



Description

JMT N-channel Enhancement Mode Power MOSFET

Features

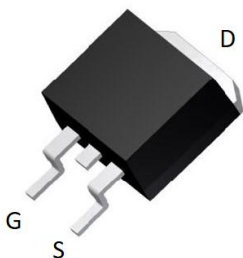
- 60V, 120A
 $R_{DS(ON)} < 6m\Omega @ V_{GS} = 10V$
- Advanced Trench Technology
- Provide Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired

Application

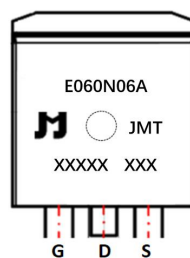
- Load Switch
- PWM Application
- Power management



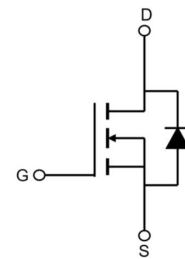
100% UIS TESTED!
100% ΔVds TESTED!



TO-263-3L top view



Marking and pin Assignment



Schematic Diagram

Package Marking and Ordering Information

Device Marking	Device	OUTLINE	Device Package	Reel Size	Reel (PCS)	Per Carton (PCS)
JMTE060N06A	JMTE060N06A	TAPING	TO-263-3L	13inch	800	4000

Absolute Maximum Ratings ($T_C=25^\circ C$ unless otherwise specified)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	60	V
V_{GSS}	Gate-Source Voltage	± 25	V
I_D	Continuous Drain Current	$T_C = 25^\circ C$	120
		$T_C = 100^\circ C$	78
I_{DM}	Pulsed Drain Current ^{note1}	480	A
EAS	Single Pulsed Avalanche Energy ^{note2}	225	mJ
P_D	Power Dissipation	$T_C = 25^\circ C$	181
$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.83	$^\circ C/W$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +175	$^\circ C$



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} = ±25V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2	3	4	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note3</small>	V _{GS} =10V, I _D =30A	-	4.6	6	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	5672	-	pF
C _{oss}	Output Capacitance		-	392	-	pF
C _{rss}	Reverse Transfer Capacitance		-	352	-	pF
Q _g	Total Gate Charge	V _{DS} =30V, I _D =30A, V _{GS} =10V	-	80	-	nC
Q _{gs}	Gate-Source Charge		-	25	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	22	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =30V, I _D =30A, R _G =1.8Ω, V _{GS} =10V	-	19	-	ns
t _r	Turn-on Rise Time		-	90	-	ns
t _{d(off)}	Turn-off Delay Time		-	38	-	ns
t _f	Turn-off Fall Time		-	80	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	120	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	480	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	-	29	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	32	-	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}=30A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%



