Leiditech

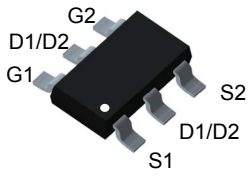
LM8205

20V Dual N-Channel MOSFET

General Description

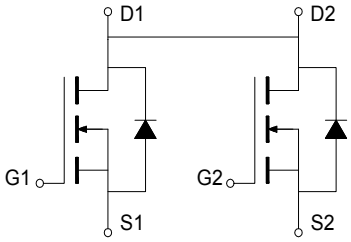
These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

PIN CONFIGURATION(SOT23-6)



Features

V_{DS}	20V
I_D (at V_{GS}=4.5V)	6A
$R_{DS(ON)}$ (at V_{GS}=4.5V)	25mΩ(Max)



Package Marking and Ordering Information

Device	Device Marking	Device Package	Reel Size	Tape width	Quantity
LM8205		SOT23-6	-	-	3000 units

Absolute Maximum Ratings T_A=25°C unless otherwise noted				
Parameter		**Symbol**	**Maximum**	**Units**
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Drain Current-Continuous	TC=25°C	I_D	6	A
	TC=100°C	I_D	3.8	A
Drain Current – Pulsed		IDM	24	A
Maximum Power Dissipation		P_D	1.5	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	℃

Thermal Characteristics				
Parameter	**Symbol**	**Typ**	**Max**	**Unit**
Thermal Resistance junction-case	$R_{\theta Jc}$		1.1	℃ /W
Thermal Resistance junction-to-Ambient	$R_{\theta JA}$		75	℃ /W

ELECTRICAL CHARACTERISTICS (T_A=25℃ Unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	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}=±8V,V_{DS}=0V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	0.5	0.65	1.2	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V, I_D=4.5A		20	25	mΩ
		V_{GS}=2.5V, I_D=3.5A		26	32	mΩ
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{DS}=8V,V_{GS}=0V, F=1.0MHz		600		pF
C_{oss}	Output Capacitance			330		pF
C_{rss}	Reverse Transfer Capacitance			140		pF
SWITCHING PARAMETERS						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=10V,I_D=1A, V_{GS}=4.5V, R_G=6Ω		10		nS
t_r	Turn-on Rise Time			11		nS
$t_{d(off)}$	Turn-Off Delay Time			35		nS
t_f	Turn-Off Fall Time			30		nS
Q_g	Total Gate Charge	V_{DS}=10V,I_D=4.5A, V_{GS}=6V		10		nC
Q_{gs}	Gate-Source Charge			2.3		nC
Q_{gd}	Gate-Drain Charge			3		nC
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_{SD}=1.5A		0.72	1.4	V
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V, F=1MHz		1.65		Ω

