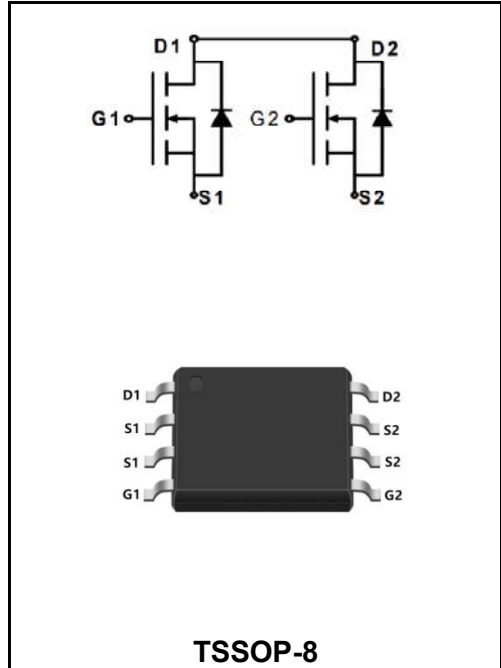


20V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	8.0A
V_{DSS}	20V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 20mΩ (Type: 14.5 mΩ)



Application

- ◆ Battery protection
- ◆ Load switch
- ◆ Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW8205A-14TS	TSSOP-8	YFW 8205A XXXXX	5000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DSS}	20	V
Gate - Source Voltage	V_{GSS}	±12	V
Continuous Drain Current, V_{GS} @ 4.5V @TA=25°C	I_D	8.0	A
Continuous Drain Current, V_{GS} @ 4.5V @TA=70°C	I_D	5.6	A
Pulsed Drain Current <small>note1</small>	I_{DM}	24	A
Power Dissipation	$P_{D@TA=25°C}$	2	W
Thermal Resistance, Junction to Case	$R_{θJC}$	62.5	°C/W
Operating and Storage Temperature Range	T_J T_{STG}	-55 to +175	°C

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	B_{VDSS}	20	-	-	V
Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Gate-Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$V_{GS}=4.5V, I_D=4.5A$	R_{DS(ON)}	-	14.5	20	mΩ
	$V_{GS}=2.5V, I_D=3.5A$		-	18	25	mΩ
Forward Transconductance	$V_{DS}=5V, I_D=4.5A$	g_{fs}	-	10	-	S
Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	900	-	PF
Output Capacitance		C_{oss}	-	220	-	PF
Reverse Transfer Capacitance		C_{rss}	-	100	-	PF
Turn-on delay time	$V_{DD}=10V$ $I_D=1A$ $V_{GS}=4.5V$ $R_{GEN}=6\Omega$	t_{d(on)}	-	10	20	ns
Turn-on Rise Time		T_r	-	11	25	ns
Turn-Off Delay Time		t_{d(OFF)}	-	35	70	ns
Turn-Off Fall Time		t_f	-	30	60	ns
Total Gate Charge	$V_{DS}=10V$ $I_D=6A$ $V_{GS}=4.5V$	Q_g	-	12	15	nC
Gate-Source Charge		Q_{gs}	-	2.3	-	nC
Gate-Drain Charge		Q_{gd}	-	1	-	nC
Diode Forward Voltage ^(Note 3)	$V_{GS}=0V, I_S=1.7A$	VSD	-	0.75	1.2	V
Diode Forward Current ^(Note 2)		I_S	-	-	1.7	A

Note :

- 1、 The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、 The power dissipation is limited by 150°C junction temperature
- 4、 The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation

