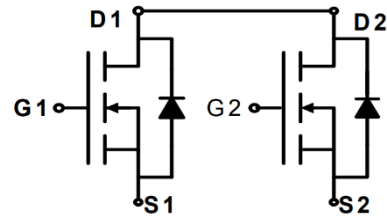




Description

The WLB8205A 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

$V_{DS} = 20V$ $I_D = 6.0A$

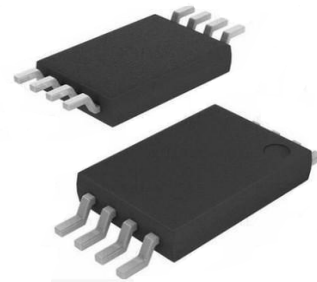
$R_{DS(ON)} < 20m\Omega$ @ $V_{GS}=10V$ (Type: $14.5m\Omega$)

Application

Battery protection

Load switch

Uninterruptible power supply



TSSOP8

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
WLB8205A	TSSOP-8	8205A XXX YYYY	5000

Absolute Maximum Ratings (TC=25°C unless otherwise noted)

Symbol	Parameter	Max.	Units
VDSS	Drain-Source Voltage	20	V
VGSS	Gate-Source Voltage	±12	V
ID@TA=25°C	Continuous Drain Current, VGS @ 4.5V	6.0	A
ID@TA=70°C	Continuous Drain Current, VGS @ 4.5V	5.6	A
IDM	Pulsed Drain Current <small>note1</small>	24	A
PD@TA=25°C	Power Dissipation	2	W
RθJC	Thermal Resistance, Junction to Case	62.5	°C/W
TJ, TSTG	Operating and Storage Temperature Range	-55 to +175	°C

**Electrical Characteristics ($T_c=25^\circ\text{C}$, unless otherwise noted)**

Symbol	Parameter	Condition	Min	Typ	Max	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1.2	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=4.5V, I_D=4.5A$	-	14.5	20	m Ω
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=2.5V, I_D=3.5A$	-	18	25	m Ω
gFS	Forward Transconductance	$V_{DS}=5V, I_D=4.5A$	-	10	-	S
C_{iss}	Input Capacitance	$V_{DS}=10V, V_{GS}=0V,$ $F=1.0MHz$	-	900	-	PF
C_{oss}	Output Capacitance		-	220	-	PF
C_{riss}	Reverse Transfer Capacitance		-	100	-	PF
td(on)	Turn-on Delay Time	$V_{DD}=10V, I_D=1A$ $V_{GS}=4.5V, R_{GEN}=6\Omega$	-	10	20	nS
t_r	Turn-on Rise Time		-	11	25	nS
td(off)	Turn-Off Delay Time		-	35	70	nS
t_f	Turn-Off Fall Time		-	30	60	nS
Q_g	Total Gate Charge	$V_{DS}=10V, I_D=6A,$ $V_{GS}=4.5V$	-	12	15	nC
Q_{gs}	Gate-Source Charge		-	2.3	-	nC
Q_{gd}	Gate-Drain Charge		-	1	-	nC
VSD	Diode Forward Voltage ^(Note 3)	$V_{GS}=0V, I_s=1.7A$	-	0.75	1.2	V
I_s	Diode Forward Current ^(Note 2)		-	-	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