Typical Performance Characteristics

Figure 1: Output Characteristics

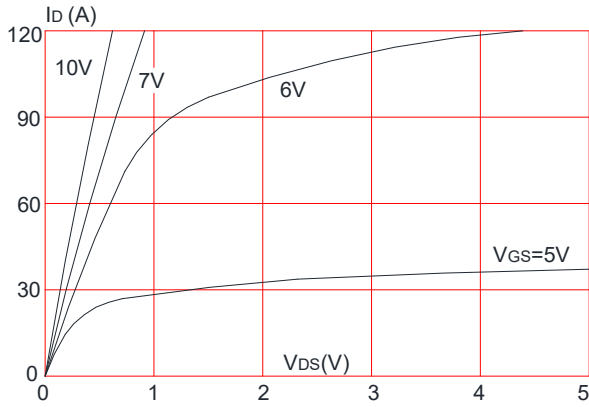


Figure 2: Typical Transfer Characteristics

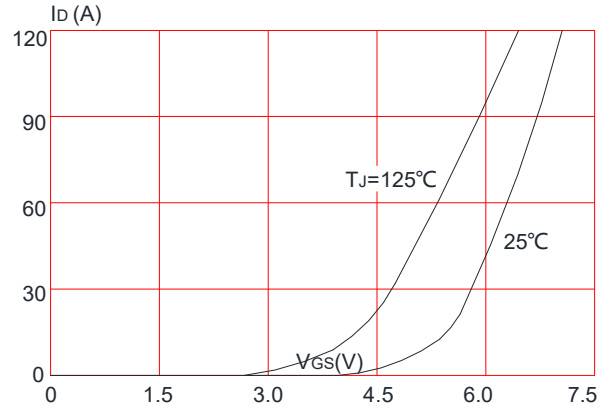


Figure 3: On-resistance vs. Drain Current

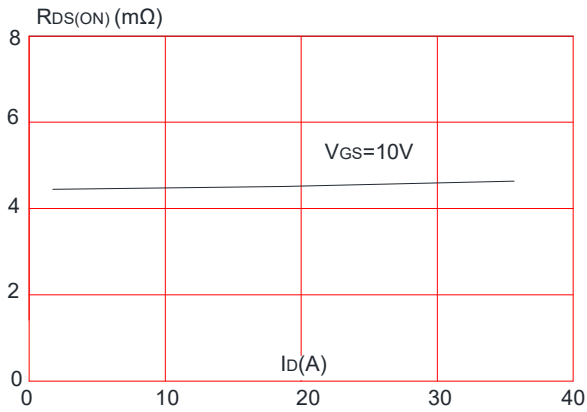


Figure 4: Body Diode Characteristics

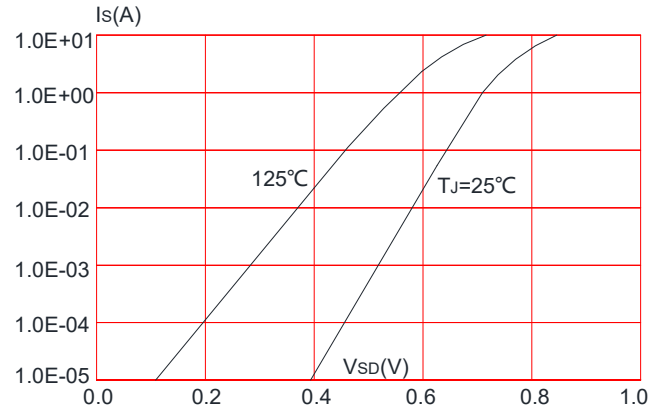


Figure 5: Gate Charge Characteristics

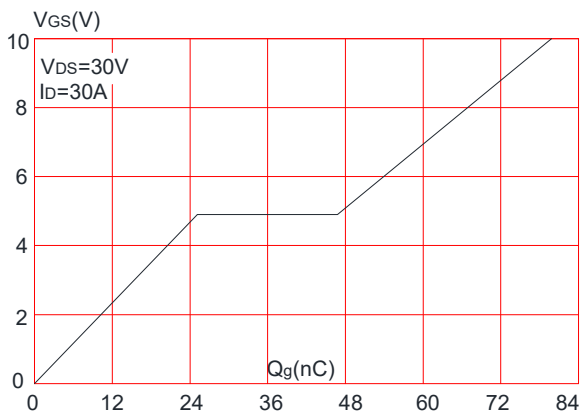


Figure 6: Capacitance Characteristics

