

Datasheet

FS8205A

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 $R_{DS(ON)} = 28 \text{ m}\Omega$ MAX. ($V_{GS} = 4.5\text{V}$, $I_D = 4\text{A}$)

1.1.2 $R_{DS(ON)} = 37 \text{ m}\Omega$ MAX. ($V_{GS} = 2.5\text{V}$, $I_D = 3\text{A}$)

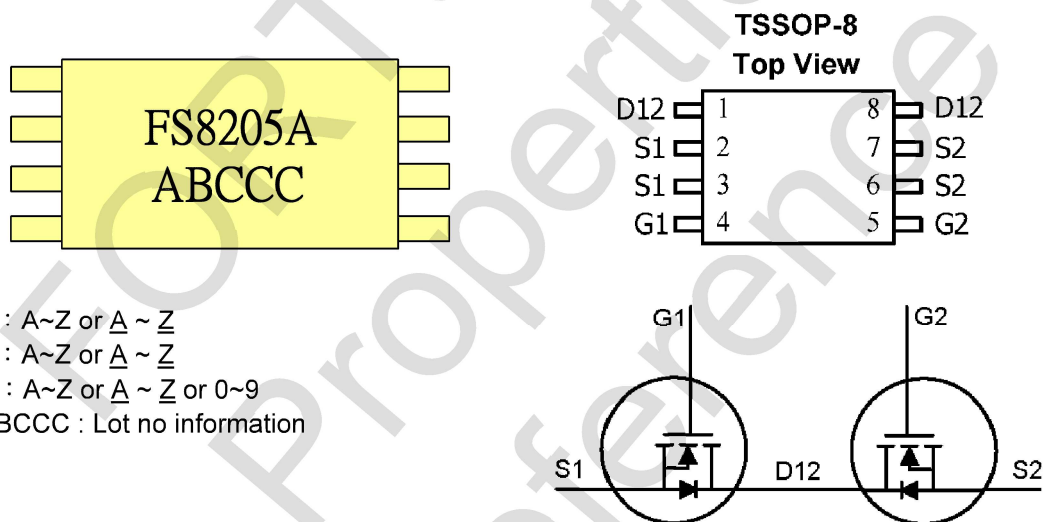
2. Applications

- 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-ambient ³ | Max. 125 | °C/W |

7. Electrical Characteristics

Electrical Characteristics @T_j = 25°C (unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|-------------------------------------|--|--|------|------|------|-------|
| Static Characteristics | | | | | | |
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} = 0V, I _D = 250uA | 20 | - | - | V |
| ΔBV _{DSS} /ΔT _j | Breakdown Voltage Temperature Coefficient | Reference to 25°C, I _D =1mA | - | 0.1 | - | V/°C |
| R _{DS(ON)} | Static Drain-Source On-Resistance ² | V _{GS} = 4.5V, I _D = 4A | - | 23 | 28 | mΩ |
| | | V _{GS} = 2.5V, I _D = 3A | - | 30 | 37 | mΩ |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} = V _{GS} , I _D = 250uA | 0.45 | - | 1.2 | V |
| I _{DSS} | Drain-Source Leakage Current (T _j = 25°C) | V _{DS} = 16V, V _{GS} = 0V | - | - | 1 | uA |
| | Drain-Source Leakage Current (T _j = 70°C) | V _{DS} = 16V, V _{GS} = 0V | - | - | 25 | uA |
| I _{GSS} | Gate-Source Leakage | V _{GS} = ±10V | - | - | ±0.1 | uA |

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 ² | T _j = 25°C, I _S = 1.25A, V _{GS} = 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 in2 copper pad of FR4 board ; 208°C/W when mounted on Min. copper pad.

