

Description

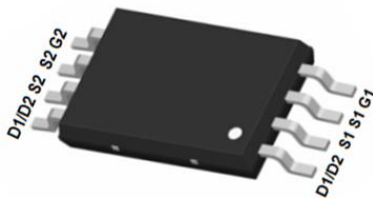
JMT N-channel Enhancement Mode Power MOSFET

Features

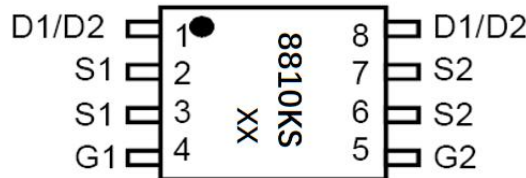
- 20V, 4.8A
 $R_{DS(ON)} < 22m\Omega @ V_{GS} = 4.5V$
 $R_{DS(ON)} < 35m\Omega @ V_{GS} = 2.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired
- ESD Rating: HBM 2KV

Application

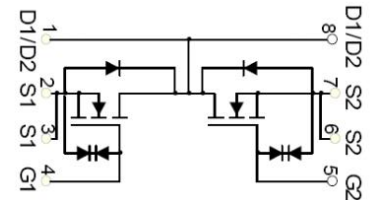
- Load Switch
- PWM Application
- Power management



TSSOP-8 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)
8810KS	JMTT8810KS	TAPING	TSSOP-8	13inch	5000	60000

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

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	± 10	V
I_D	Continuous Drain Current	$T_A = 25^\circ C$	4.8
		$T_A = 100^\circ C$	3.1
I_{DM}	Pulsed Drain Current ^{note1}	19	A
P_D	Power Dissipation	$T_A = 25^\circ C$	0.83
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	151	$^\circ C/W$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ C$



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	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V,	-	-	1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±10V	-	-	±10	uA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.4	0.7	1	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note2</small>	V _{GS} =4.5V, I _D =4A	-	17	22	mΩ
		V _{GS} =2.5V, I _D =3A	-	25	35	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1.0MHz	-	545	-	pF
C _{oss}	Output Capacitance		-	103	-	pF
C _{riss}	Reverse Transfer Capacitance		-	90	-	pF
Q _g	Total Gate Charge	V _{DS} =10V, I _D =4.8A, V _{GS} =4.5V	-	8	-	nC
Q _{gs}	Gate-Source Charge		-	2.5	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	3	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =10V, R _L =1.5Ω, R _{GEN} =3Ω, V _{GS} =5V	-	0.5	-	ns
t _r	Turn-on Rise Time		-	1	-	ns
t _{d(off)}	Turn-off Delay Time		-	12	-	ns
t _f	Turn-off Fall Time		-	4	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	4.8	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	19	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =4.8A	-	-	1.2	V