Ratings and Characteristic Curves

Typical Characteristics

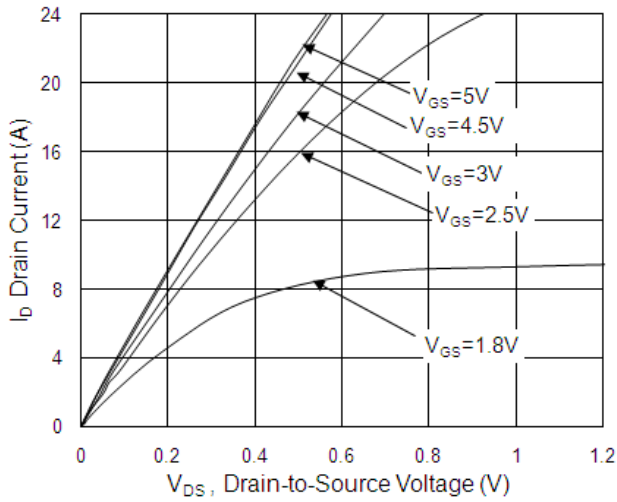


Fig.1 Typical Output Characteristics

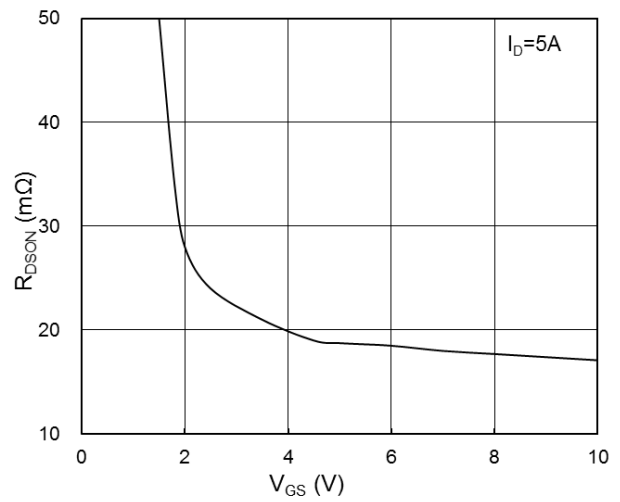


Fig.2 On-Resistance vs. Gate-Source Voltage

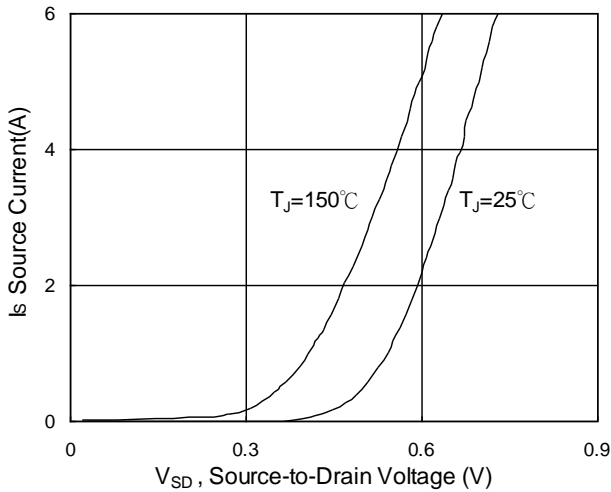


Fig.3 Forward Characteristics of Reverse

