

Description

JMT N-channel Enhancement Mode Power MOSFET

Features

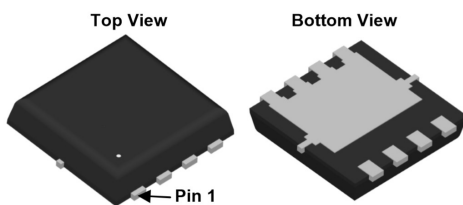
- 60V,35A
 $R_{DS(ON)} < 18m\Omega @ V_{GS} = 10V$
 $R_{DS(ON)} < 27m\Omega @ V_{GS} = 4.5V$
- Advanced Trench Technology
- Provide Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired

Application

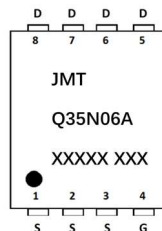
- Load Switch
- PWM Application
- Power management



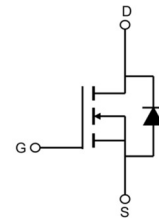
100% UIS TESTED!
100% ΔVds TESTED!



PDFN3.3X3.3-8L



Marking and pin Assignment



Schematic Diagram

Package Marking and Ordering Information

Device Marking	Device	OUTLINE	Device Package	Reel Size	Reel (PCS)	Per Carton (PCS)
JMTQ35N06A	JMTQ35N06A	TAPING	PDFN3.3X3.3-8L	13inch	5000	50000

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

Symbol	Parameter	Max.	Units
V _{DSS}	Drain-Source Voltage	60	V
V _{GSS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current	T _C = 25°C	35
		T _C = 100°C	22.8
I _{DM}	Pulsed Drain Current ^{note1}	140	A
EAS	Single Pulsed Avalanche Energy ^{note2}	64	mJ
P _D	Power Dissipation	T _C = 25°C	41
R _{θJC}	Thermal Resistance, Junction to Case	3	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +150	°C



Electrical Characteristics (T_J=25°C 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	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note3</small>	V _{GS} =10V, I _D =30A	-	12	18	mΩ
		V _{GS} =4.5V, I _D =20A	-	15	27	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	2900	-	pF
C _{oss}	Output Capacitance		-	140	-	pF
C _{rss}	Reverse Transfer Capacitance		-	124	-	pF
Q _g	Total Gate Charge	V _{DS} =30V, I _D =30A, V _{GS} =10V	-	50	-	nC
Q _{gs}	Gate-Source Charge		-	6	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	15	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =25V, I _D =30A, R _G =1.8Ω, V _{GS} =10V	-	7.4	-	ns
t _r	Turn-on Rise Time		-	5.1	-	ns
t _{d(off)}	Turn-off Delay Time		-	28.2	-	ns
t _f	Turn-off Fall Time		-	5.5	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	35	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	140	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =30A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I _F =30A, dI/dt=100A/μs	-	28	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	40	-	nC

- Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
 2. EAS condition : T_J=25°C, V_{DD}=30V, V_G=10V, L=0.5mH, R_G=25Ω, I_{AS}=16A
 3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%



