

Datasheet

# FS8205

Dual N-Channel Enhancement Mode Power MOSFET

FORTUNE,  
Properties  
For Reference Only

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**1. Features**

1.1 Low on-resistance

1.1.1  $R_{DS(ON)} = 27\text{ m}\Omega$  MAX. ( $V_{GS} = 4.5\text{V}$ ,  $I_D = 4\text{A}$ )

1.1.2  $R_{DS(ON)} = 36\text{ m}\Omega$  MAX. ( $V_{GS} = 2.5\text{V}$ ,  $I_D = 3\text{A}$ )

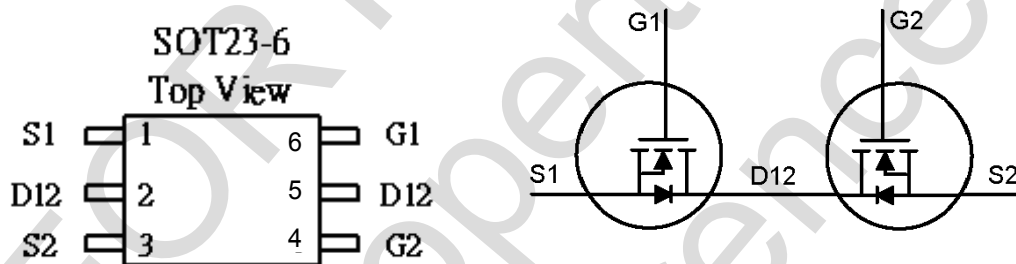
**2. Applications**

- Li-ion battery management applications

**3. Ordering Information**

Product Number	Description	Package Type	Quantity/Reel
FS8205	SOT23-6 package version	SOT23-6	3,000

**4. Pin Assignment**



**5. Absolute Maximum Ratings**

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	20	V
VGS	Gate-Source Voltage	±12	V
ID @TA = 25°C	Continuous Drain Current <sup>3</sup>	6	A
ID @TA = 70°C	Continuous Drain Current <sup>3</sup>	5	A
IDM	Pulsed Drain Current <sup>1</sup>	25	A
PD @TA = 25°C	Total Power Dissipation	1	W
	Linear Derating Factor	0.008	W/°C
TSTG	Storage Temperature Range	-55 to 150	°C
TJ	Operating Junction Temperature Range	-55 to 150	°C

**6. Thermal Data**

Symbol	Parameter	Value	Unit
Rthj-a	Thermal Resistance Junction-ambient <sup>3</sup>	Max. 125	°C/W

**7. Electrical Characteristics**

Electrical Characteristics @T<sub>j</sub> = 25°C ( unless otherwise specified )

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
<b>Static Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250uA	20	-	-	V
Δ BV <sub>DSS</sub> /Δ T <sub>j</sub>	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I <sub>b</sub> =1mA	-	0.1	-	V/°C
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 4A	-	23	27	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 3A	-	28	36	mΩ
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250uA	0.5	-	1.0	V
I <sub>DSS</sub>	Drain-Source Leakage Current (T <sub>j</sub> = 25°C)	V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V	-	-	1	uA
		V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V	-	-	25	uA
I <sub>GSS</sub>	Gate-Source Leakage	V <sub>GS</sub> = ±10V	-	-	±10	uA

**8. Source-Drain Diode**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I <sub>S</sub>	Continuous Source Current (Body Diode)	V <sub>D</sub> = V <sub>G</sub> = 0V, V <sub>S</sub> = 1.2V	-	-	0.83	A
V <sub>SD</sub>	Forward On Voltage <sup>2</sup>	T <sub>j</sub> = 25°C, I <sub>S</sub> = 1.25A, V <sub>GS</sub> = 0V	-	-	1.2	V

**Notes :**

1. Pulse width limited by Max. junction temperature.
2. Pulse width ≤ 300us, duty cycle ≤ 2%.
3. Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board : 208°C/W when mounted on Min. copper pad.