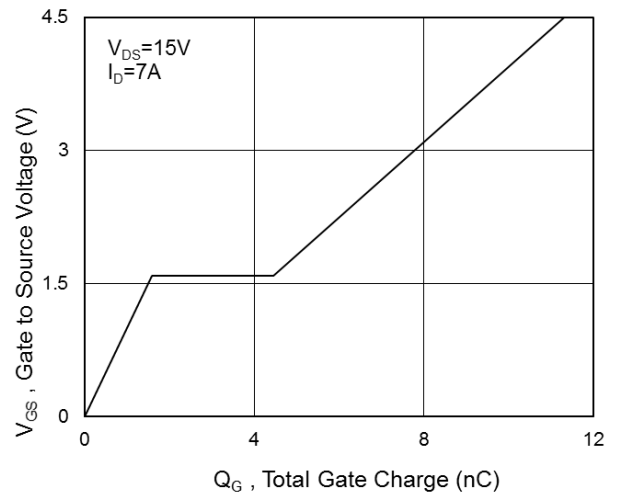


Fig.4 Gate-Charge Characteristics

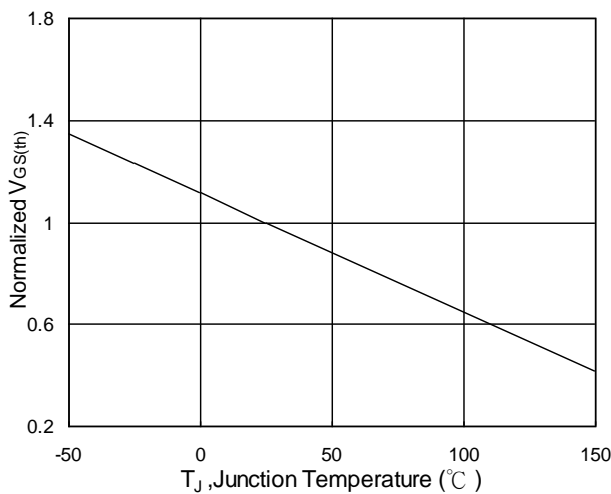


Fig.5 $V_{GS(th)}$ vs. T_J

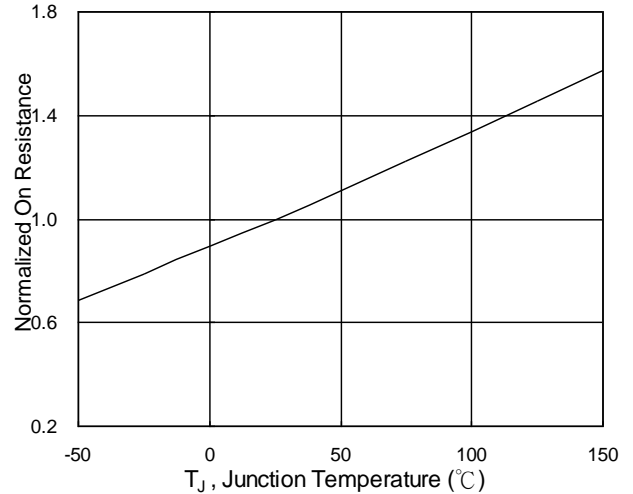


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

Ratings and Characteristic Curves

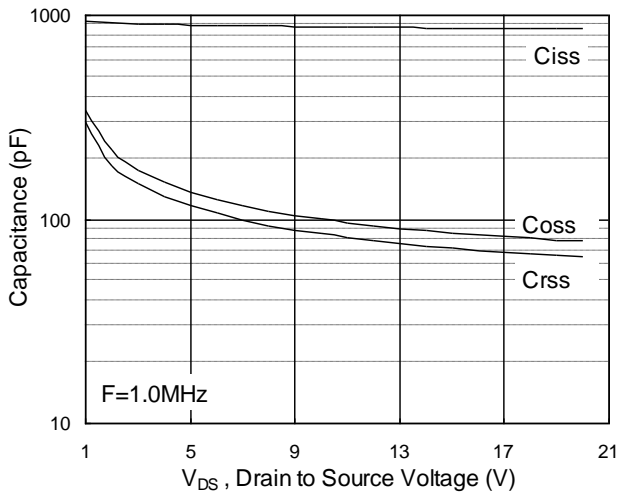