9. Typical Characteristics

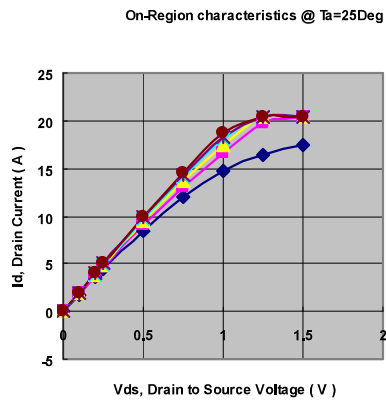


Fig 1. Typical Output Characteristics

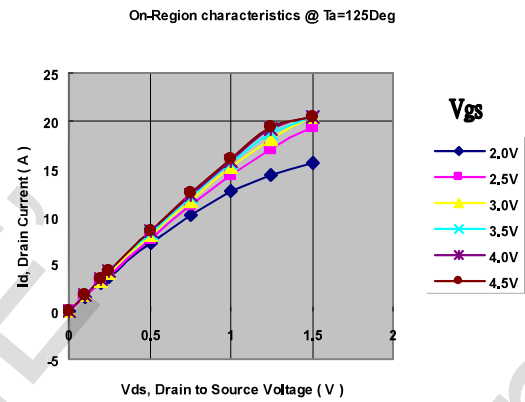


Fig 2. Typical Output Characteristics

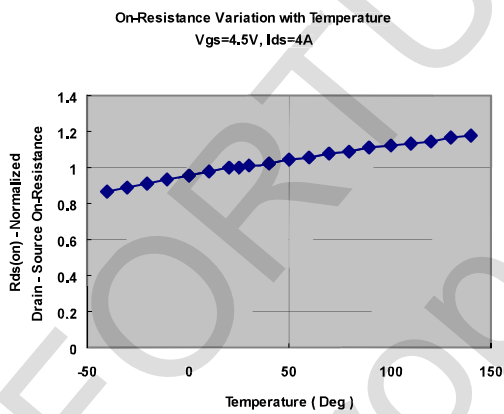


Fig 3. Normalized On-Resistance

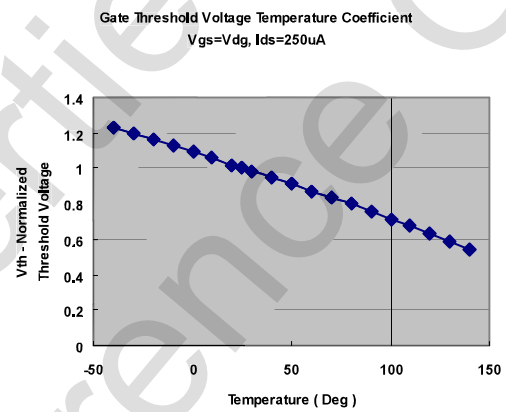


Fig 4. Gate Threshold Variation with Temperature

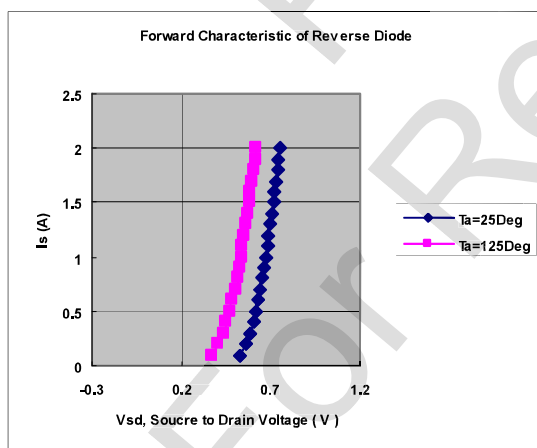
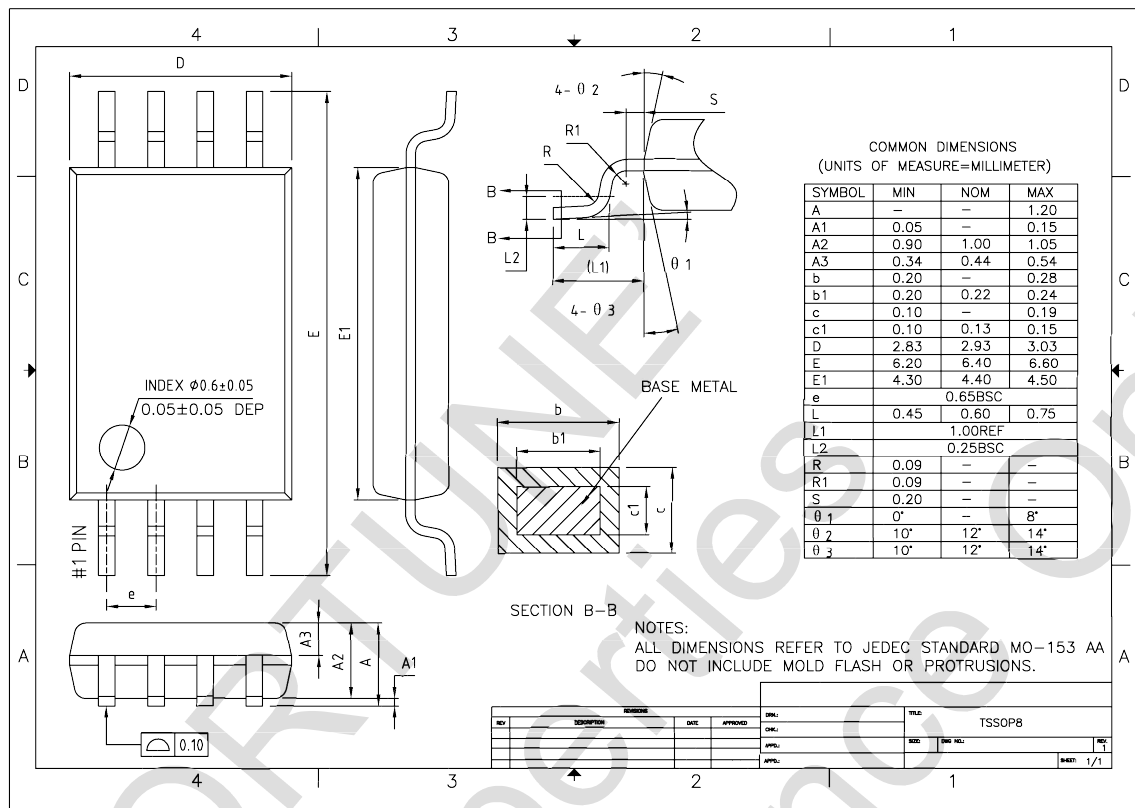


Fig 5. Forward Characteristic of Reverse Diode

10. Package Information



11. Revision History

| Version | Date | Page | Description |
|---------|------------|------|---|
| 1.0 | 2009/02/10 | - | 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 μS 25A |
| 1.2 | 2009/08/04 | 3~4 | Rds25 TYP 27mohm MAX 35mohm Rds45 TYP 21mohm MAX 25mohm Rds25 ID : 3A Rds45 ID : 4A |
| 1.3 | 2010/06/02 | 3~4 | Rds45 TYP 22mohm MAX 27mohm |
| 1.4 | 2010/06/10 | 4 | IDSS Test Conditions : VDS=16V VGS=0V |
| 1.5 | 2011/04/27 | 4 | Rds25 TYP : 30mohm MAX : 37mohm Rds45 TYP : 23mohm MAX : 28mohm VGS(th) MIN : 0.45V MAX : 1.2V IGSS MAX : ±0.1uA |
| 1.6 | 2014/05/22 | 2 | Revised company address |
| 1.7 | 2016/08/22 | 3 | Revise Package Marking Information |