9. Typical Characteristics

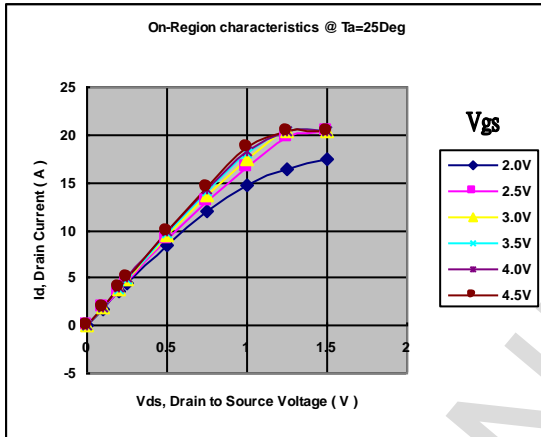


Fig 1. Typical Output Characteristics

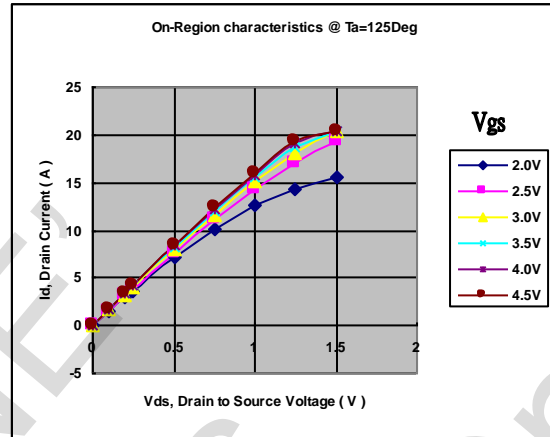


Fig 2. Typical Output Characteristics

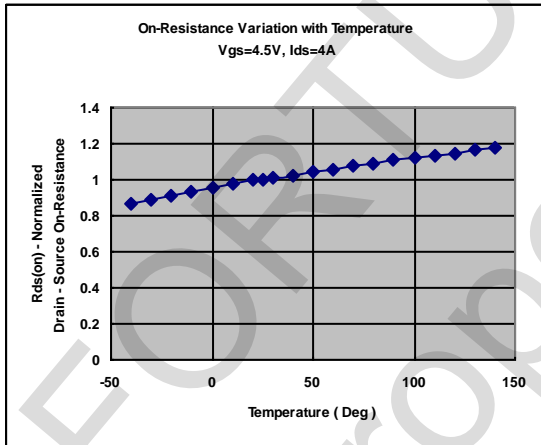


Fig 3. Normalized On-Resistance

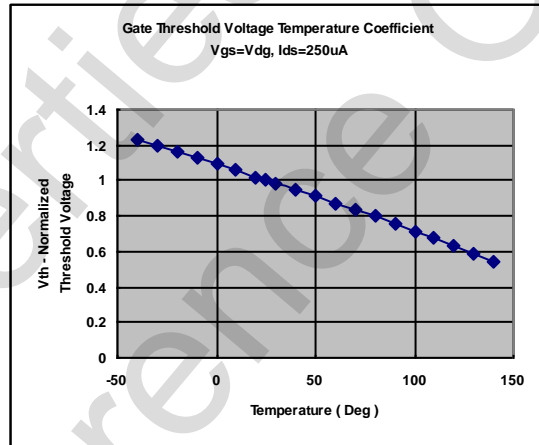


Fig 4. Gate Threshold Variation with Temperature

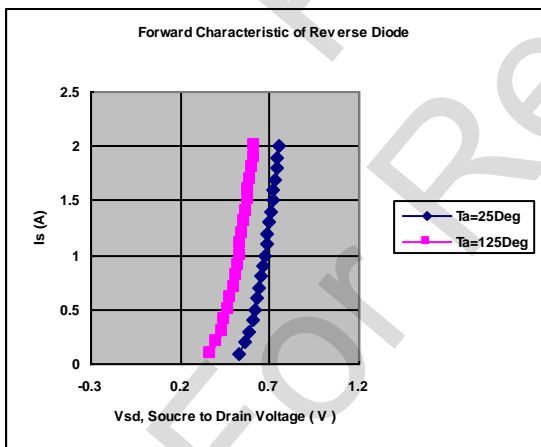
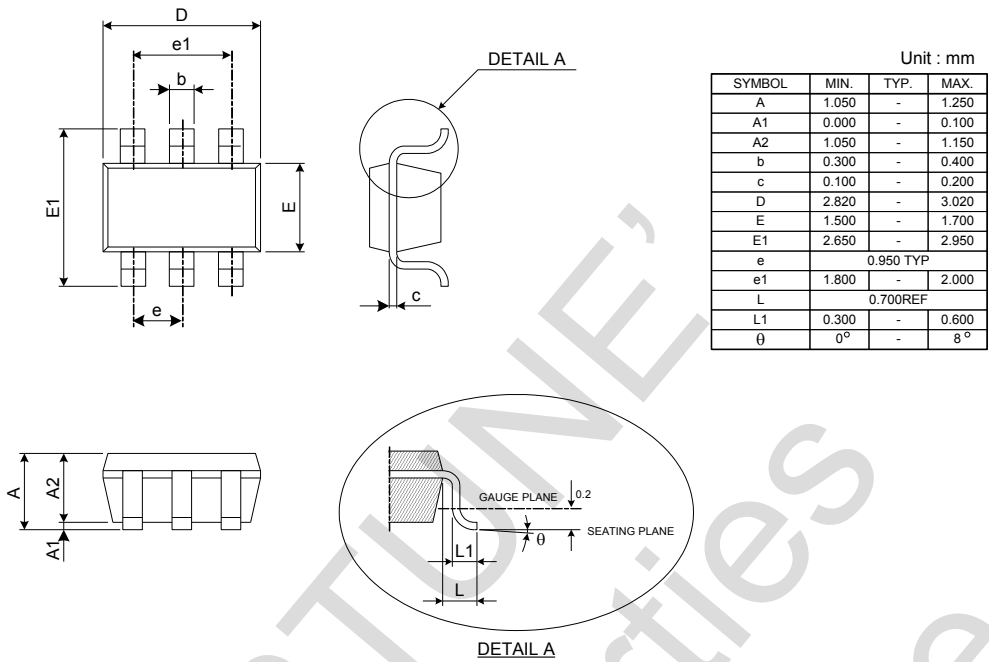


Fig 5. Forward Characteristic of Reverse Diode

10. Package Information



11. Revision History

Version	Date	Page	Description
1.0	2009/08/17	-	Version 1.0 released
1.1	2010/01/26	3	Rds25 TYP 28mohm MAX 36mohm Rds45 TYP 22mohm MAX 26mohm
1.2	2010/06/02	3	Rds45 TYP 23mohm MAX 27mohm
1.3	2010/06/10	4	IDSS Test Conditions : VDS=16V VGS=0V
1.4	2010/08/31	3	Revise Pin Assignment