Fig.7 Capacitance

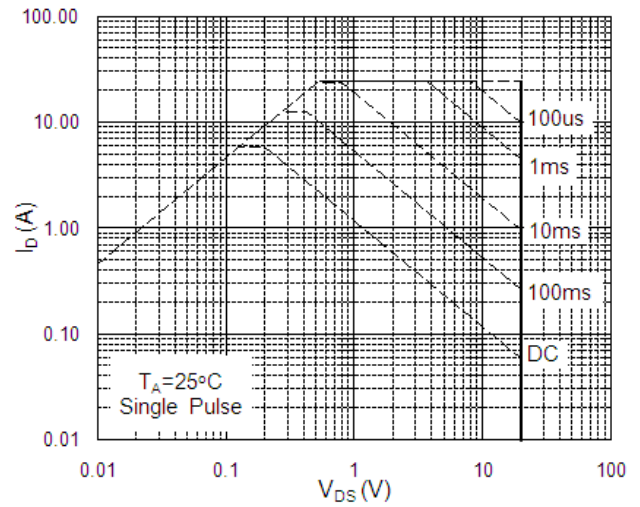


Fig.8 Safe Operating Area

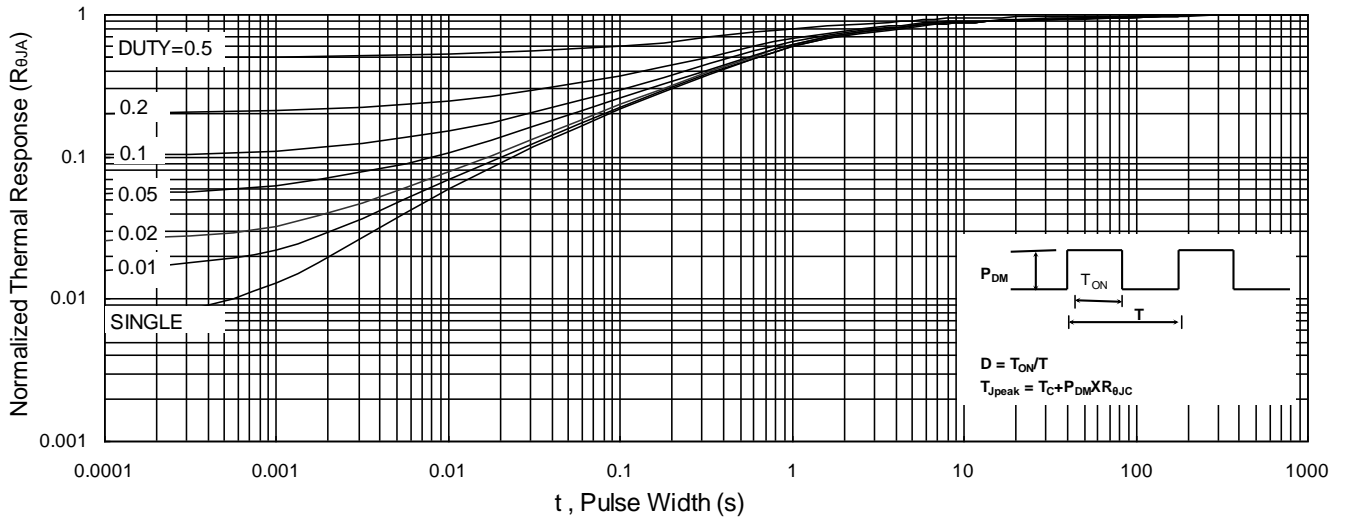


Fig.9 Normalized Maximum Transient Thermal Impedance

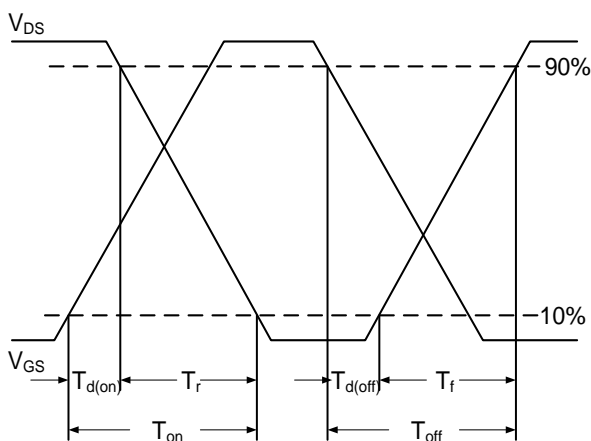


Fig.10 Switching Time Waveform

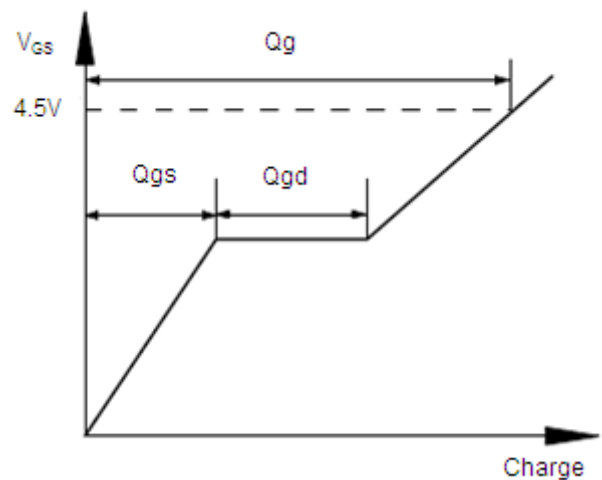