Typical Performance Characteristics

Figure 1: Output Characteristics

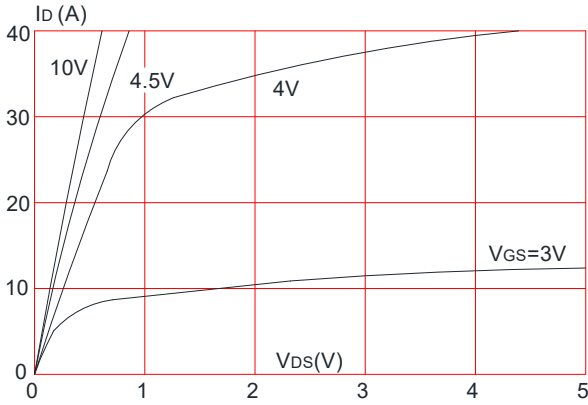


Figure 2: Typical Transfer Characteristics

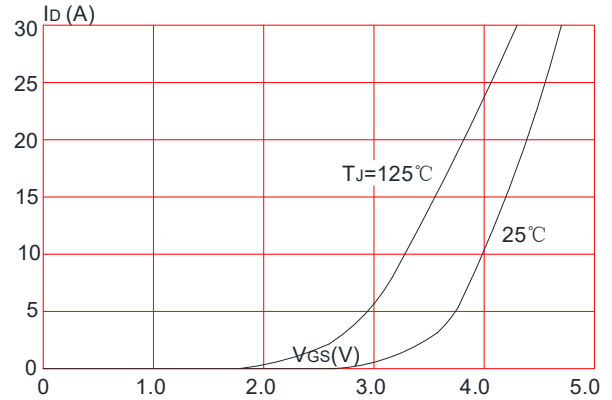


Figure 3: On-resistance vs. Drain Current

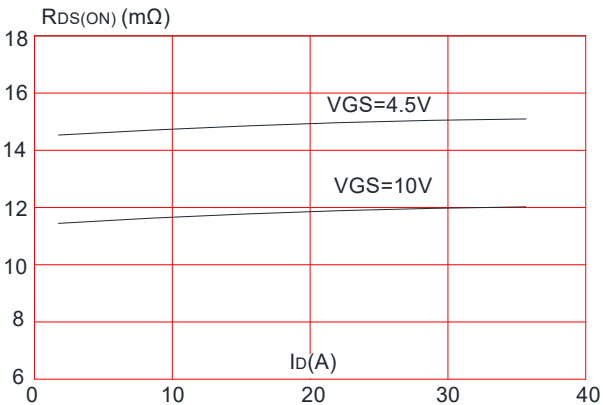


Figure 4: Body Diode Characteristics

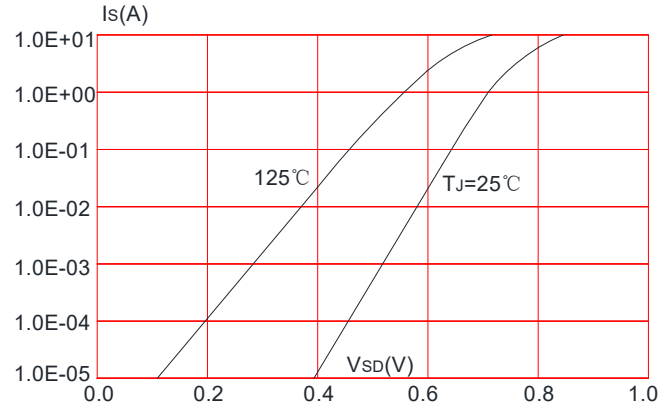


Figure 5: Gate Charge Characteristics

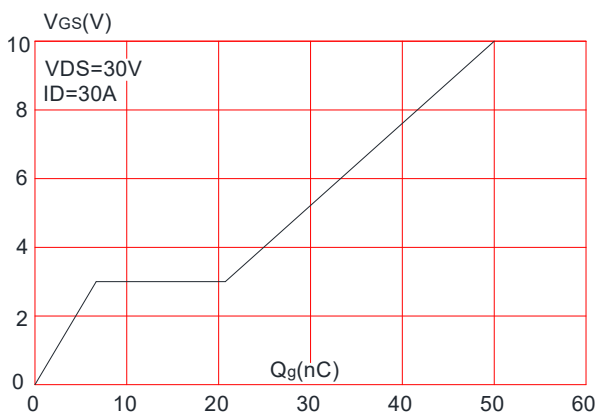


Figure 6: Capacitance Characteristics

