Description

JMT N-channel MOSFET

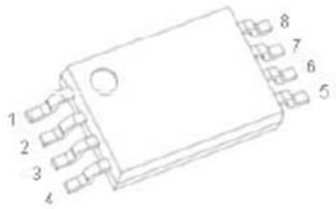
Features

- 20V,5A
- $R_{DS(ON)}$=22mΩ (Typ.) @ V_{GS}=4.5V
- $R_{DS(ON)}$=29mΩ (Typ.) @ V_{GS}=2.5V
- Low Gate Charge
- Low $R_{DS(on)}$

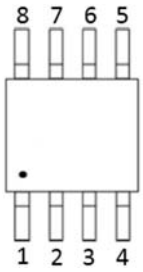
Application

- Battery Protection
- Switching Application

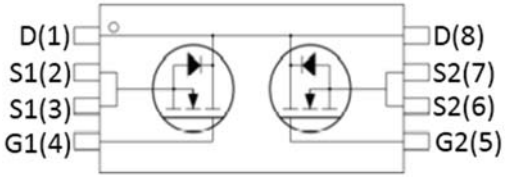
Package



JMTT8205A



Pin Assignment



Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_C = 25℃	5	A
		T_C = 100℃	3.2	A
I_{DM}	Pulsed Drain Current note1		25	A
P_D	Power Dissipation	T_A= 25℃	1.5	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		83.3	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	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, T_J= 25℃	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} =0V,V_{GS} = ±12V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	0.5	0.66	1.2	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS} =4.5V, I_D =4.5A	-	22	28	mΩ
		V_{GS} =2.5V, I_D =3.5A	-	29	40	
g_{FS}	Forward Transconductance	V_{DS} =5V, I_D =5A	3	-	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 8V, V_{GS} = 0V, f = 1.0MHz	-	800	-	pF
C_{oss}	Output Capacitance		-	155	-	pF
C_{rss}	Reverse Transfer Capacitance		-	125	-	pF
Q_g	Total Gate Charge	V_{DS} =10V, I_D =4A, V_{GS} = 4.5V	-	11	-	nC
Q_{gs}	Gate-Source Charge		-	2.3	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	2.5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=4V, V_{DD}=10V, I_D =1A, R_{REN} =10Ω	-	18	-	ns
t_r	Turn-on Rise Time		-	5	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	43	-	ns
t_f	Turn-off Fall Time		-	20	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	5	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	25	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S=1.7A	-	0.77	1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

