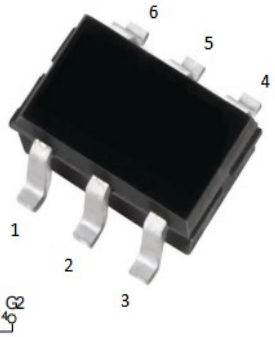
XN8205AN

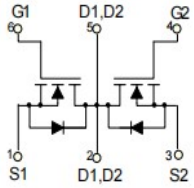
Dual N-Channel MOSFET

1. Features

SOT-23-6L



- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- High saturation current capability
- Low Gate Resistance



2. Mechanical Data

- Case:Molded Plastic,SOT-23-6L.
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking:8205A
- Mounting Position : Any.

3. Maximum Ratings

Electrical Characteristics Rating at 25℃ ambient temperature unless otherwise specified.

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current[1,5]	I_D	5	A
Pulsed Drain Current[2]	I_{DM}	18	A
Power Dissipation[4,5]	P_D	650	mW
Thermal Resistance from Junction to Ambient[5]	$R_{\theta JA}$	190	℃/W
Junction Temperature	T_j	-55～+150	℃
Storage Temperature	T_{stg}	-55～+150	℃

4. Electrical Characteristics(T_A=25℃ unless otherwise noted)

Characteristics	Symbol	Condition	Min	TYP	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V,I_D =250μA	20	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =18V,V_{GS} = 0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.4	0.7	1	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =4.5V, I_D =3A	15	18	26	mΩ
		V_{GS} =2.5V, I_D =3A	18	22	35	
Forward Transconductance[3]	g_{FS}	V_{DS} = 5V, I_D = 4.5A	-	10.5	-	S
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHz	-	354	-	pF
Output Capacitance	C_{oss}		-	66	-	
Reverse Transfer Capacitance	C_{rss}		-	57	-	
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V,f=1MHz	-	1.5	-	Ω
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,I_D=5A	-	10	-	nC
Gate-source Charge	Q_{gs}		-	2.8	-	
Gate-drain Charge	Q_{gd}		-	3.0	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V,V_{GS}=4.5V, R_L=2Ω,R_G=3Ω	-	15	-	ns
Turn-on Rise Time	t_r		-	7	-	
Turn-off delay time	$t_{d(off)}$		-	35	-	
Turn-off Fall Time	t_f		-	18	-	
Diode Forward voltage[3]	V_{SD}	V_{GS} =0V, I_S=1.25A	-	-	1.2	V

Notes：

1.The maximum current rating is limited by package.

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

4.The power dissipation PD is limited by TJ(MAX) = 150°C.

5.Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C.

