

1. Features

- 1.1 Low on-resistance
 - 1.1.1 $R_{DS(ON)} = 28 \text{ m}\Omega \text{ MAX.}$ ($V_{GS} = 4.5\text{V}$, $I_D = 4\text{A}$)
 - 1.1.2 $R_{DS(ON)} = 37 \text{ m}\Omega \text{ MAX.}$ ($V_{GS} = 2.5\text{V}$, $I_D = 3\text{A}$)

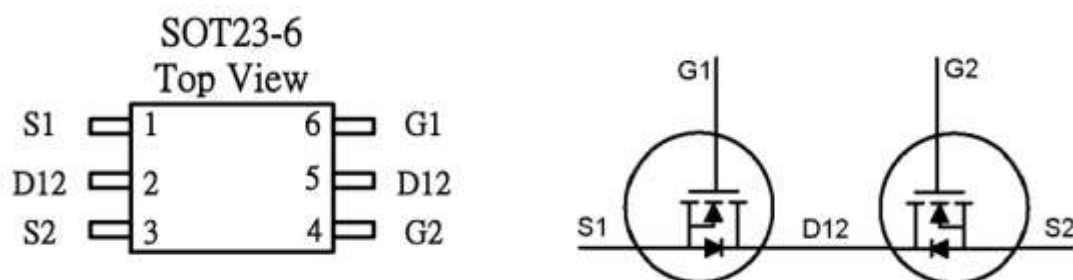
2.Applications

- Li-ion battery management applications

3. Ordering Information

Product Number	Description	Package Type	Quantity/Reel
ECF8205	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℃	Continuous Drain Current ³	6	A
ID @TA = 70℃	Continuous Drain Current ³	5	A
IDM	Pulsed Drain Current ¹	25	A
PD @TA = 25℃	Total Power Dissipation	1	W
	Linear Derating Factor	0.008	W/℃
TSTG	Storage Temperature Range	-55 to 150	℃
TJ	Operating Junction Temperature Range	-55 to 150	℃

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
Δ BV _{DSS} /Δ T _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