Note:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

Typical Performance Characteristics

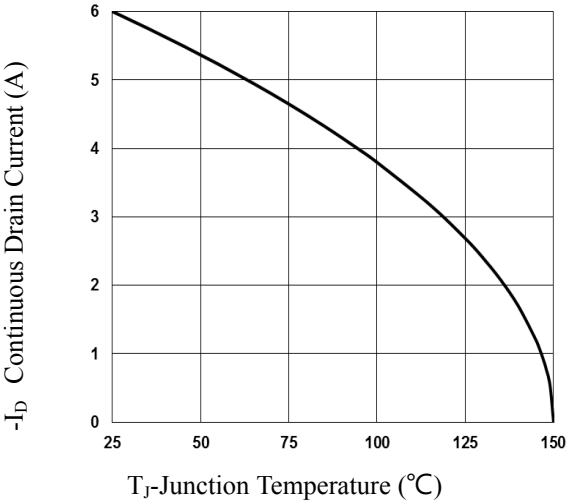


Fig.1 Typical Output Characteristics

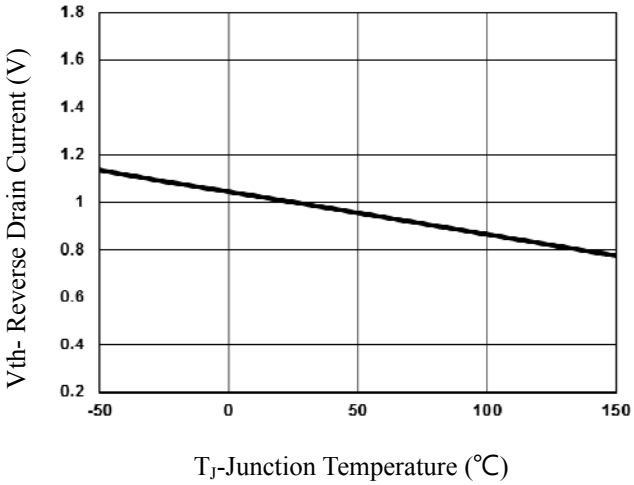


Fig.2 Normalized Vth vs. Junction Temperature

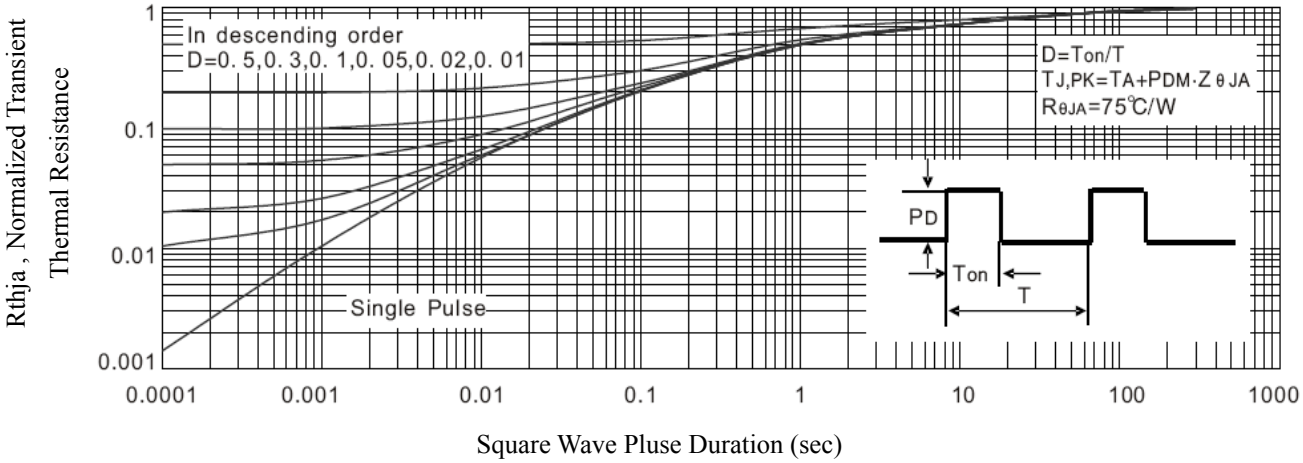


Fig.3 Normalized Maximum Transient Thermal Impedance

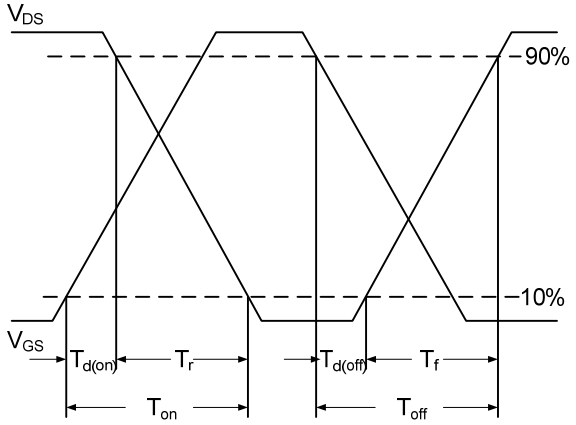


Fig.4 Switching Time Waveform

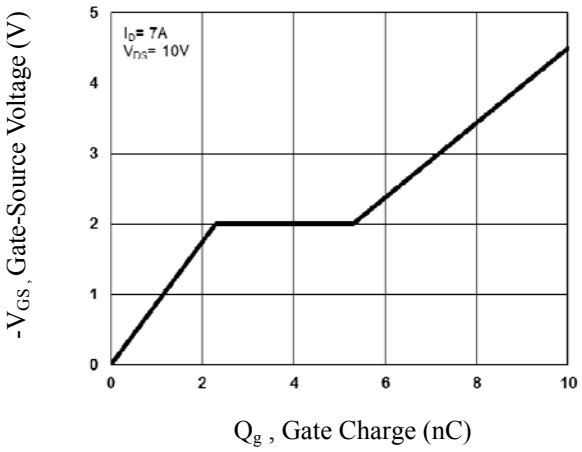
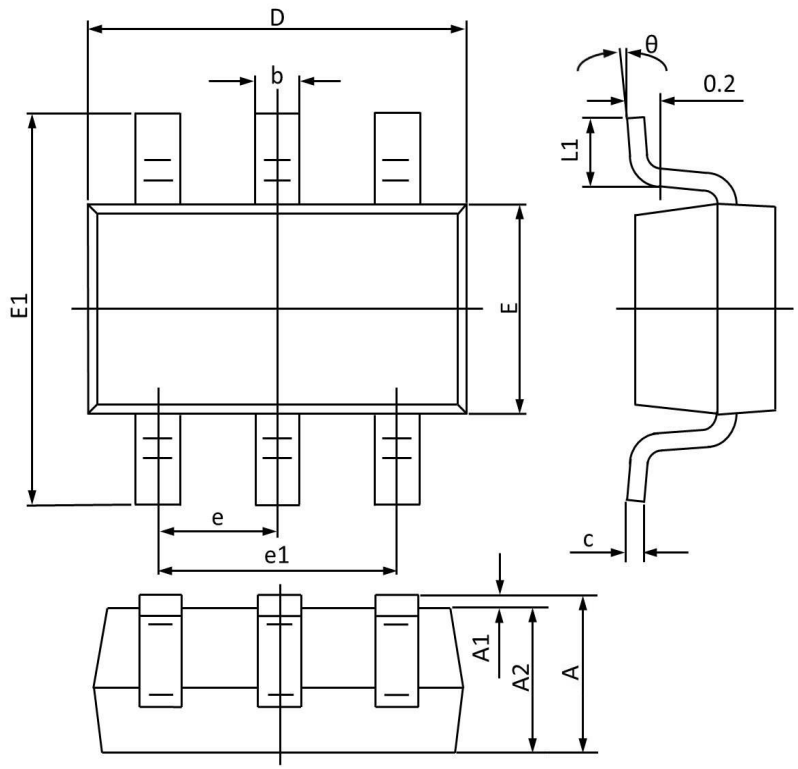


Fig.5 Gate Charge Waveform

SOT23-6 Package information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.450	-	0.057	-
A1	0.100	0.000	0.004	0.000
A2	1.300	1.050	0.051	0.041
b	0.500	0.300	0.020	0.012
c	0.200	0.100	0.008	0.004
D	3.100	2.700	0.122	0.106
E	1.800	1.400	0.071	0.055
E1	3.000	2.600	0.118	0.102
e	0.95BSC		0.037BSC	
e1	2.000	1.800	0.079	0.071
L1	0.600	0.300	0.024	0.012
θ	10°	0°	10°	0°

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