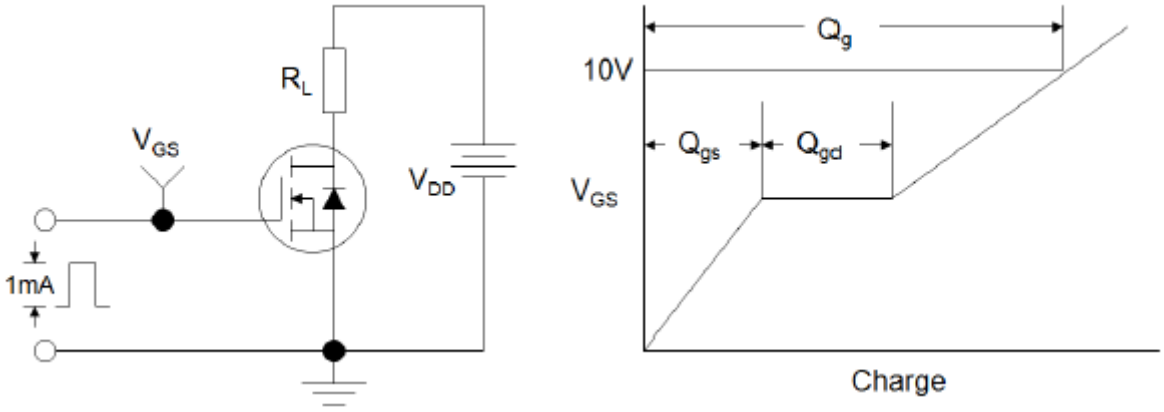


Figure1:Gate Charge Test Circuit & Waveform

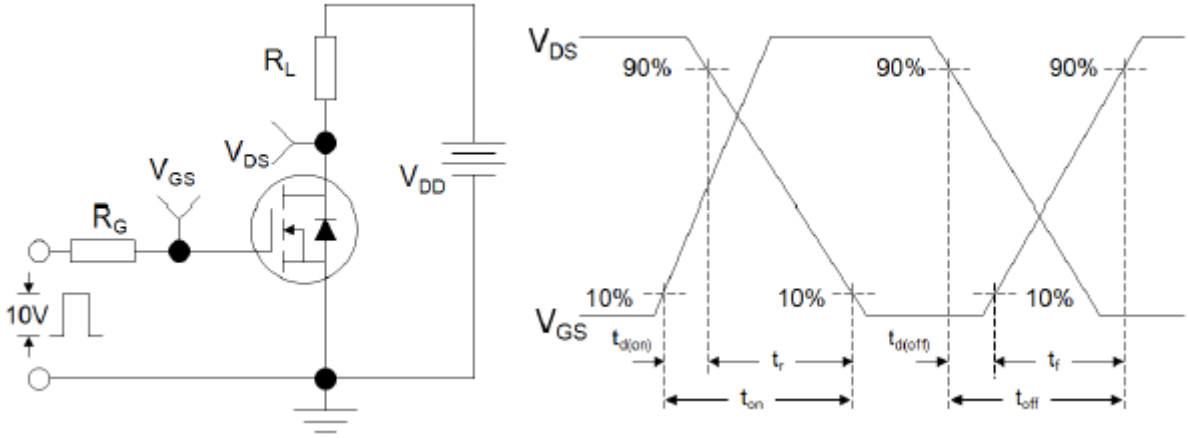


Figure 2: Resistive Switching Test Circuit & Waveforms

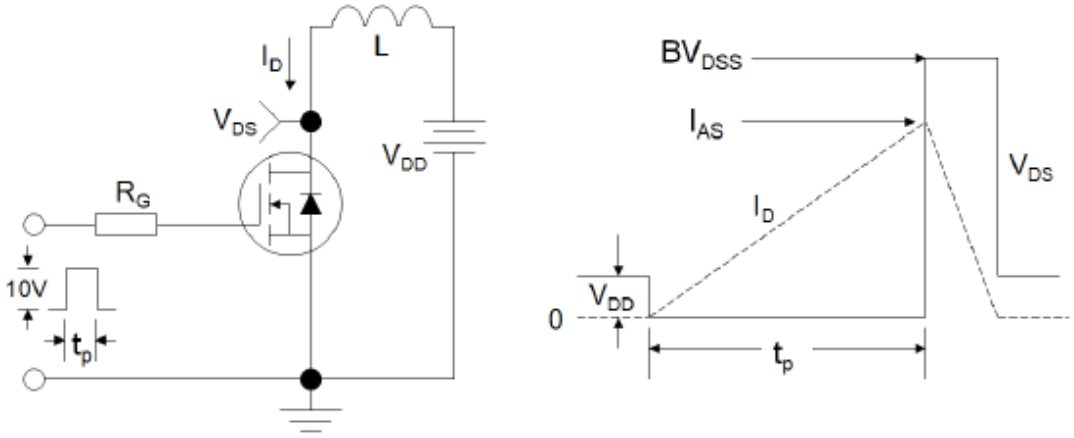


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

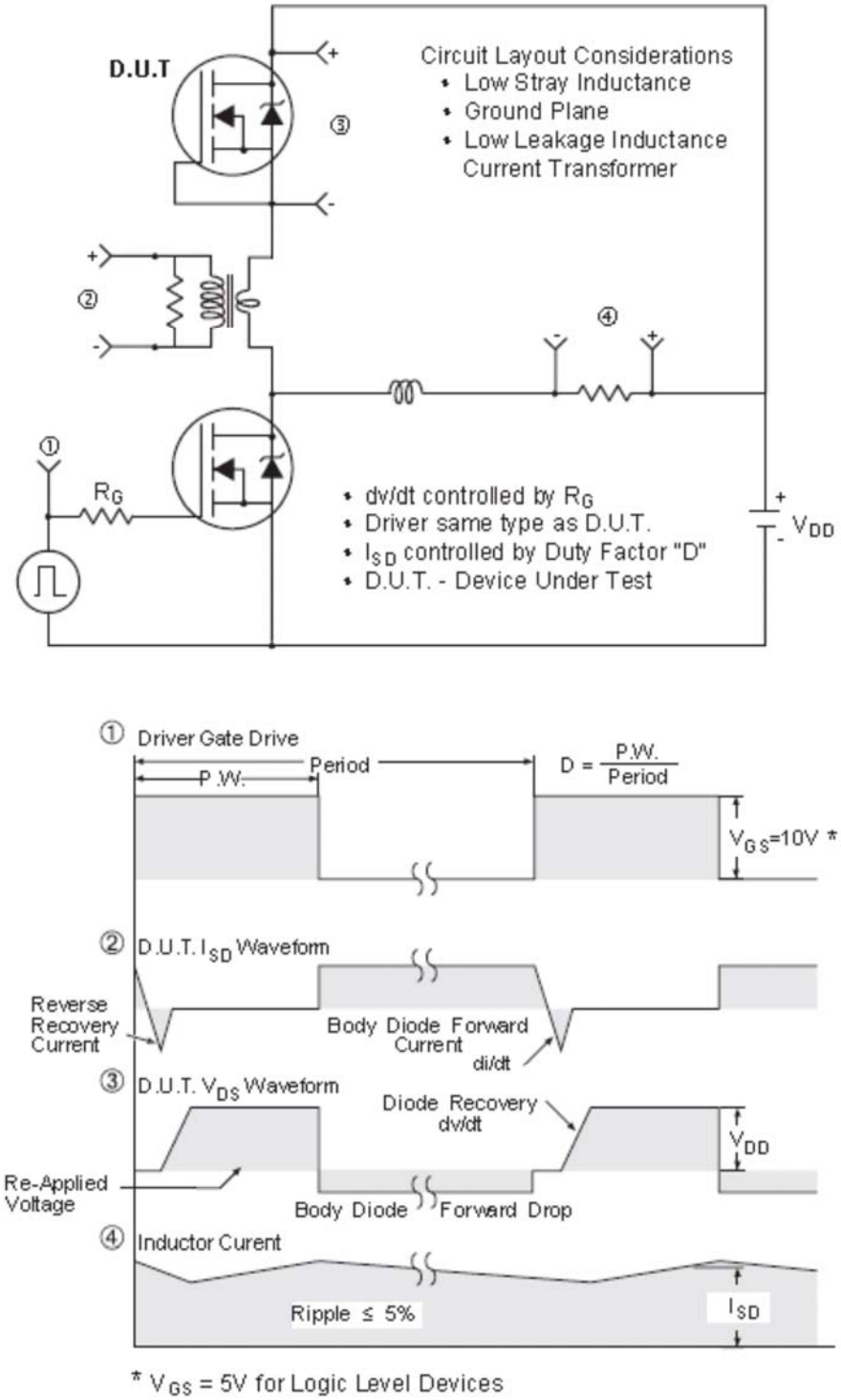
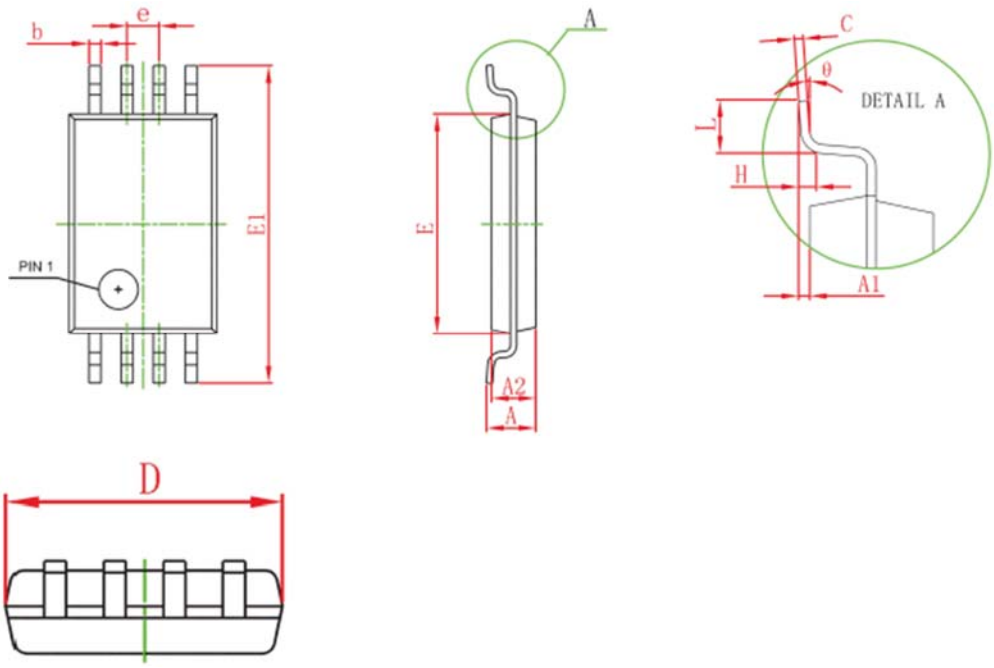


Figure 4:Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

Package Mechanical Data



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
C	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.200		0.047
A2	0.800	1.000	0.031	0.039
A1	0.050	0.150	0.002	0.006
e	0.65(BSC)		0.026(BSC)	
L	0.500	0.700	0.020	0.028
H	0.25(TYP)		0.01(TYP)	
θ	1°	7°	1°	7°

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