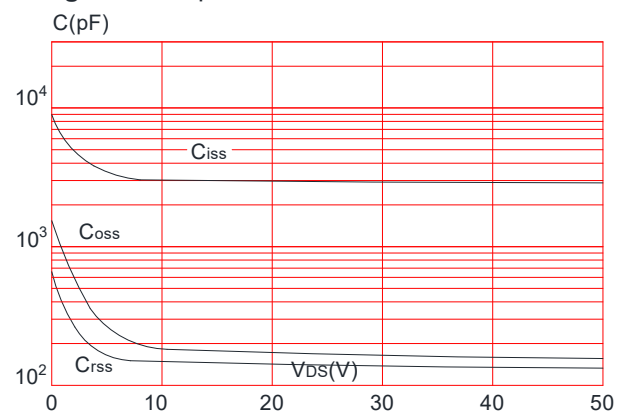




Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

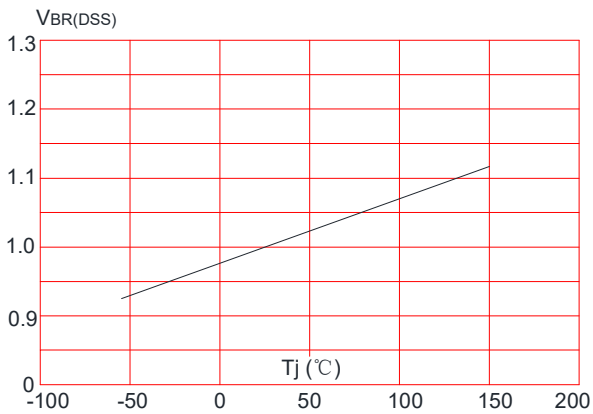


Figure 8: Normalized on Resistance vs. Junction Temperature

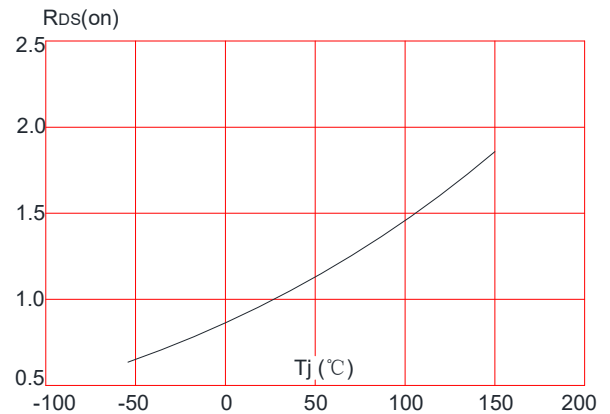


Figure 9: Maximum Safe Operating Area

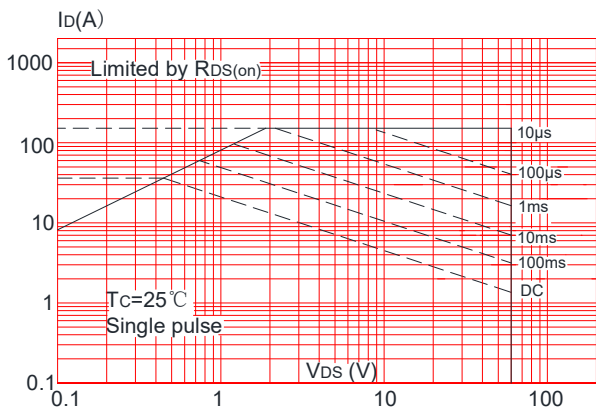


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

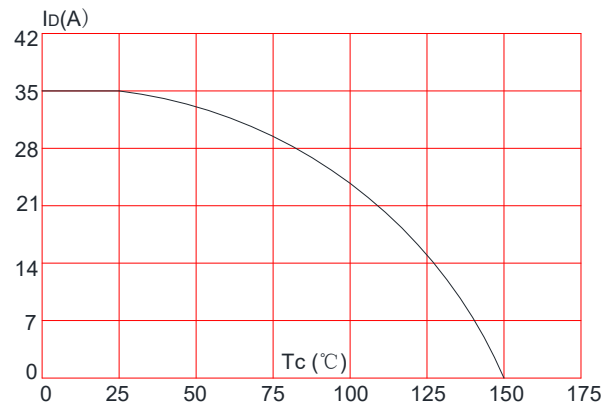
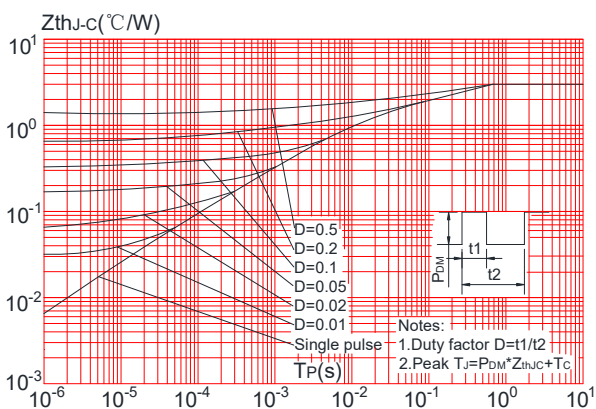