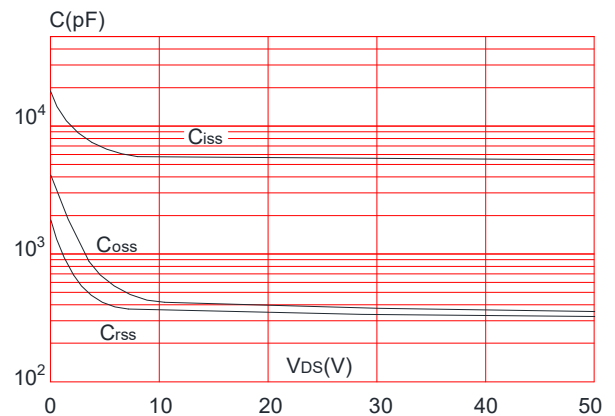




Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

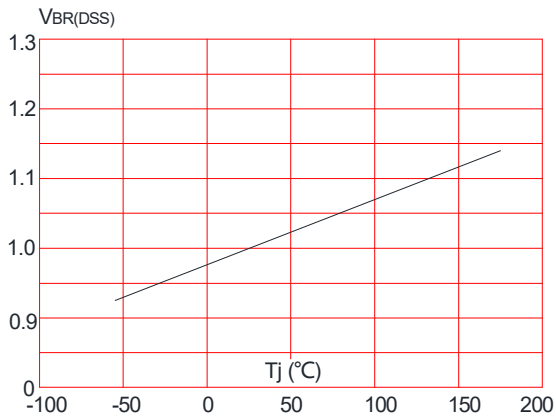


Figure 8: Normalized on Resistance vs. Junction Temperature

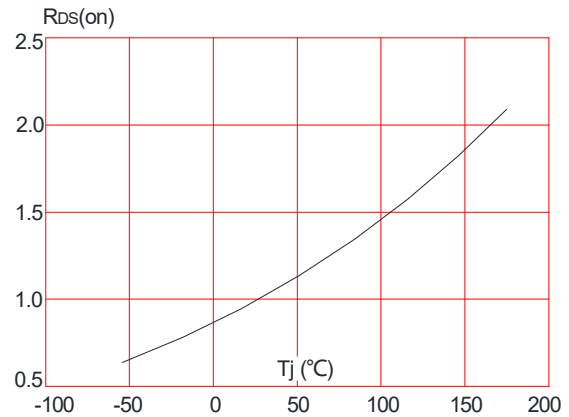


Figure 9: Maximum Safe Operating Area

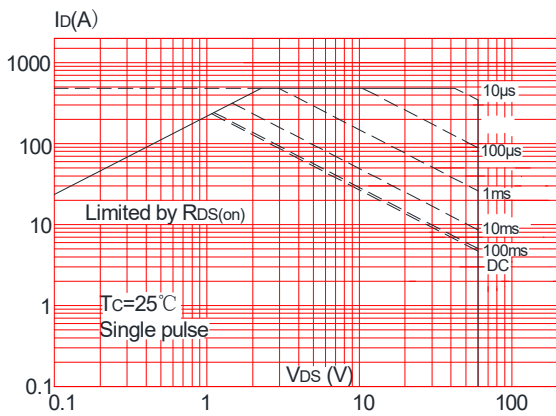


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

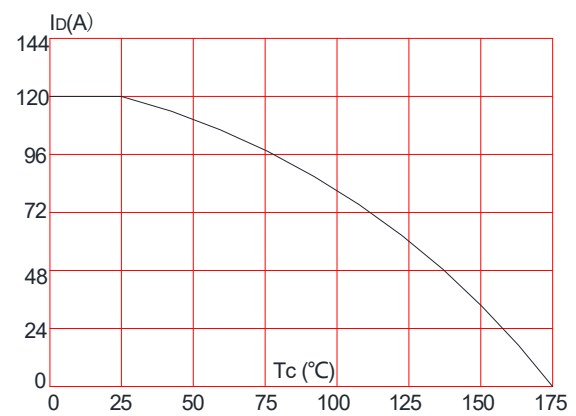
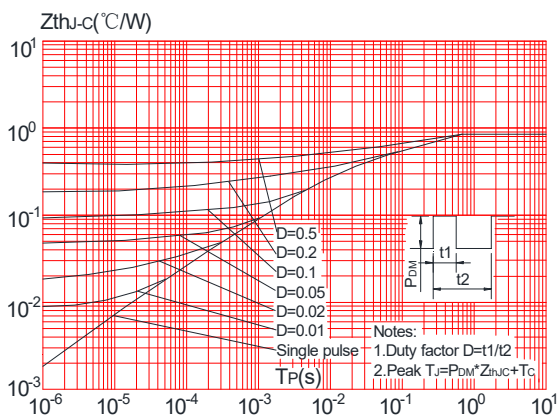


