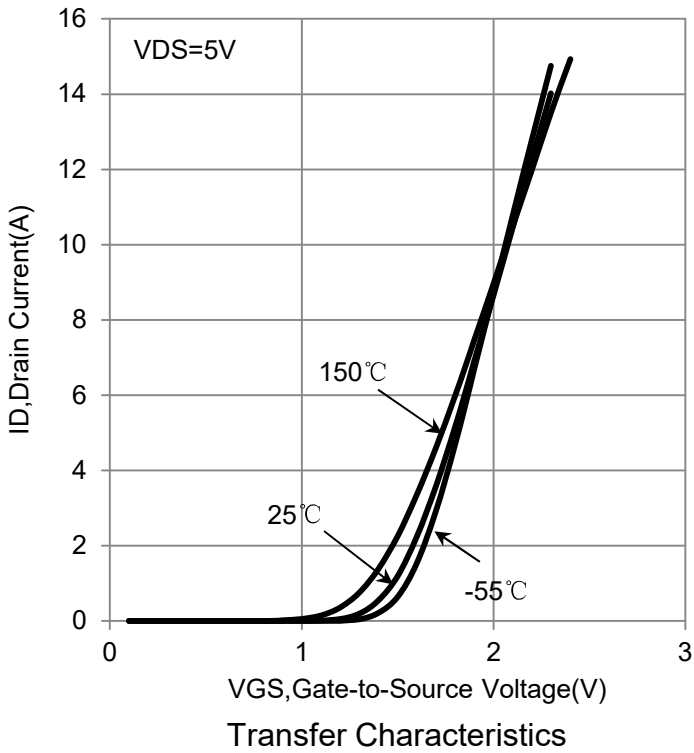
Turn-On Delay Time	(VDD = -15V, RL = 3.6Ω ID = -1A, VGEN = -10V RG = 6Ω)	td(on)	-	11.36	-	ns
Rise Time		tr	-	2.32	-	
Turn-Off Delay Time		td(off)	-	34.88	-	
Fall Time		tf	-	3.52	-	

SOURCE–DRAIN DIODE CHARACTERISTICS

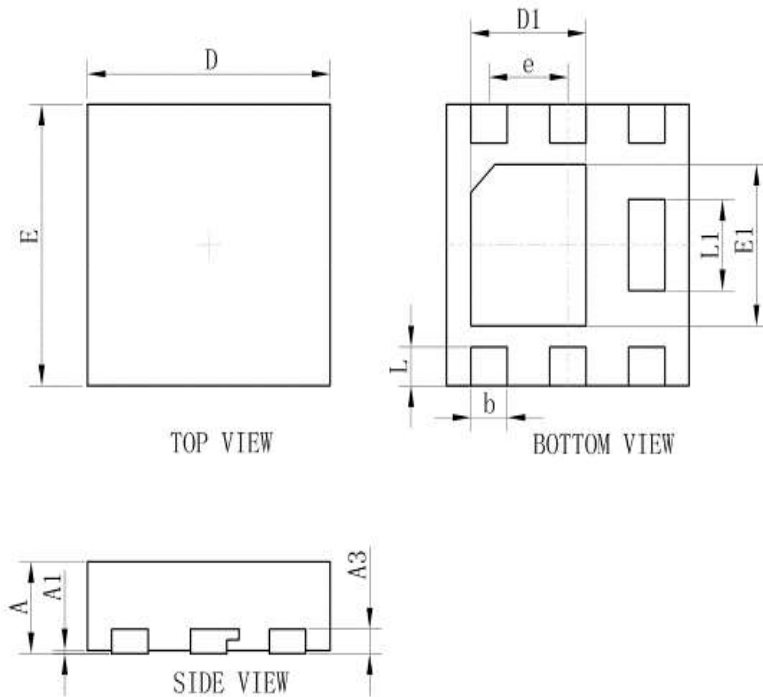
Forward Voltage (VGS = 0 V, ISD = -1 A)	VSD	-	-	-1	V
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 3. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.


7. ELECTRICAL CHARACTERISTICS CURVES

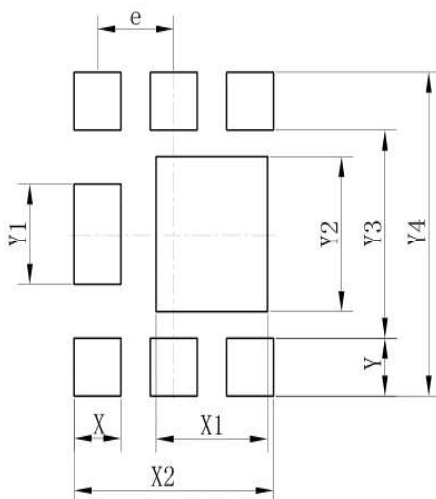


8. OUTLINE AND DIMENSIONS



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	0.65
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