5. Rating And Characteristic Curves

Fig.1 Output Characteristics

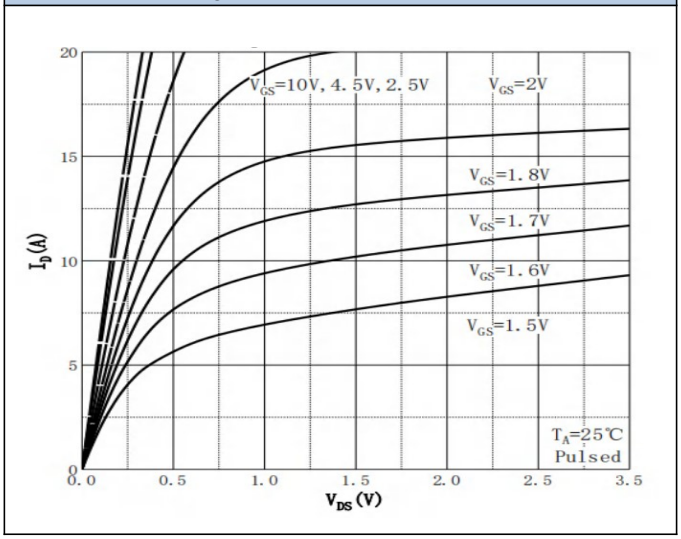


Fig.2 Transfer Characteristics

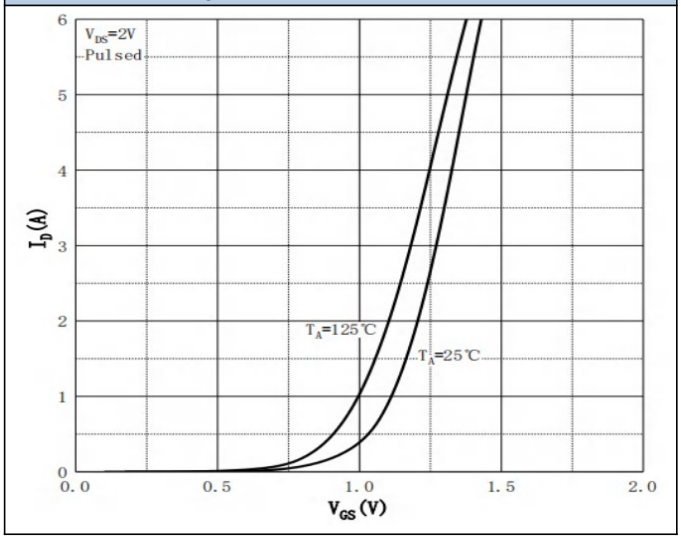


Fig.3 $R_{DS(ON)}$ - I_D

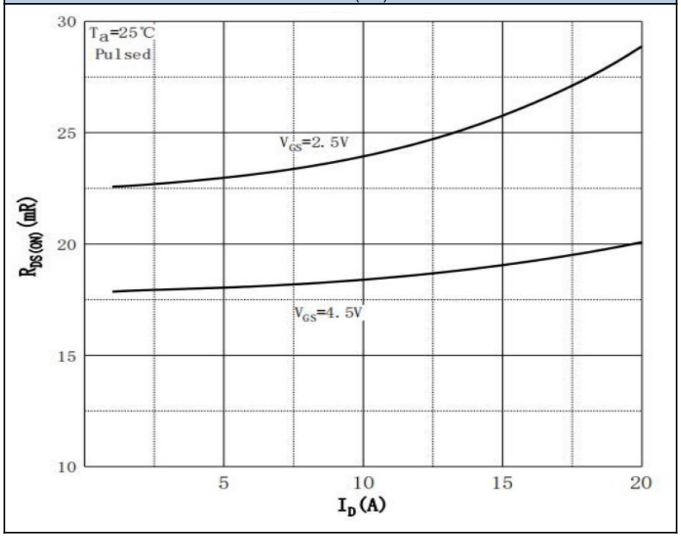


Fig.4 $R_{DS(ON)}$ - V_{GS}

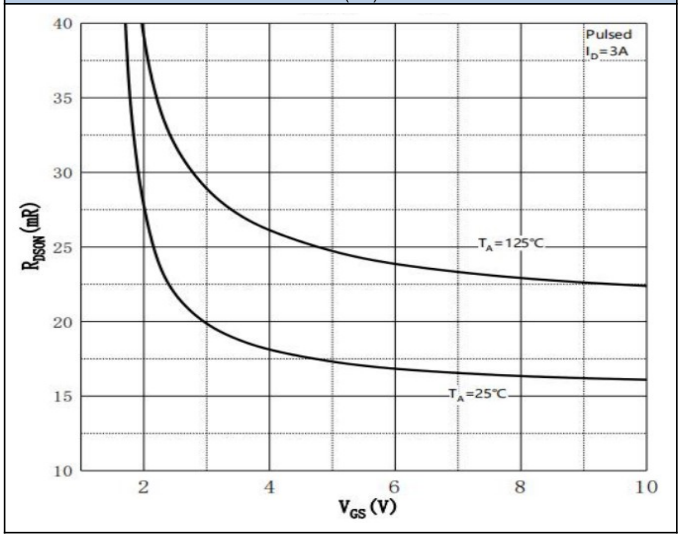


Fig.5 I_S - V_{SD}

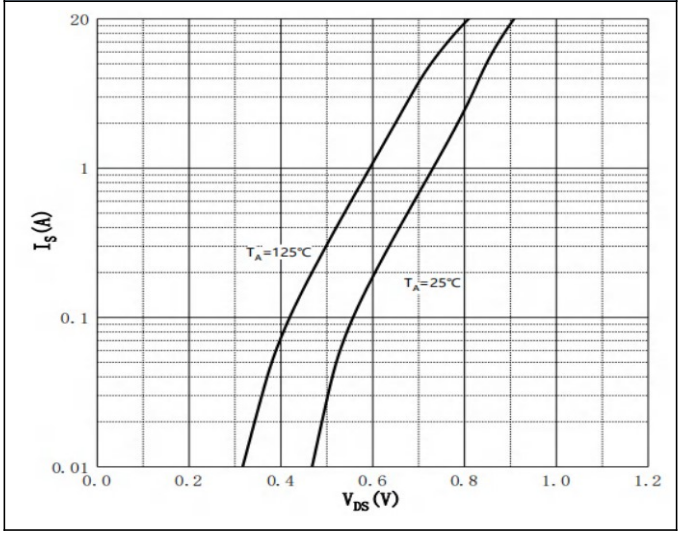
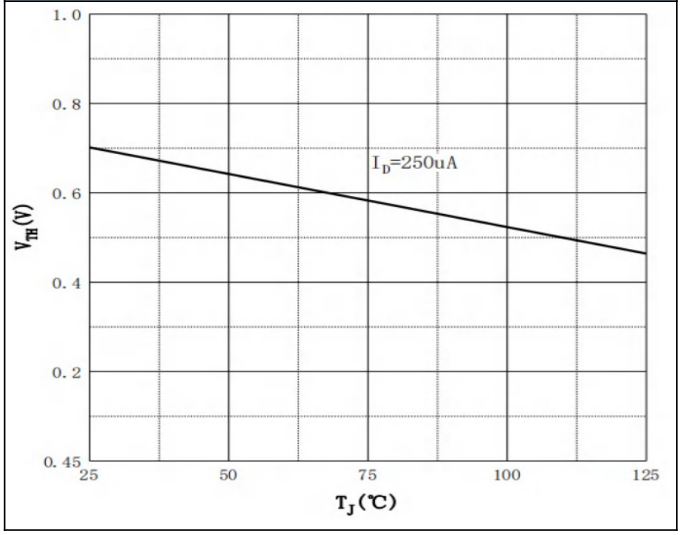
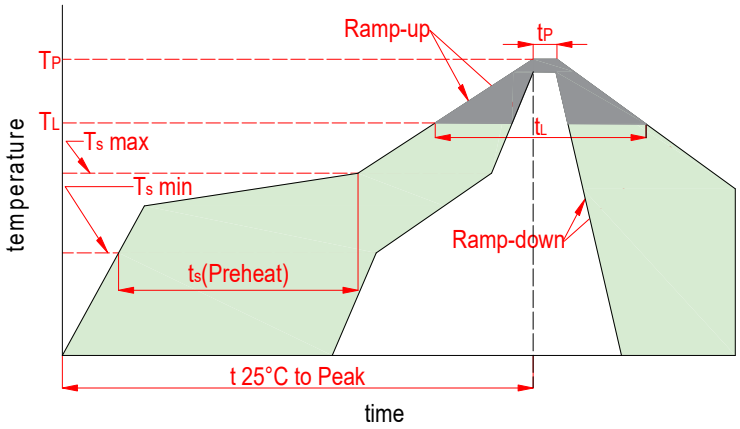


Fig.6 Threshold Voltage

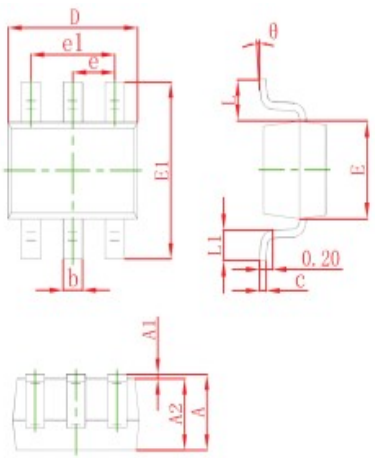


6. Soldering Parameters



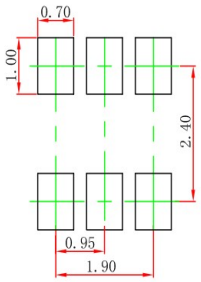
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s(min))	150℃
	Temp. max(T_s(min))	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_S(max) to T_L-Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		$260^{+0/-5}$℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_p)		8 minutes max
Do not exceed		260℃

7. Dimensions

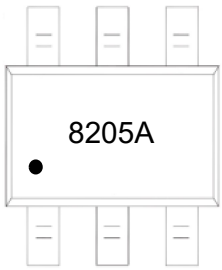


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.041	0.049	1.050	1.250
A1	0.000	0.006	0.000	0.150
A2	0.041	0.049	1.050	1.250
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.111	0.119	2.820	3.020
E	0.059	0.067	1.500	1.700
E1	0.104	0.116	2.650	2.950
e1	0.071	0.079	1.800	2.000
L1	0.012	0.024	0.300	0.600

Mounting PAD Layout



8. Part Marking System



9. Package Information

Package	Part Number	Tape Width(mm)	Quantity(pcs)
SOT-23-6L	XN8205AN	8	3000

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