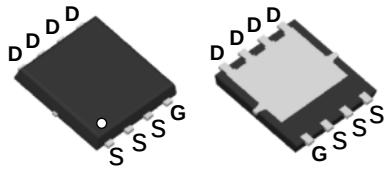
WMB037N08HG2

80V N-Channel Enhancement Mode Power MOSFET

Description

WMB037N08HG2 uses Wayon's 2nd generation power trench MOSFET technology that has been especially tailored to minimize the on-state resistance and yet maintain superior switching performance. This device is well suited for high efficiency fast switching applications.

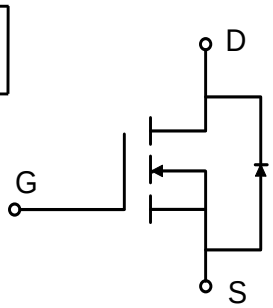


PDFN5060-8L

Features

- V_{DS} = 80V, I_D = 135A(Silicon Limited)
  $R_{DS(on)}$ < 3.7mΩ @ V_{GS} = 10V
- Low $R_{DS(ON)}$
- 100% EAS Guaranteed
- High Speed Power Switching

RoHS compliant



Applications

- Power Management Switches
- DC/DC Converter
- Synchronous Rectification in SMPS

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	80	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1](Silicon Limited)	T_C=25℃	I_D	135	A
	T_C=100℃		88	
Continuous Drain Current[1](Package Limited)	T_C=25℃		60	
Pulsed Drain Current[2]		I_{DM}	400	A
Single Pulse Avalanche Energy[3]		EAS	405	mJ
Avalanche Current		I_{AS}	45	A
Total Power Dissipation[4]	T_C=25℃	P_D	120	W
Operating Junction and Storage Temperature Range		T_J , T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient[1]	$R_{\theta JA}$	54.4	°C/W
Thermal Resistance from Junction-to-Case[1]	$R_{\theta JC}$	1	°C/W

Electrical Characteristics T_c = 25°C, unless otherwise noted

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	80	-	-	V
Gate-body Leakage Current		I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T_J=25℃	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V	-	-	1	μA
	T_J=100℃			-	-	100	
Gate-Threshold Voltage		$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	3	4	V
Drain-Source On-Resistance[2]		$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A	-	3	3.7	mΩ
Forward Transconductance		g_{fs}	V_{DS} = 5V, I_D = 20A	-	61	-	S
Dynamic Characteristics							
Input Capacitance		C_{iss}	V_{DS} = 40V, V_{GS} =0V, f =1MHz	-	3636	-	pF
Output Capacitance		C_{oss}		-	1337	-	
Reverse Transfer Capacitance		C_{rss}		-	94	-	
Switching Characteristics							
Gate Resistance		R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz	-	1.2	-	Ω
Total Gate Charge		Q_g	V_{GS} = 10V, V_{DD} = 40V, I_D= 20A	-	77	-	nC
Gate-Source Charge		Q_{gs}		-	16.5	-	
Gate-Drain Charge		Q_{gd}		-	30	-	
Turn-On Delay Time		$t_{d(on)}$	V_{GS} =10V, V_{DD} = 40V,R_G = 10Ω, I_D= 20A	-	12.6	-	nS
Rise Time		t_r		-	17.5	-	
Turn-Off Delay Time		$t_{d(off)}$		-	43	-	
Fall Time		t_f		-	24.1	-	
Drain-Source Body Diode Characteristics							
Diode Forward Voltage[2]		V_{SD}	I_S = 20A, V_{GS} = 0V	-	-	1.2	V
Reverse Recovery Time		t_{rr}	V_R =40V, I_F=20A, dI_F/dt=400A/μs	-	43	-	ns
Reverse Recovery Charge		Q_{rr}		-	152	-	nC

Notes:

1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%

3.The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.4Mh,I_{AS}=50A.

