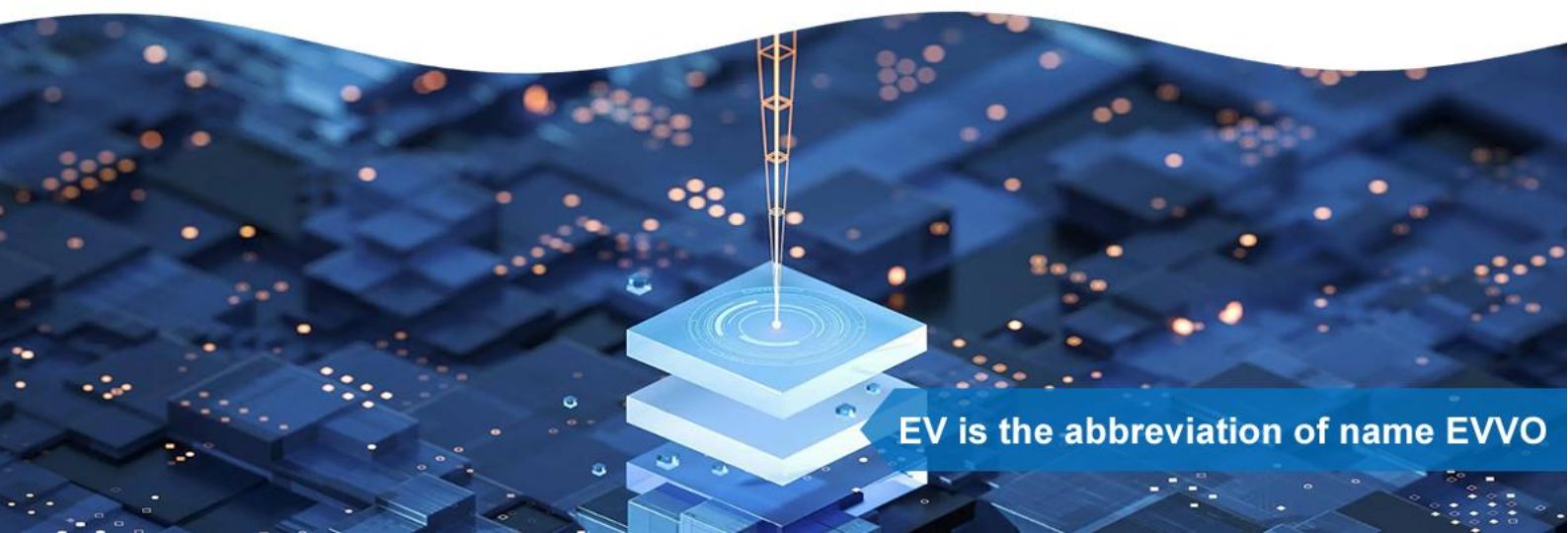
EVVOSEMI®
THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

Product Specification

Domestic Part Number	FS8205A
Overseas Part Number	FS8205A
Equivalent Part Number	FS8205A



20V N+N-Channel Enhancement Mode MOSFET

Description

The FS8205A uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

V_{DS} = 20V, I_D = 6A

$R_{DS(ON)}$ < 22.5.mΩ @ V_{GS}=4.5V

$R_{DS(ON)}$ < 27.mΩ @ V_{GS}=2.5V

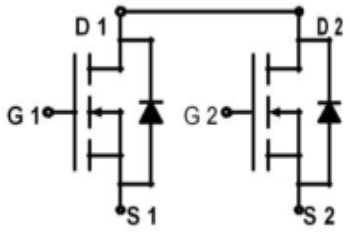
SOT23-6L Pin Configuration

Application

Battery protection

Load switch

Powermanagement



Schematic diagram

Package Marking and Ordering Information

Product ID	Package	Marking	QTY(PCS)	Packing methed
FS8205A	SOT23-6L	8205A	3000	Reel

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25℃	Drain Current, V_{GS} @ 4.5V[3]	6	A
I_D@T_A=70℃	Drain Current, V_{GS} @ 4.5V[3]	4.8	A
IDM	Pulsed Drain Current[1]	26	A
P_D@T_A=25℃	Total Power Dissipation	2	W
	Linear Derating Factor	0.016	W/℃
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	62.5	℃/W