Typical Characteristics

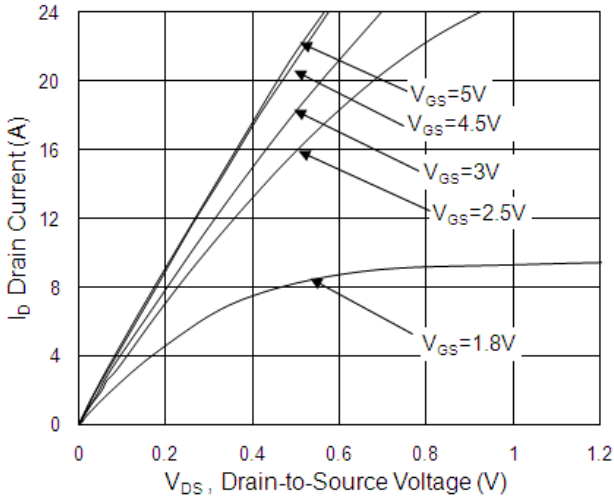


Fig.1 Typical Output Characteristics

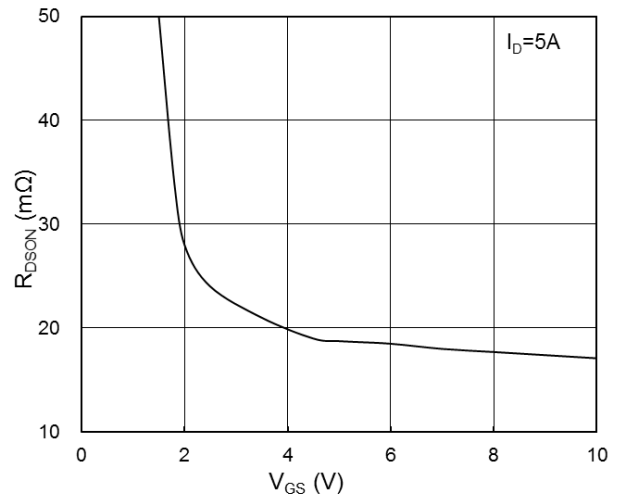


Fig.2 On-Resistance vs. Gate-Source Voltage

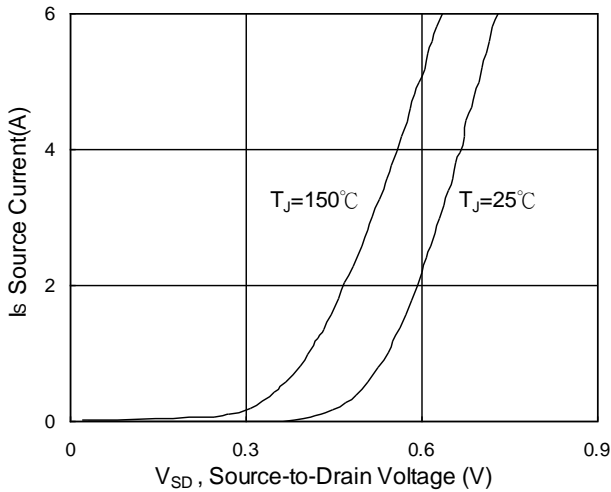


Fig.3 Forward Characteristics of Reverse

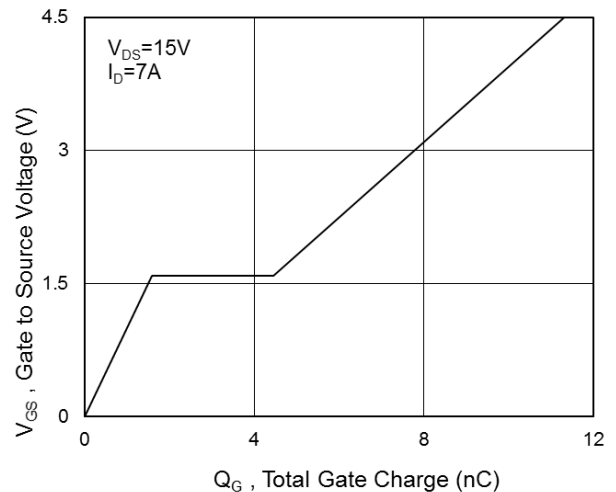


Fig.4 Gate-Charge Characteristics

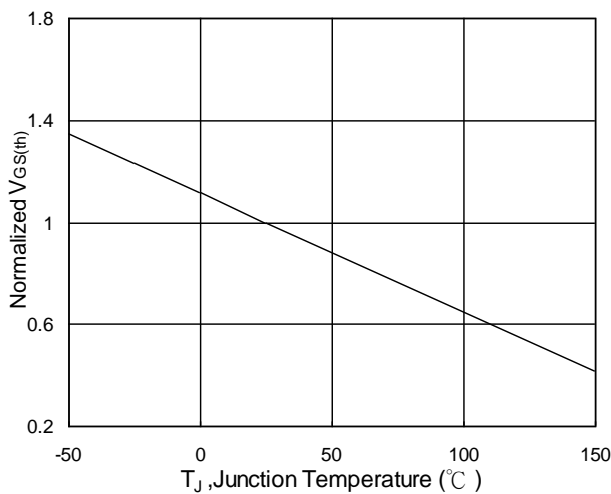