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

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%



Typical Performance Characteristics

Figure 1: Output Characteristics

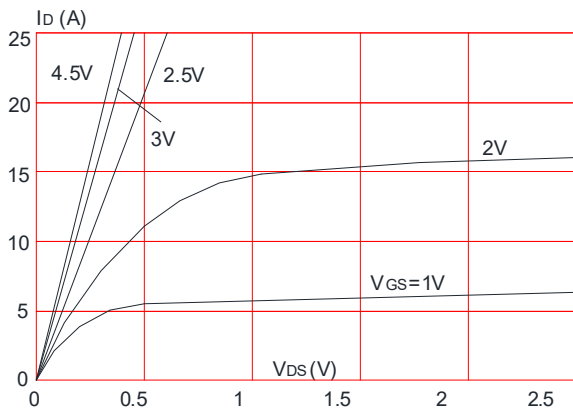


Figure 2: Typical Transfer Characteristics

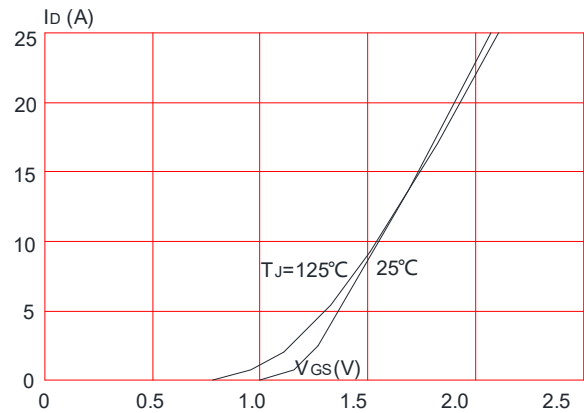


Figure 3: On-resistance vs. Drain Current

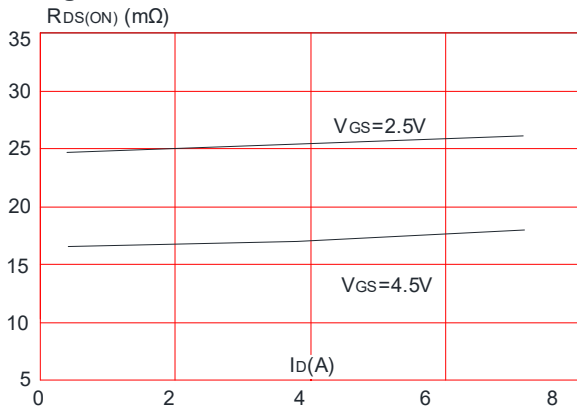


Figure 4: Body Diode Characteristics

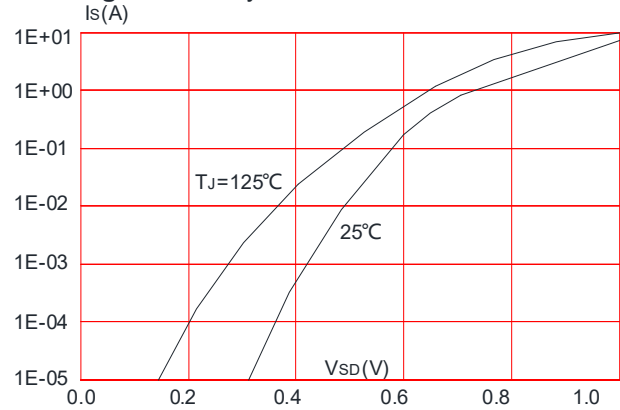


Figure 5: Gate Charge Characteristics

