1. Features

1.1 Low on-resistance

1.1.1 $R_{DS(ON)}$ = 28 mΩ MAX. (V_{GS} = 4.5V, I_D = 4A)

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

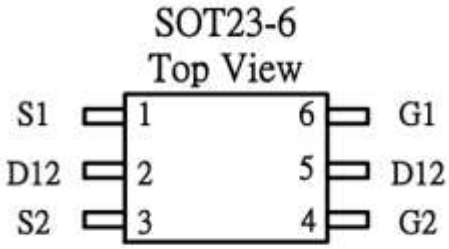
2.Applications

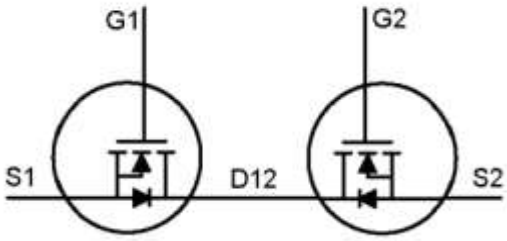
- Li-ion battery management applications

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 Current3	6	A
ID @TA = 70℃	Continuous Drain Current3	5	A
IDM	Pulsed Drain Current1	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-ambient3	Max. 125	℃/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
$\Delta BV_{DSS}/\Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to 25℃, I_D=1mA	-	0.1	-	V/℃
$R_{DS(ON)}$	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℃)	V_{DS} =16V, V_{GS} = 0V	-	-	1	uA
	Drain-Source Leakage Current (T_j = 70℃)	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℃, 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 in^2 copper pad of FR4 board；
   208°C/W when mounted on Min. copper pad.

