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Datasheet

# FS8205A

Dual N-Channel Enhancement Mode Power MOSFET

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**1. Features**

1.1 Low on-resistance

1.1.1  $R_{DS(ON)} = 25\text{ m}\Omega$  MAX. ( $V_{GS} = 4.5\text{V}$ ,  $I_D = 4\text{A}$ )

1.1.2  $R_{DS(ON)} = 35\text{ m}\Omega$  MAX. ( $V_{GS} = 2.5\text{V}$ ,  $I_D = 3\text{A}$ )

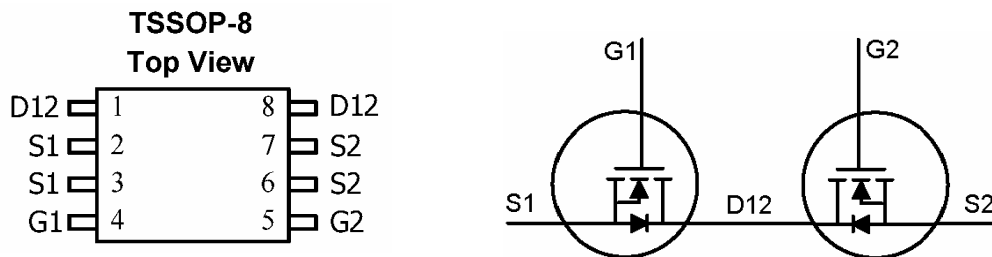
**2. Applications**

- Li-ion battery management applications

**3. Ordering Information**

Product Number	Description	Package Type	Quantity/Reel
FS8205A	TSSOP8 package version	TSSOP-8	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 Current3	6	A
ID @TA = 70°C	Continuous Drain Current3	5	A
IDM	Pulsed Drain Current1	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-ambient3	Max. 125	°C/W

## 7. Electrical Characteristics

Electrical Characteristics @ $T_j = 25^{\circ}\text{C}$  ( unless otherwise specified )

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
$\Delta BV_{DSS}/\Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to $25^{\circ}\text{C}$ , $I_D = 1\text{mA}$	-	0.1	-	$V/^{\circ}\text{C}$
$R_{DS(ON)}$	Static Drain-Source On-Resistance <sup>2</sup>	$V_{GS} = 4.5V, I_D = 4A$	-	21	25	$m\Omega$
		$V_{GS} = 2.5V, I_D = 3A$	-	27	35	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	-	1.0	V
$I_{DSS}$	Drain-Source Leakage Current ( $T_j = 25^{\circ}\text{C}$ )	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	$\mu A$
	Drain-Source Leakage Current ( $T_j = 70^{\circ}\text{C}$ )	$V_{DS} = 20V, V_{GS} = 0V$	-	-	25	$\mu A$
$I_{GSS}$	Gate-Source Leakage	$V_{GS} = \pm 10V$	-	-	$\pm 10$	$\mu A$

## 8. Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$I_S$	Continuous Source Current (Body Diode)	$V_D = V_G = 0V, V_S = 1.2V$	-	-	0.83	A
$V_{SD}$	Forward On Voltage <sup>2</sup>	$T_j = 25^{\circ}\text{C}, I_S = 1.25A, V_{GS} = 0V$	-	-	1.2	V

### Notes :

1. Pulse width limited by Max. junction temperature.
2. Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
3. Surface mounted on  $1\text{ in}^2$  copper pad of FR4 board :  $208^{\circ}\text{C}/W$  when mounted on Min. copper pad.