20V N+N-Channel Enhancement Mode MOSFET

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	20	-	-	V
RDS(ON)	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V, I_D=6A	-	20.5	27	mΩ
		V_{GS}=2.5V, I_D=4A	-	27	37	mΩ
VGS(th)	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	-	0.75	1.2	V
g_{fs}	Forward Transconductance	V_{DS}=10V, I_D=6A	-	6	-	S
IDSS	Drain-Source Leakage Current	V_{DS}=20V, V_{GS}=0V	-	-	25	uA
	Drain-Source Leakage Current (T_j=70°C)	V_{DS}=20V ,V_{GS}=0V	-	-	250	uA
IGSS	Gate-Source Leakage	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge[2]	I_D=6A	-	11	17.6	nC
Q_{gs}	Gate-Source Charge	V_{DS}=16V	-	1.1	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=4.5V	-	4.1	-	nC
td(on)	Turn-on Delay Time[2]	V_{DS}=10V	-	4.2	-	ns
t_r	Rise Time	I_D=1A	-	9	-	ns
td(off)	Turn-off Delay Time	R_G=3.3Ω,V_{GS}=10V	-	23	-	ns
t_f	Fall Time	R_D=10Ω	-	3.5	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	570	910	pF
C_{oss}	Output Capacitance	V_{DS}=20V	-	90	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	85	-	pF
R_g	Gate Resistance	f=1.0MHz	-	1.6	2.4	Ω
V_{SD}	Forward On Voltage[2]	I_S=1.7A, V_{GS}=0V	-	-	1.2	V
trr	Reverse Recovery Time[2]	I_S=6A, V_{GS}=0V, dI/dt=100A/μs	-	21	-	ns
Q_{rr}	Reverse Recovery Charge		-	14	-	nC

1.Pulse width limited by Max. junction temperature.

2.Pulse test

3.Surface mounted on 1 in^2 copper pad of FR4 board, t ≤10sec ; 135 ℃/W when mounted on Min. copper pad.