9. Typical Characteristics

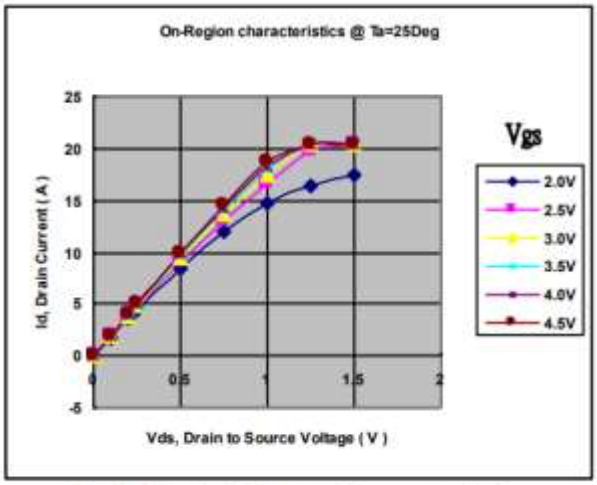


Fig 1. Typical Output Characteristics

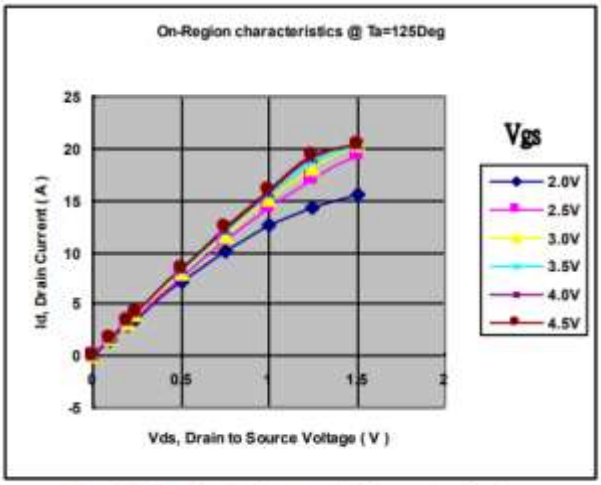


Fig 2. Typical Output Characteristics

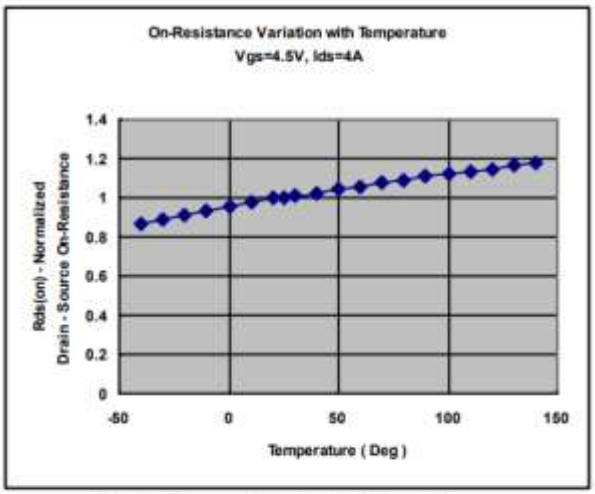


Fig 3. Normalized On-Resistance

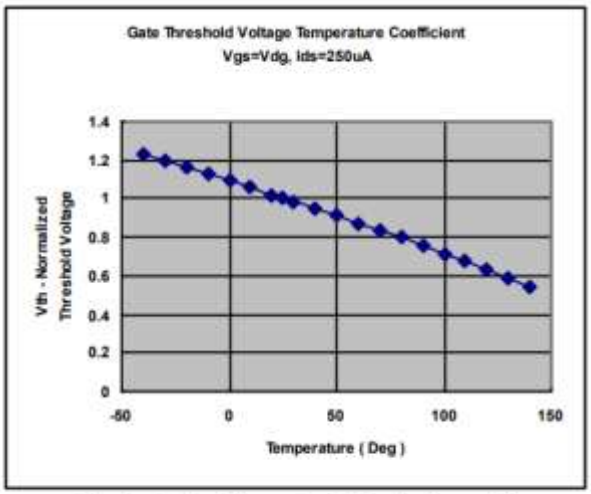


Fig 4. Gate Threshold Variation with Temperature

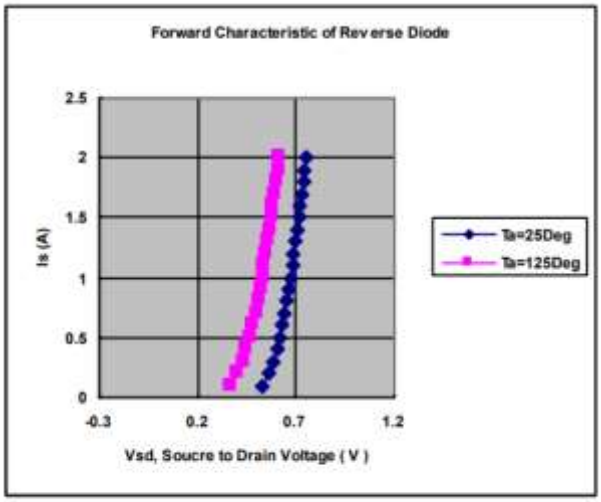
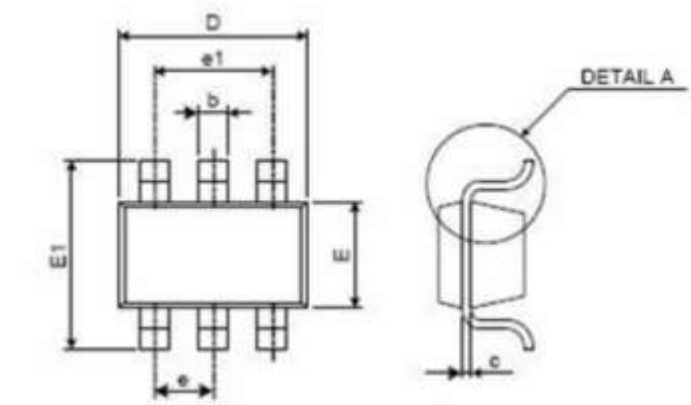
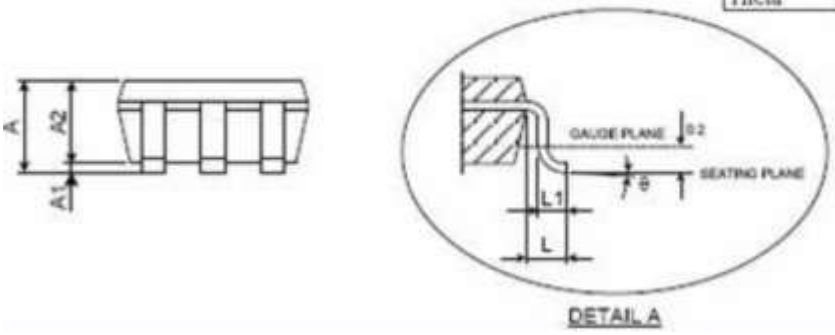


Fig 5. Forward Characteristic of Reverse Diode

10. Package Information



	Min.	TYP.	Max.
A	-	-	1.45
A1	0	-	0.15
A2	0.90	1.15	1.30
b	0.30	-	0.50
c	0.08	-	0.22
D	2.75	2.90	3.05
E	1.45	1.60	1.75
E1	2.60	2.80	3.00
e	0.95 BSC		
e1	1.90 BSC		
L	0.60 REF		
L1	0.30	0.45	0.60
Theta	0	4	8



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：±0.1uA
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