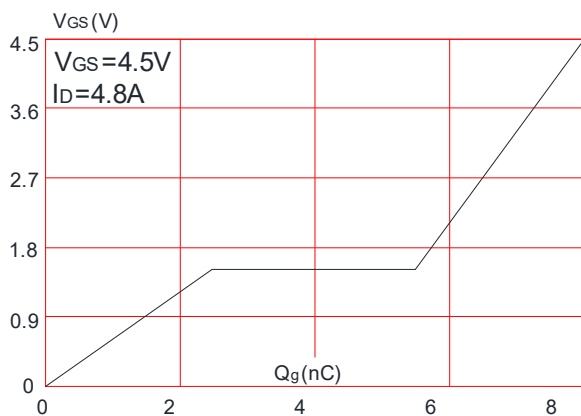


Figure 6: Capacitance Characteristics

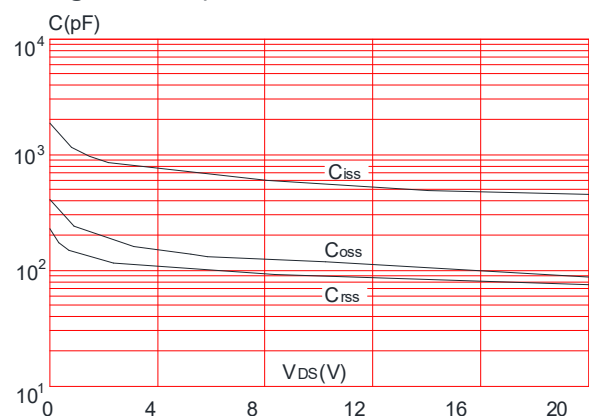




Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

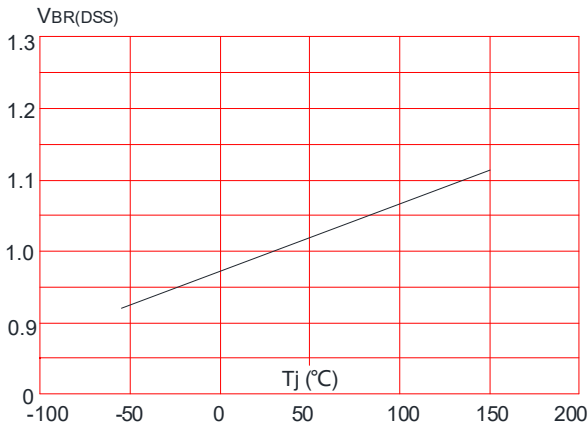


Figure 8: Normalized on Resistance vs. Junction Temperature

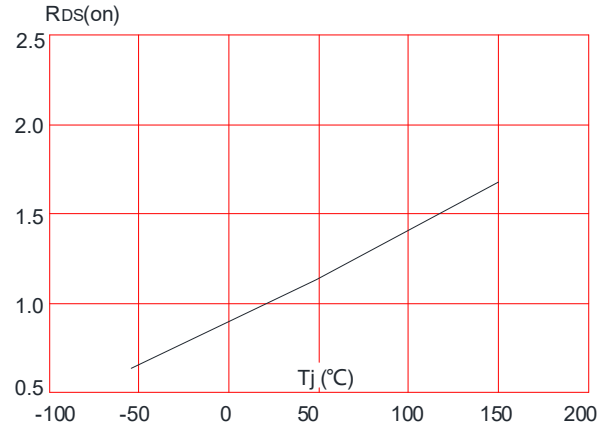


Figure 9: Maximum Safe Operating Area

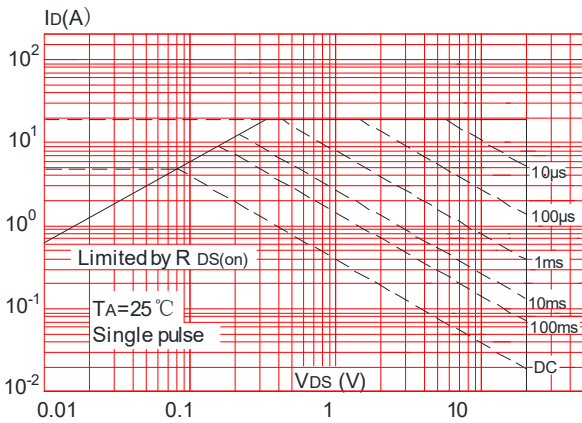


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

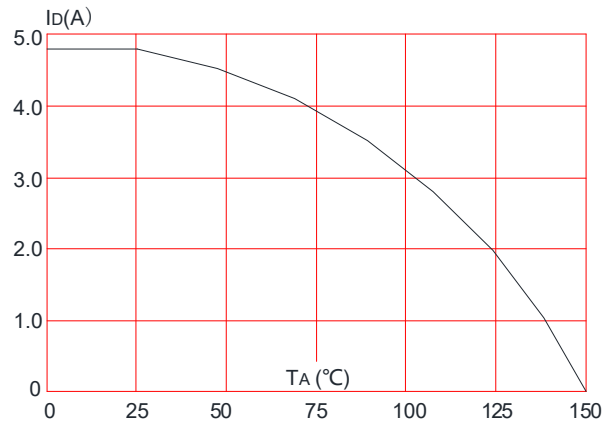
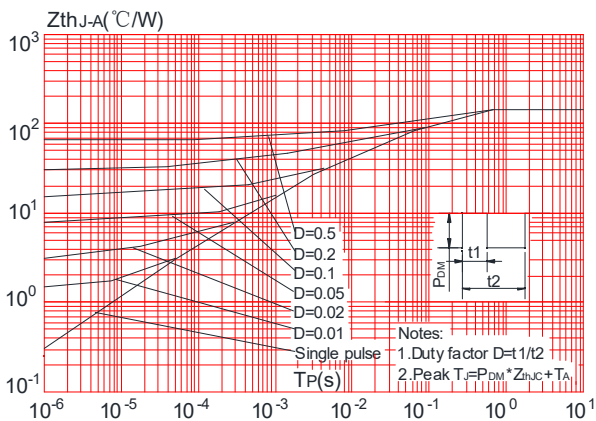