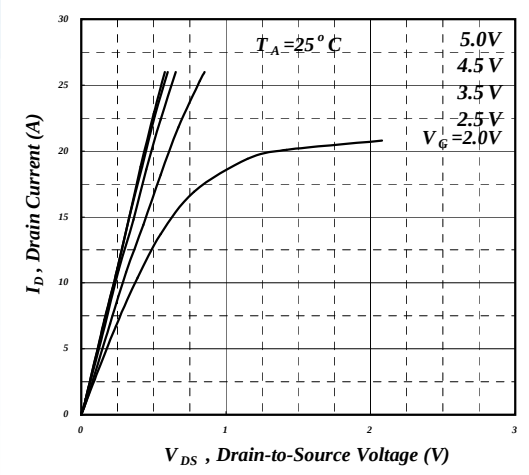


Fig 1. Typical Output Characteristics

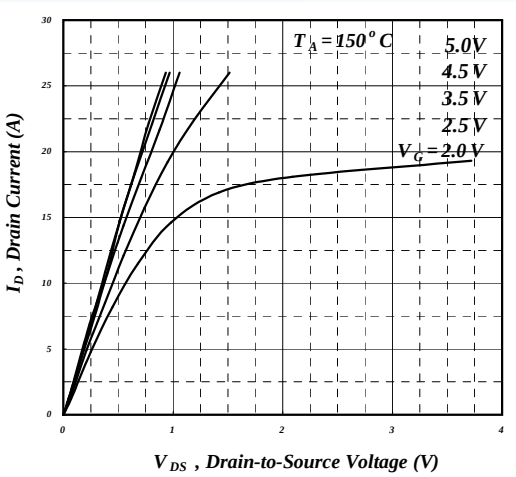


Fig 2. Typical Output Characteristics

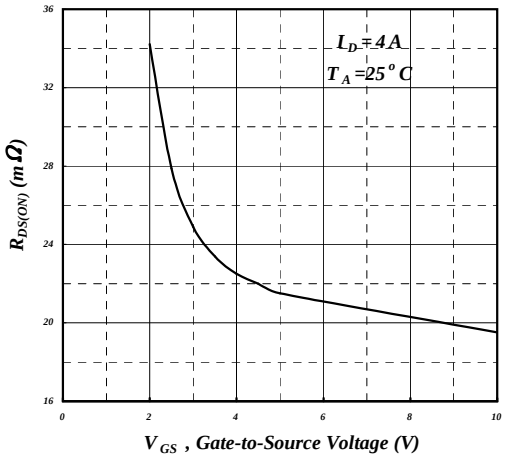


Fig 3. On-Resistance v.s. Gate Voltage

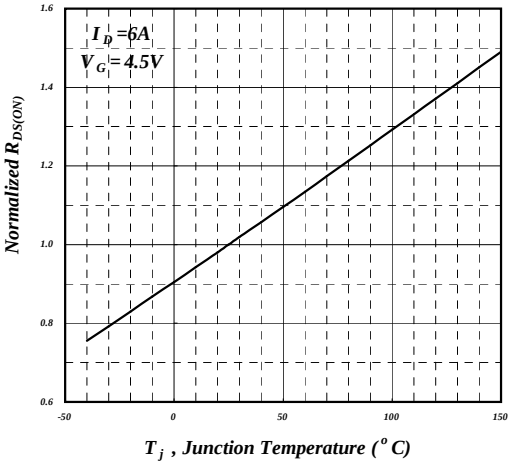


Fig 4. Normalized On-Resistance v.s. Temperature

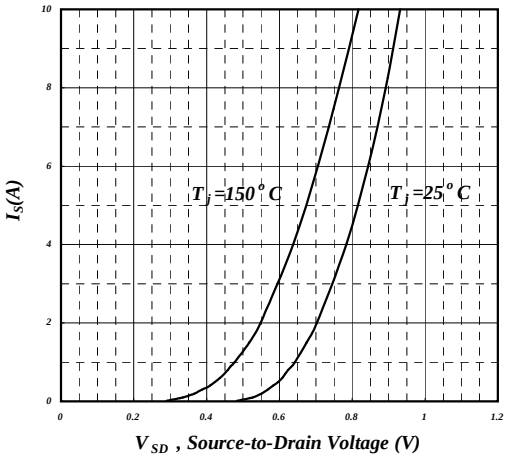


Fig 5. Forward Characteristic of Reverse Diode

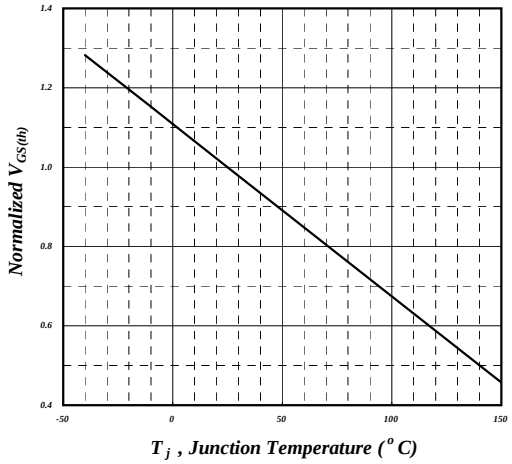


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

20V N+N-Channel Enhancement Mode MOSFET

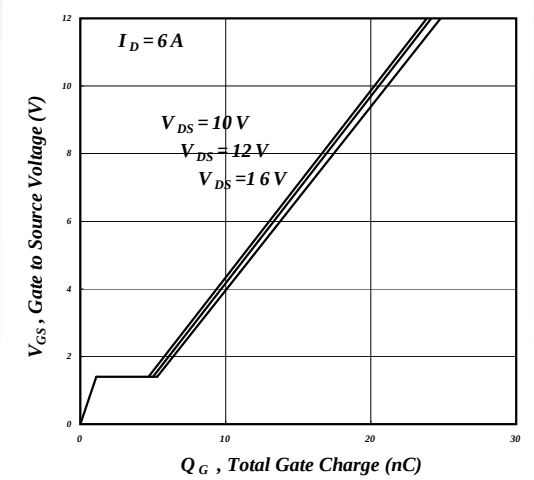


Fig 7. Gate Charge Characteristics

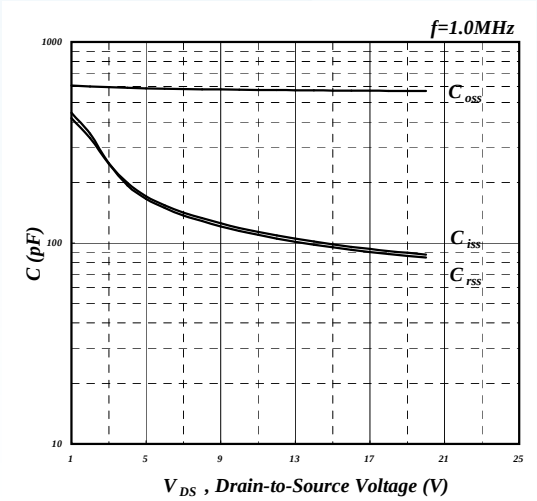


Fig 8. Typical Capacitance Characteristics

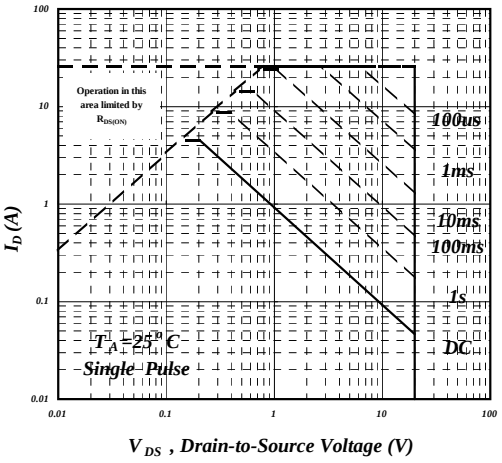


Fig 9. Maximum Safe Operating Area