### 9. Typical Characteristics

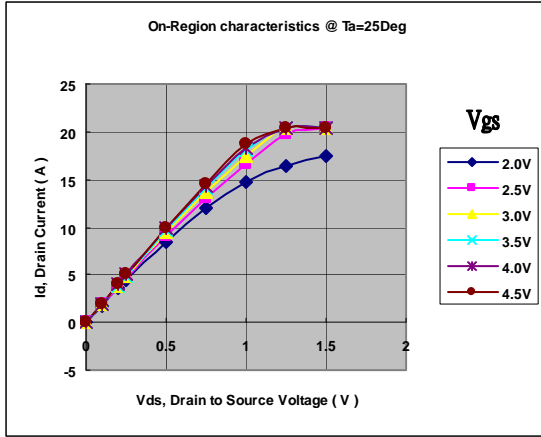


Fig 1. Typical Output Characteristics

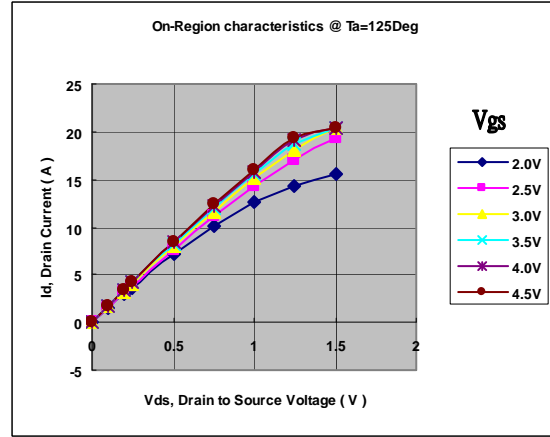


Fig 2. Typical Output Characteristics

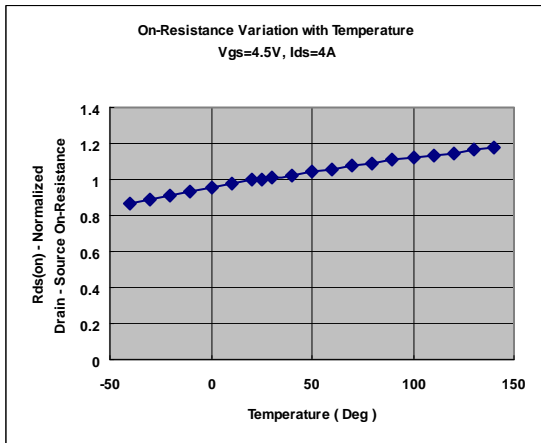


Fig 3. Normalized On-Resistance

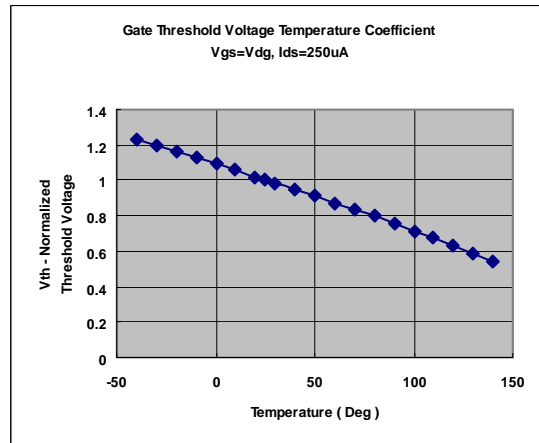


Fig 4. Gate Threshold Variation with Temperature

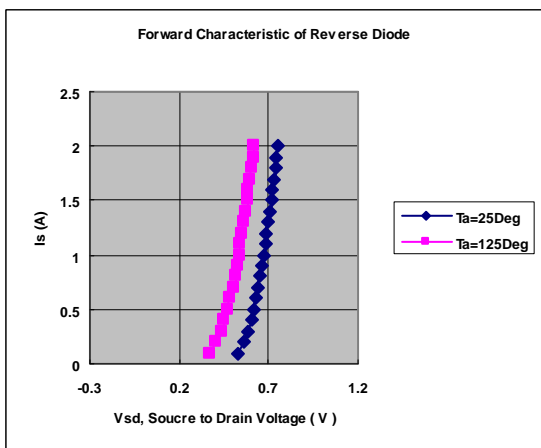
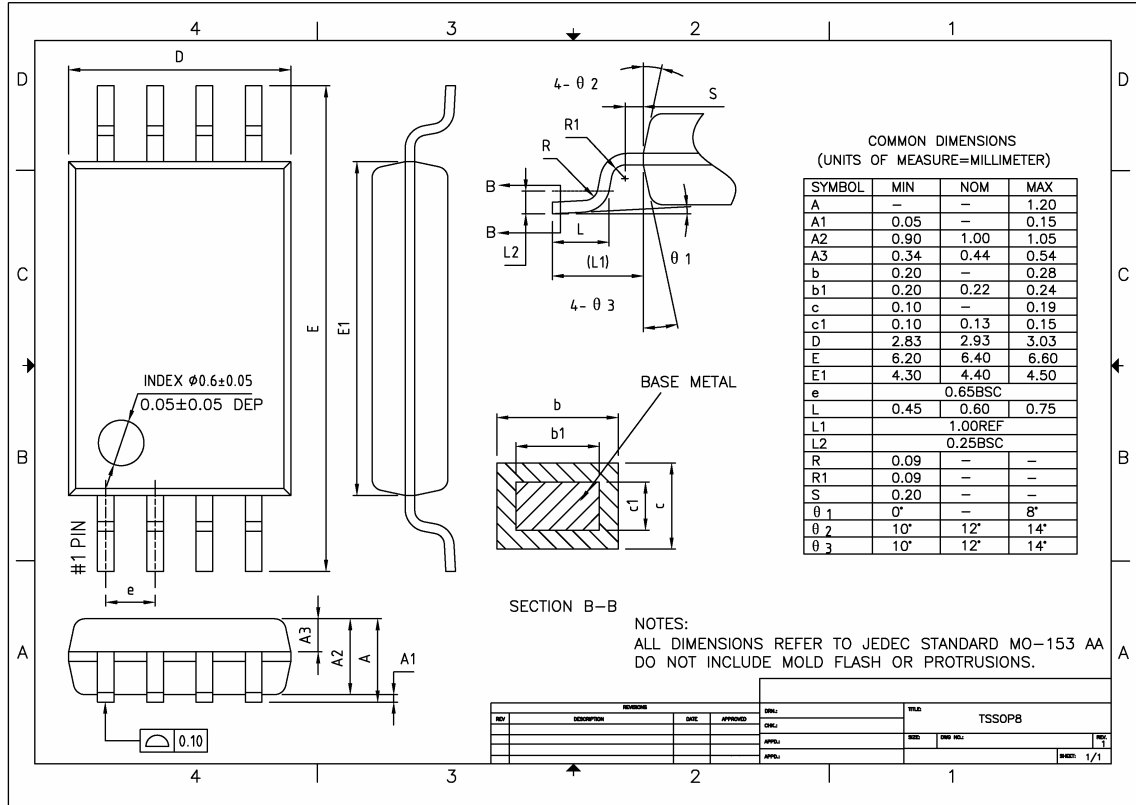


Fig 5. Forward Characteristic of Reverse Diode

10. Package Information



11. Revision History

Version	Date	Page	Description
1.0	2009/02/10	-	Version 1.0 released
1.1	2009/04/28	3~4	Rds25 TYP 25mohm MAX 32mohm Rds45 TYP 20mohm MAX 25mohm ID @TA = 25°C 6A ID @TA = 70°C 5A ID pulse 300 μ S 25A
1.2	2009/08/04	3~4	Rds25 TYP 27mohm MAX 35mohm Rds45 TYP 21mohm MAX 25mohm Rds25 ID : 3A Rds45 ID : 4A