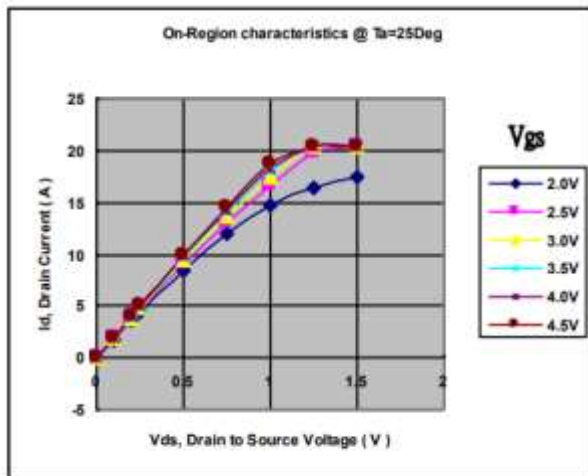


Fig 1. Typical Output Characteristics

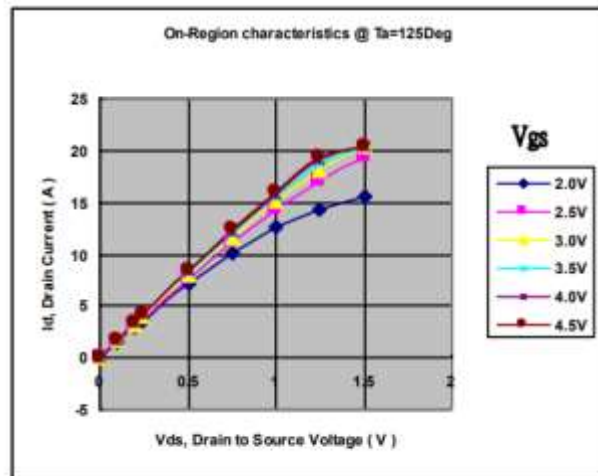


Fig 2. Typical Output Characteristics

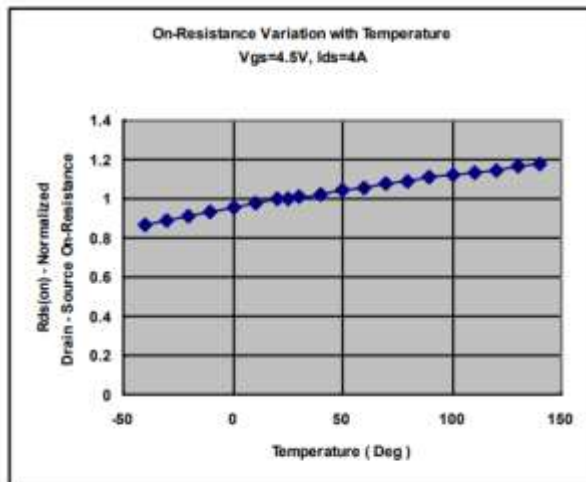


Fig 3. Normalized On-Resistance

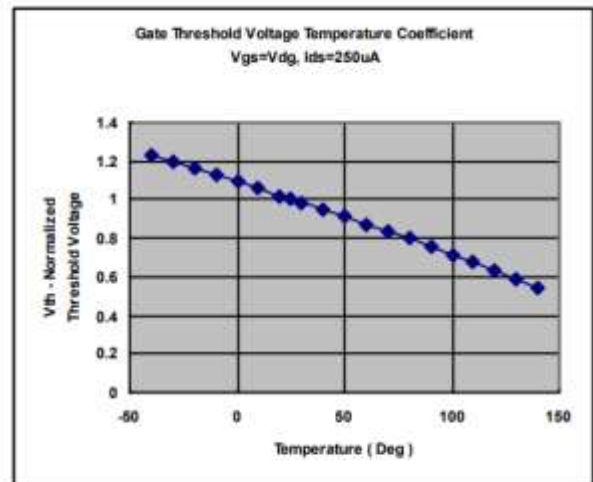


Fig 4. Gate Threshold Variation with Temperature

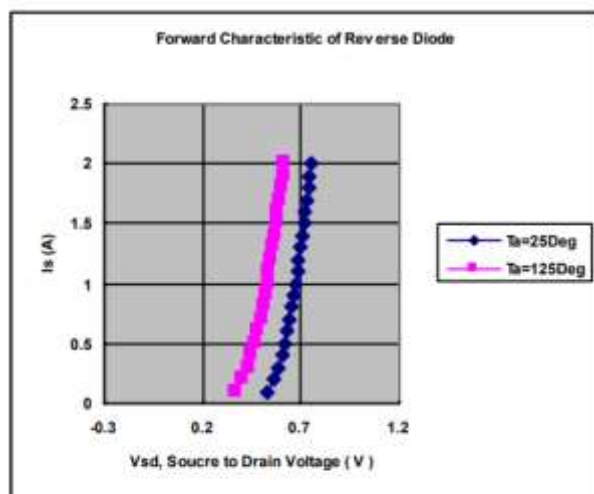
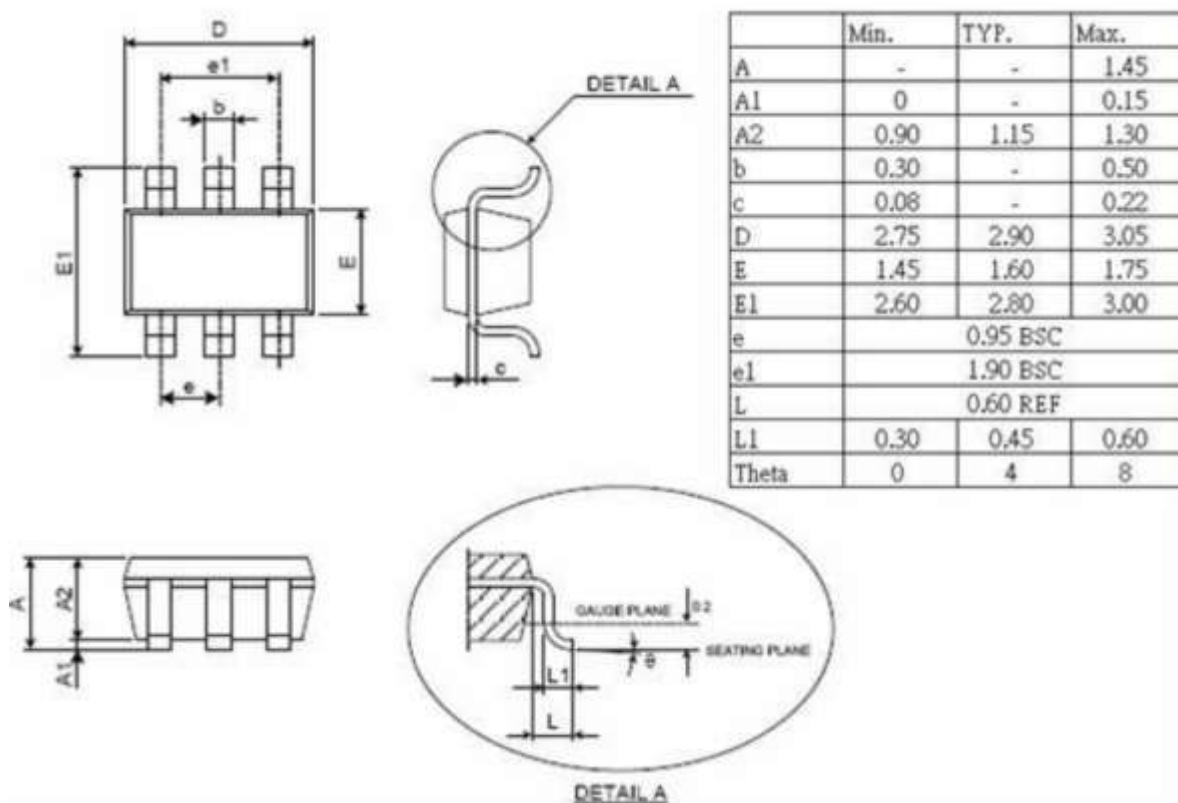


Fig 5. Forward Characteristic of Reverse Diode

10. Package Information



11. Revision History

Version	Date	Page	Description
1.0	2009/08/17	-	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
1.5	2010/04/27	4	Rds25 TYP : 30mohm MAX : 37mohm Rds45 TYP : 23mohm MAX : 28mohm VGS(th) MIN : 0.45V MAX : 1.2V IGSS MAX : $\pm 0.1\mu\text{A}$
1.6	2011/09/08	6	Revise Package Outline
1.7	2011/11/02	3	Revise Pin Assignment
1.8	2014/05/22	2	Revised company address