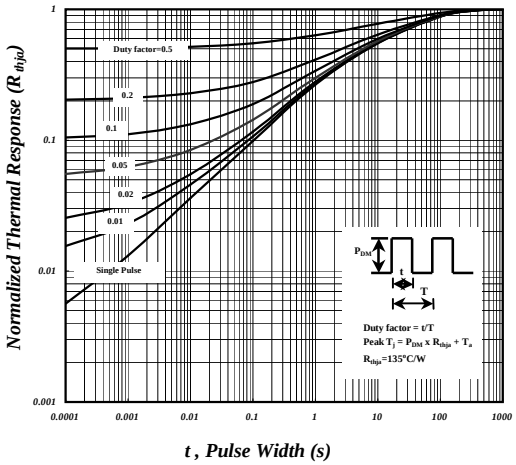


Fig 10. Effective Transient Thermal Impedance

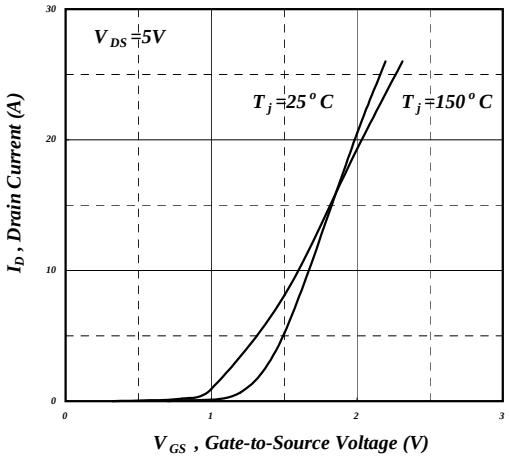


Fig 11. Transfer Characteristics

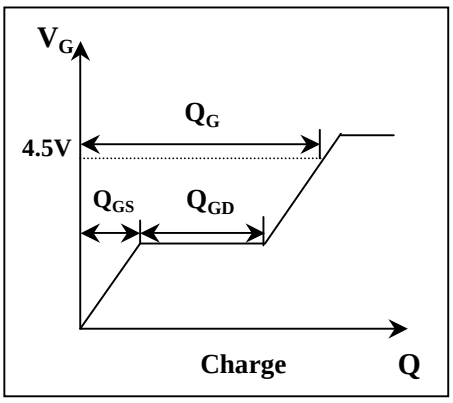
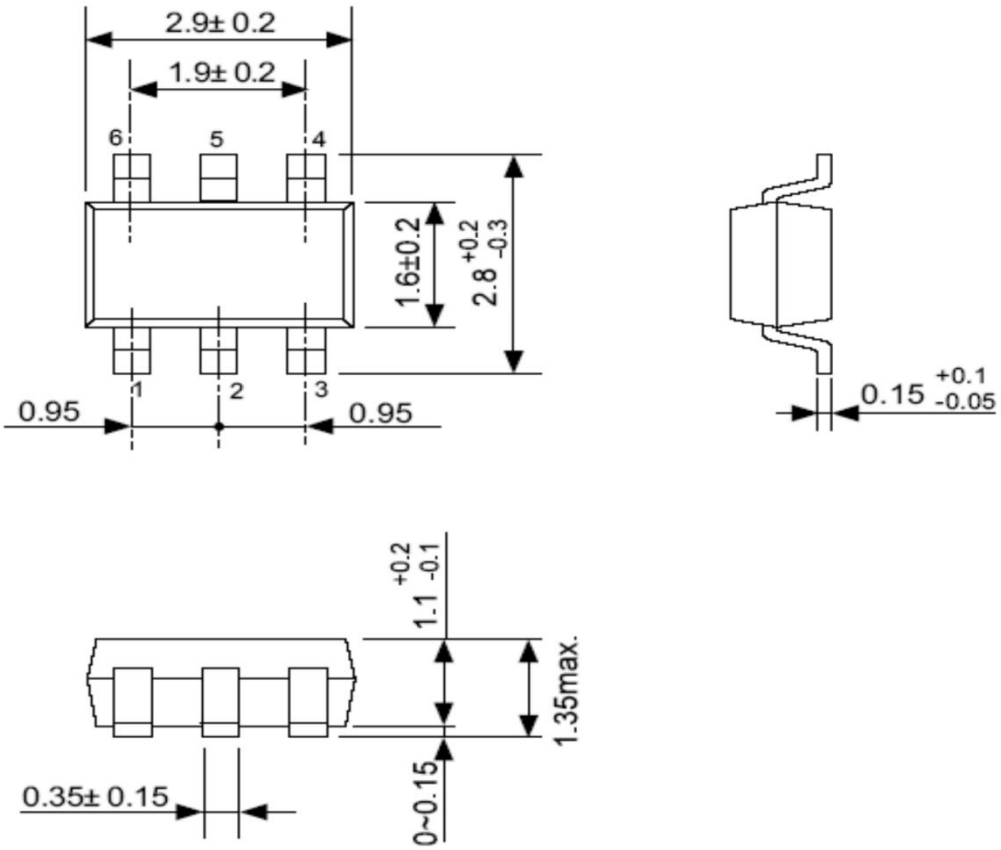


Fig 12. Gate Charge Waveform

20V N+N-Channel Enhancement Mode MOSFET

SOT23-6 PACKAGE INFORMATION



Disclaimer

EVVOSEMI ("EVVO") reserves the right to make corrections, enhancements, improvements, and other changes to its products and services at any time, and to discontinue any product or service without notice.

EVVO warrants the performance of its hardware products to the specifications applicable at the time of sale in accordance with its standard warranty. Testing and other quality control techniques are used as deemed necessary by EVVO to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Customers should obtain and confirm the latest product information and specifications before final design, purchase, or use. EVVO makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does EVVO assume any liability for application assistance or customer product design. EVVO does not warrant or accept any liability for products that are purchased or used for any unintended or unauthorized application.

EVVO products are not authorized for use as critical components in life support devices or systems without the express written approval of EVVOSEMI.

The EVVO logo and EVVOSEMI are trademarks of EVVOSEMI or its subsidiaries in relevant jurisdictions. EVVO reserves the right to make changes without further notice to any products herein.