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Test Circuit



Figure1:Gate Charge Test Circuit & Waveform



Figure 2: Resistive Switching Test Circuit & Waveforms

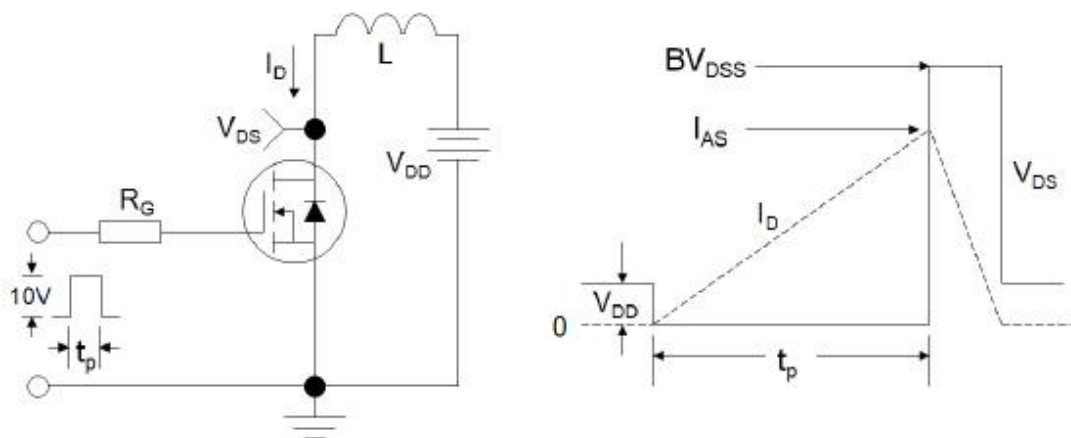
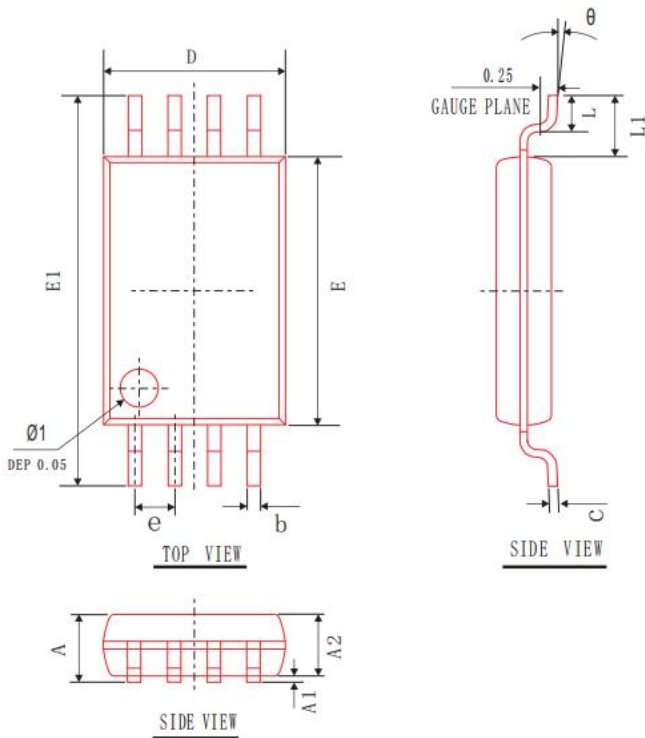


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms



Package Mechanical Data-TSSOP-8



COMMON DIMENSIONS
(UNITS OF MEASURE=mm)

SYMBOL	MIN	NOM	MAX
A	1.00	1.10	1.20
A1	0.02	0.10	0.18
A2	0.90	1.00	1.10
b	0.17	0.22	0.27
c	0.122	0.127	0.132
L	0.40	0.60	0.80
D	2.87	2.97	3.07
E	4.30	4.40	4.50
E1	6.20	6.40	6.60
Ø1	0.50	0.60	0.70
θ	0°	5°	10°
L1	1.00 BSC		
e	0.65 BSC		

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