Fig.5 $V_{GS(th)}$ vs. T_J

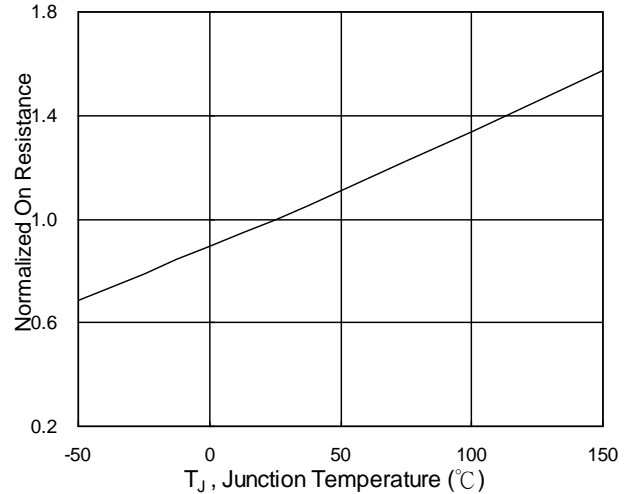


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

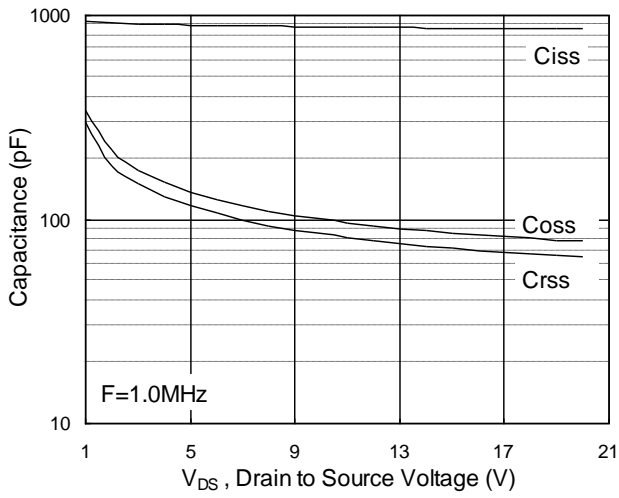


Fig.7 Capacitance

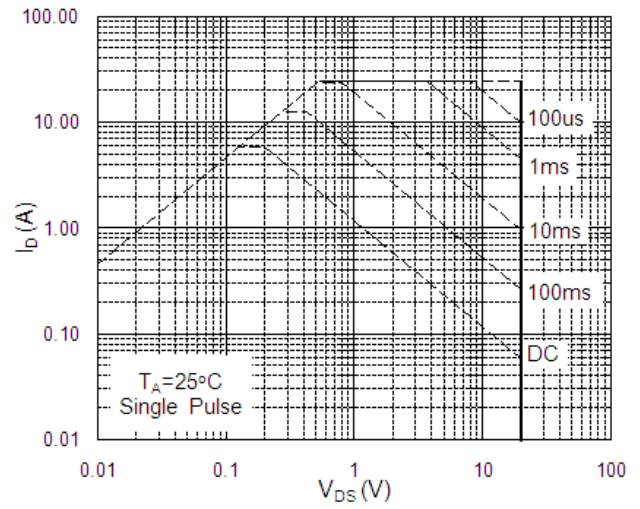


Fig.8 Safe Operating Area

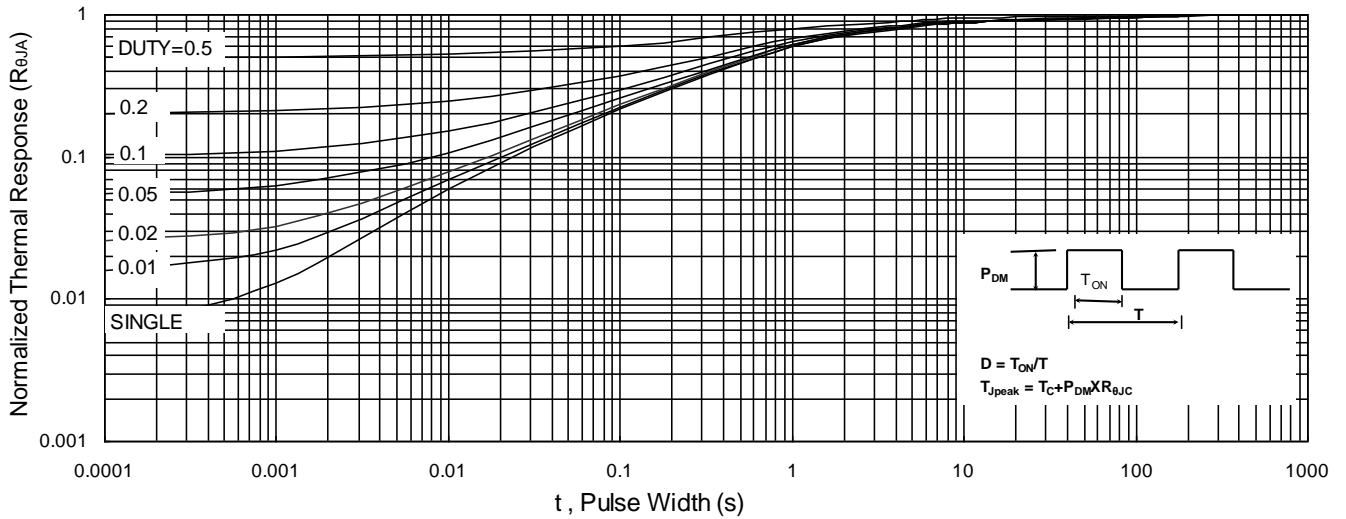


Fig.9 Normalized Maximum Transient Thermal Impedance