4.The power dissipation is limited by 150℃ junction temperature

5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

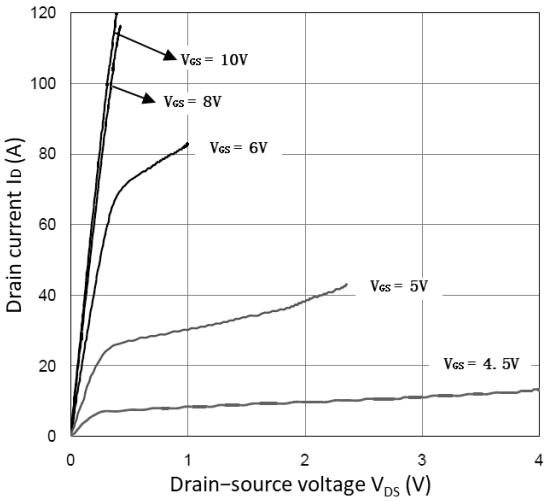


Figure 1. Output Characteristics

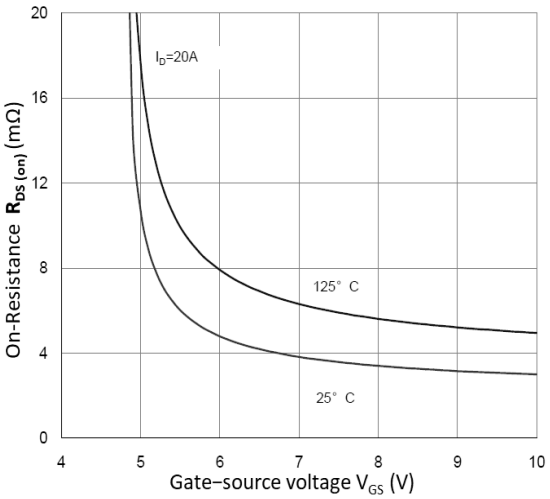


Figure 2. $R_{DS(on)}$ vs. V_{GS}

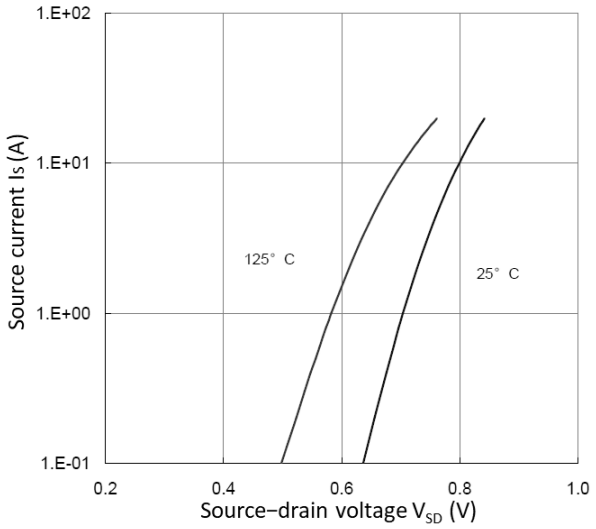


Figure 3. Forward Characteristics of Reverse

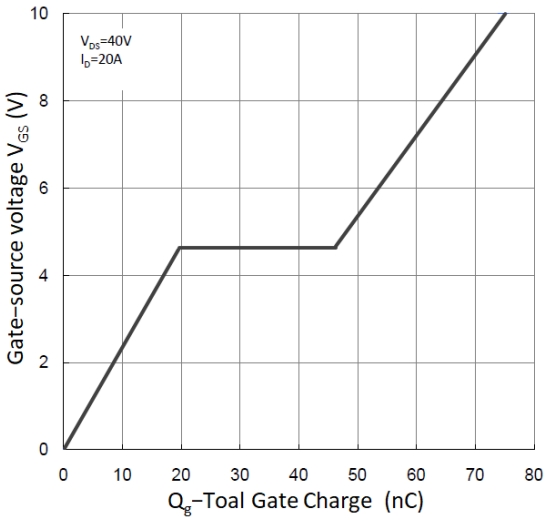


Figure 4.Gate Charge Characteristics

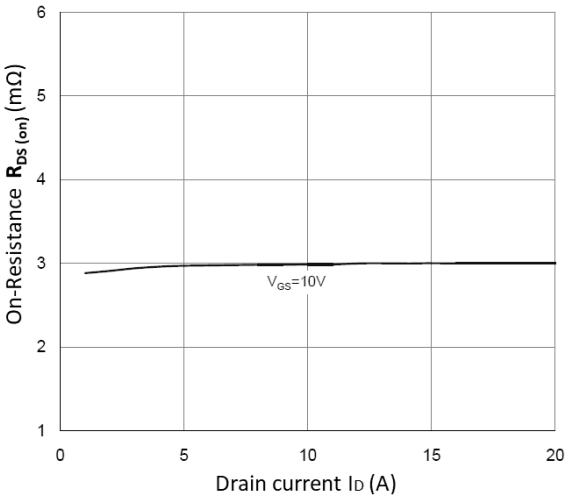


Figure 5. $R_{DS(ON)}$ vs. I_D