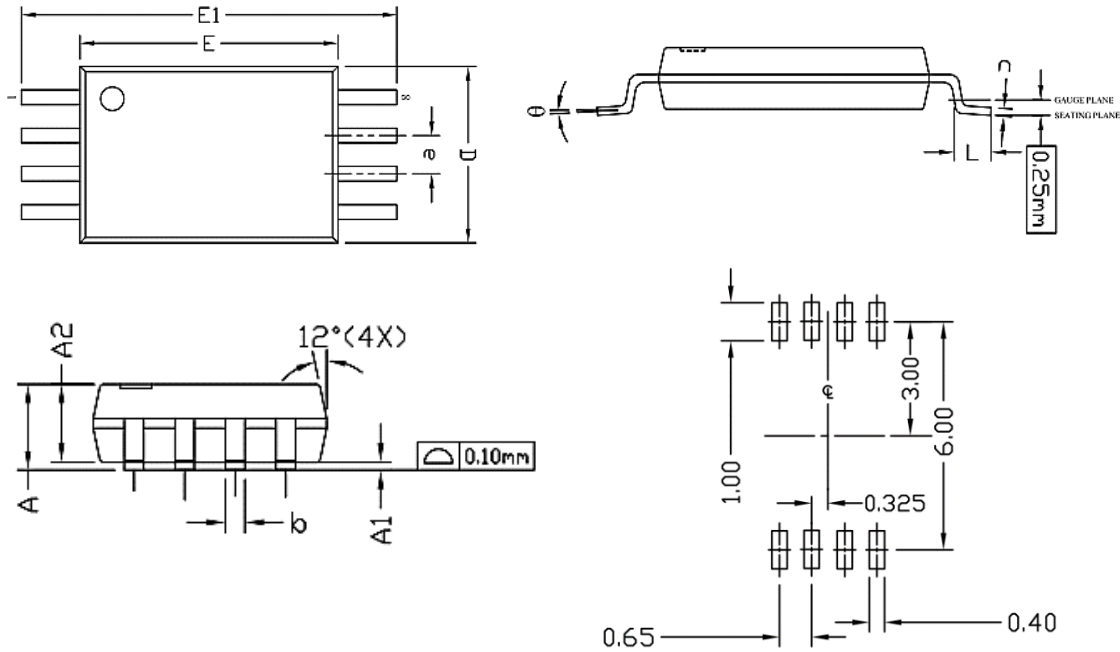


Fig.11 Gate Charge Waveform

Package Outline Dimensions Millimeters

TSSOP-8



Symbol	Common		
	mm		
	Mim	Nom	Max
A	/	/	1.20
A1	0.05	/	0.15
A2	0.80	1.00	1.05
b	0.19	/	0.30
c	0.09	/	3.45
D	2.90	3.00	3.1
E1	6.40BSC		
E	4.30	4.40	4.50
E	0.65BSC		
L	0.45	0.60	0.75
Φ	0°	0.48	8°