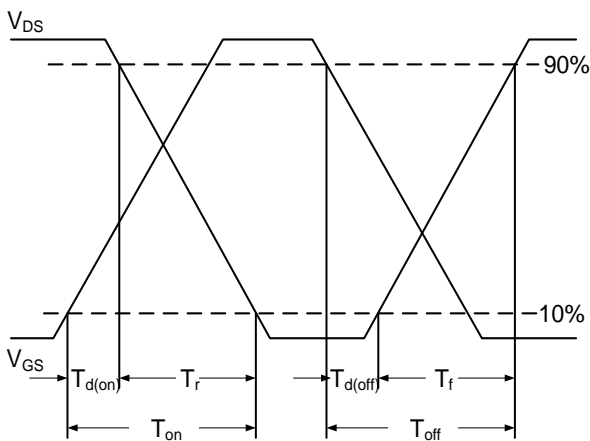


Fig.10 Switching Time Waveform

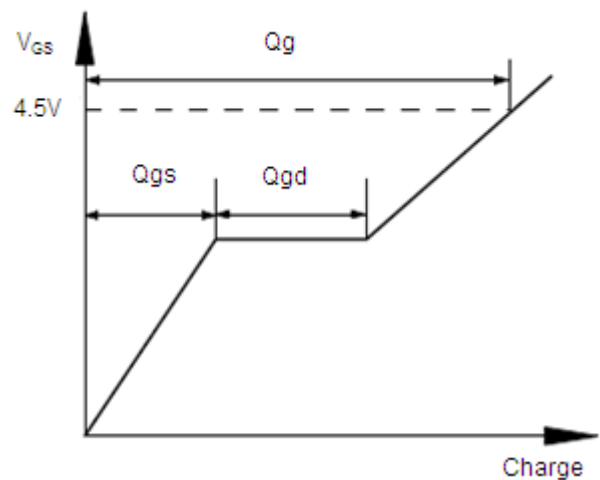
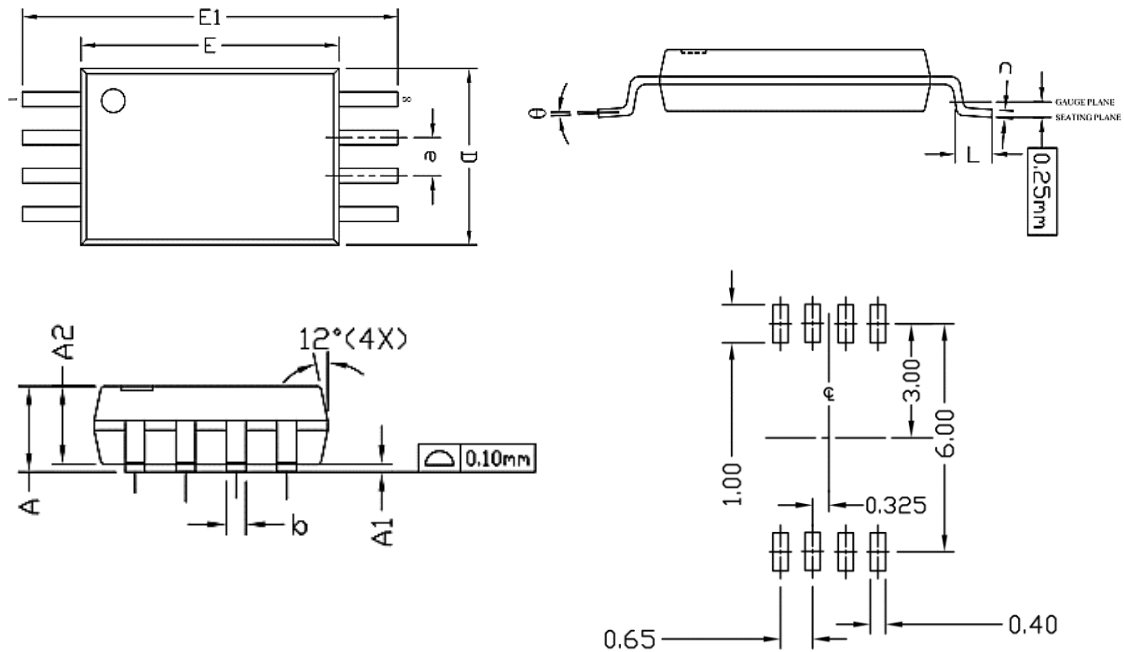


Fig.11 Gate Charge Waveform



Package Mechanical Data-TSSOP-8L-FH Double



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°



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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.