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Test Circuit



Figure1: Gate Charge Test Circuit & Waveform



Figure 2: Resistive Switching Test Circuit & Waveforms

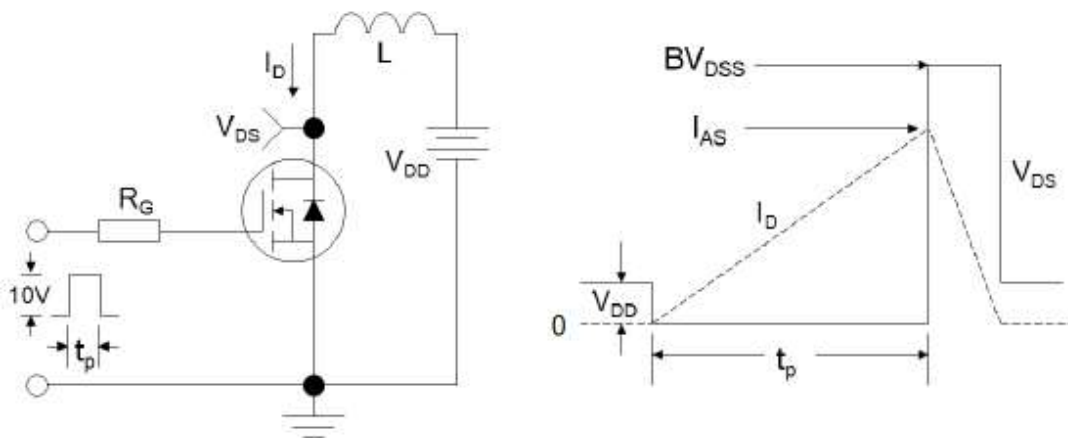
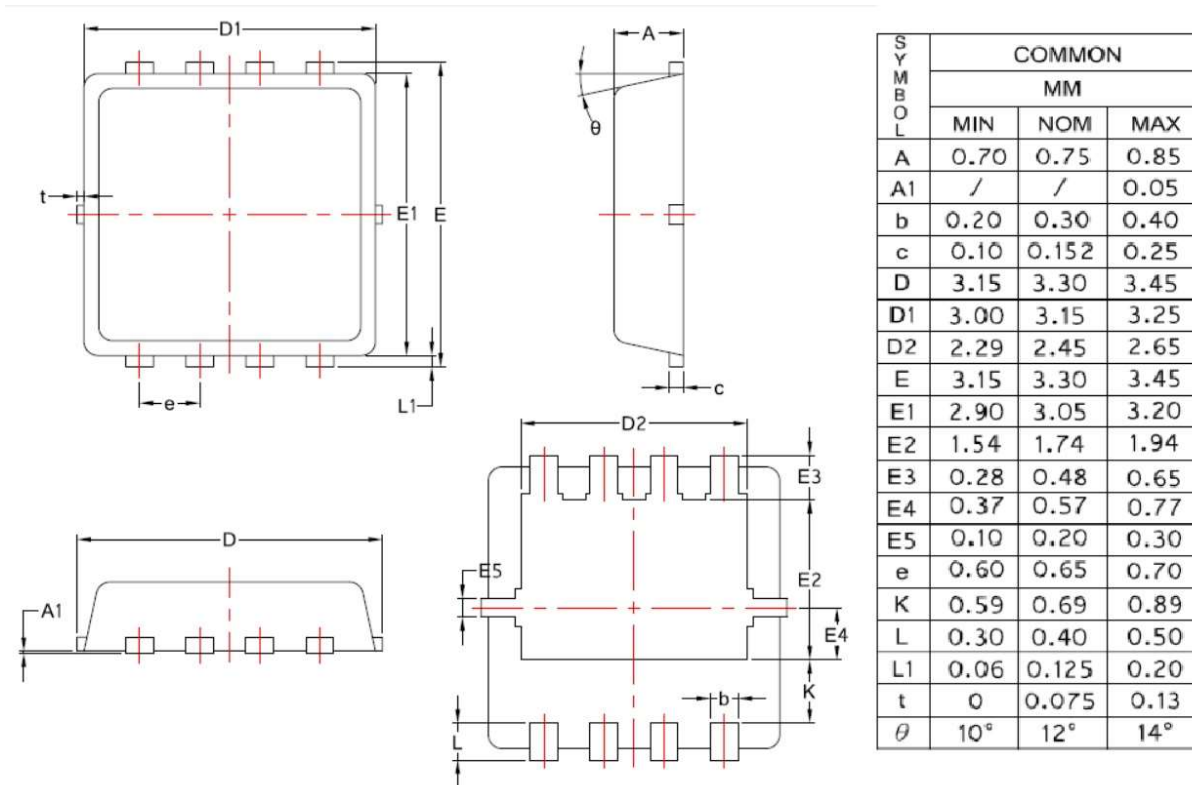


Figure 3: Unclamped Inductive Switching Test Circuit & Waveforms



Package Mechanical Data-PDFN3.3X3.3-8L



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