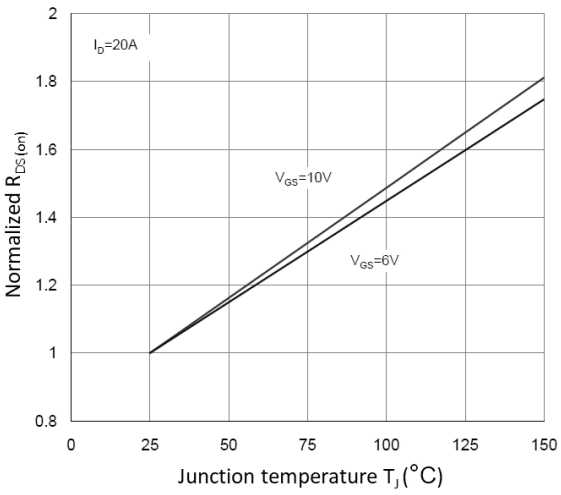


Figure 6. Normalized $R_{DS(on)}$ vs. T_J

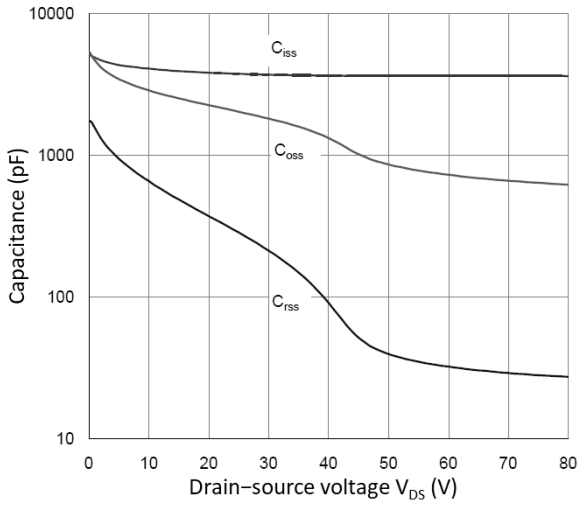


Figure 7. Capacitance Characteristics

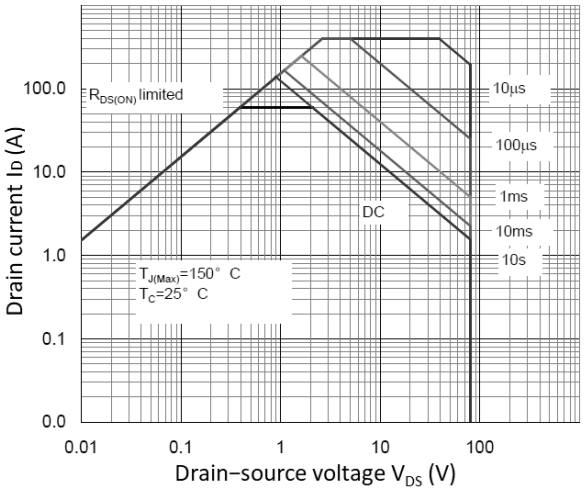


Figure 8. Safe Operating Area

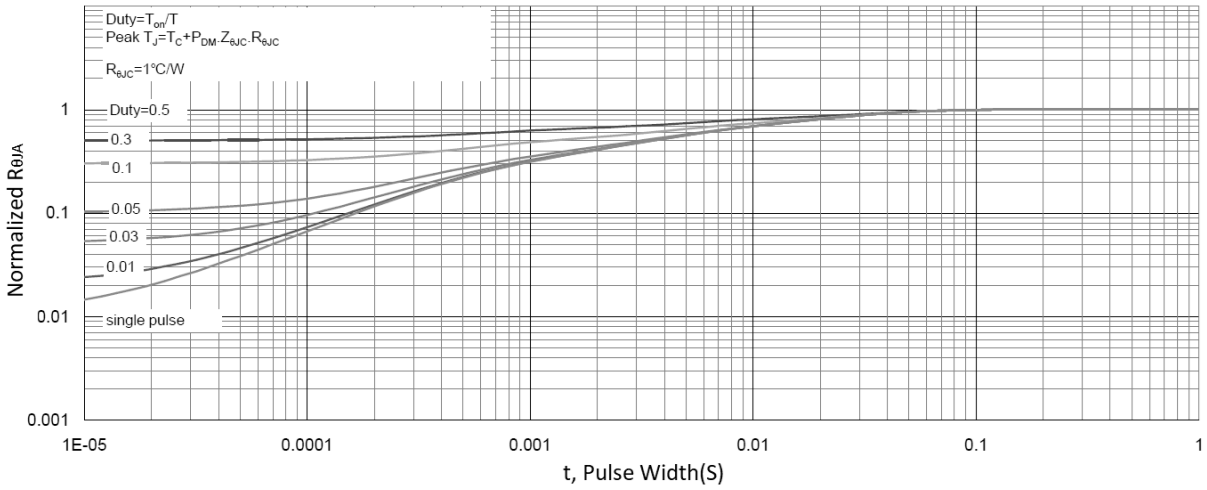


Figure 9. Normalized Maximum Transient Thermal Impedance

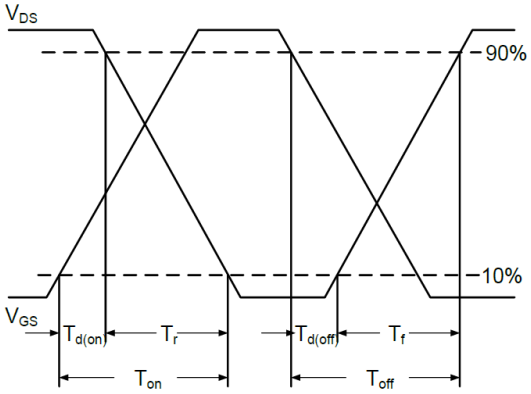


Figure 10.Switching Time Waveform

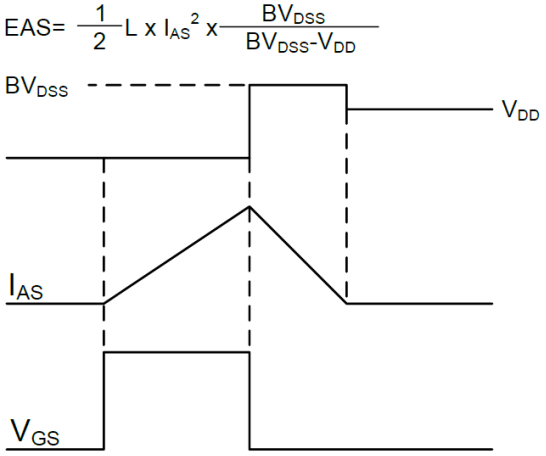
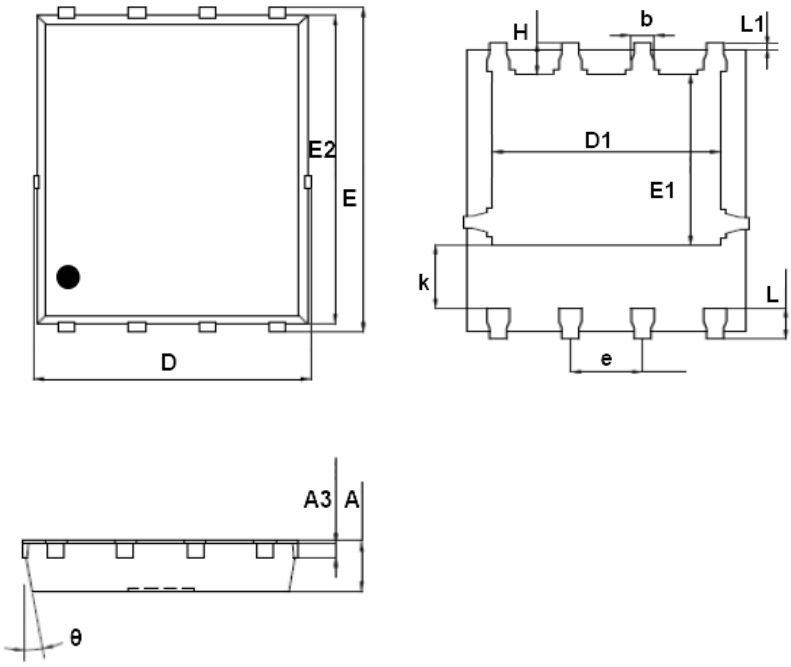


Figure 11.Unclamped Inductive Switching Waveform

Mechanical Dimensions for PDFN5060-8L



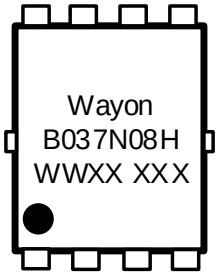
COMMON DIMENSIONS

SYMBOL	MM	
	MIN	MAX
A	0.90	1.20
A3	0.15	0.35
D	4.80	5.40
E	5.90	6.35
D1	3.61	4.31
E1	3.30	3.92
E2	5.65	6.06
k	1.10	-
b	0.30	0.51
e	1.27BSC	
L	0.38	0.71
L1	0.05	0.36
H	0.38	0.61
θ	0°	12°

Ordering Information

Part	Package	Marking	Packing method
WMB037N08HG2	PDFN5060-8L	B037N08H	Tape and Reel

Marking Information



B037N08H= Device code

WWXX XXX= Date code

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