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Test Circuit

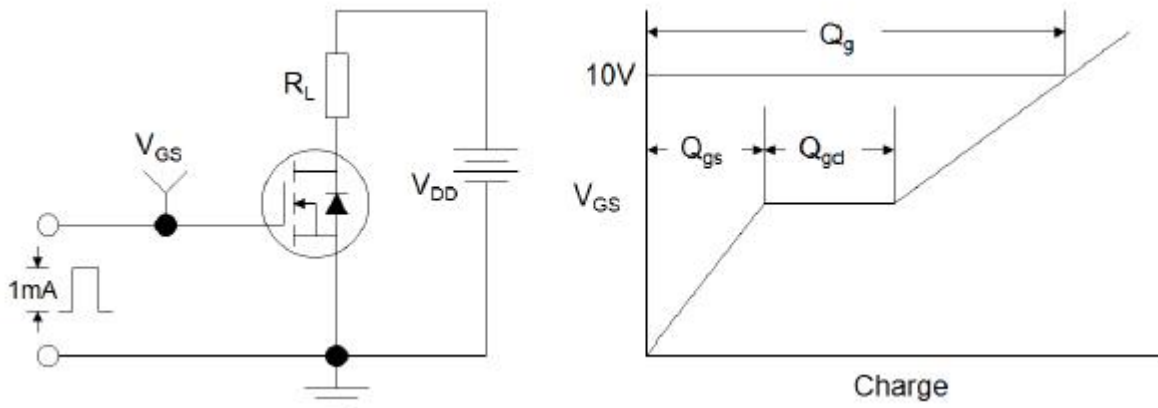


Figure1:Gate Charge Test Circuit & Waveform



Figure 2: Resistive Switching Test Circuit & Waveforms

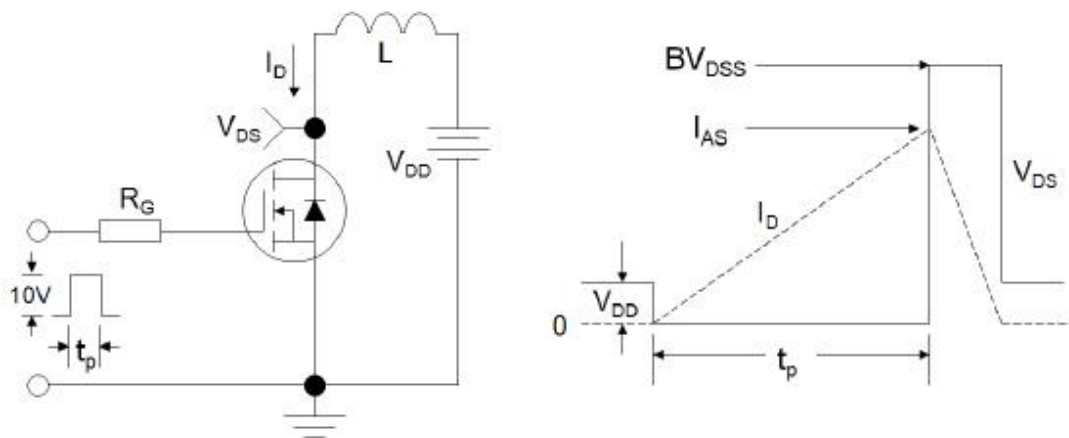
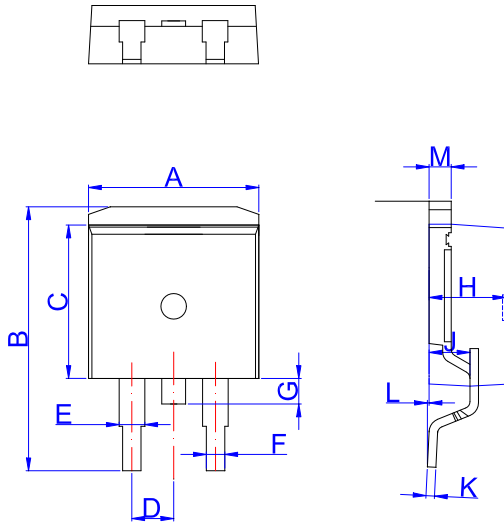


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms



Package Mechanical Data-TO-263-3L



TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053

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