



YJG20N06A

N-Channel Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	60V
I_D	20A
$r_{DS(ON)}$ (at $V_{GS}=10V$)	<43mohm
$r_{DS(ON)}$ (at $V_{GS}=4.5V$)	<47mohm
100% EAS Tested	
100% ∇V_{DS} Tested	

General Description

PYNS Zb P MV MOSFET technology
 Excellent package for heat dissipation
 High density cell design for Low $R_{DS(ON)}$
 Moisture Sensitivity Level 1
 Epoxy Meets UL 94 V-0 Flammability Rating
 Halogen Free

Applications

DC-DC Converters
 Power management functions
 Backlighting

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

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	60	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current	I_D	$T_C=25^\circ C$	20
		$T_C=100^\circ C$	12.5
Pulsed Drain Current ^A	I_{DM}	60	A



YJG20N06A

Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		34	43	m Ω
		$V_{GS}=4.5V, I_D=10A$		36	47	
Diode Forward Voltage	V_{SD}	$I_S=10A, V_{GS}=0V$		0.8	1.2	V
Maximum Body-Diode Continuous Current	I_S				20	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		1018		pF
Output Capacitance	C_{oss}			70		
Reverse Transfer Capacitance	C_{rss}			62		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V, I_D=10A$		26		nC
Gate-Source Charge	Q_{gs}			5.4		
Gate-Drain Charge	Q_{gd}			6.5		
Reverse Recovery Charge	Q_{rr}	$I_F=20A, di/dt=500A/\mu s$		11.7		
Reverse Recovery Time	t_{rr}			23		

Turn-on Delay Time

$t_{D(on)}$

V_{GS}

ns



Typical Performance Characteristics

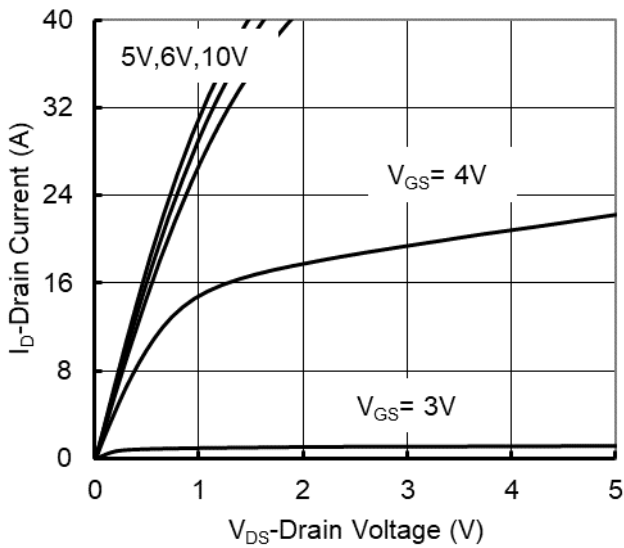


Figure 1. Output Characteristics

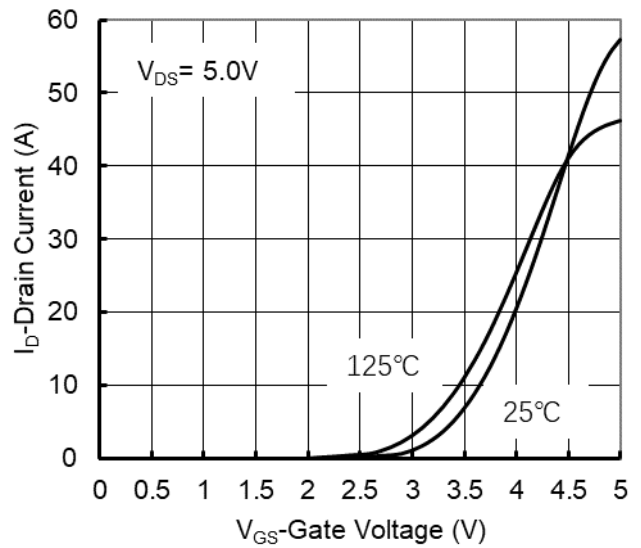


Figure 2. Transfer Characteristics

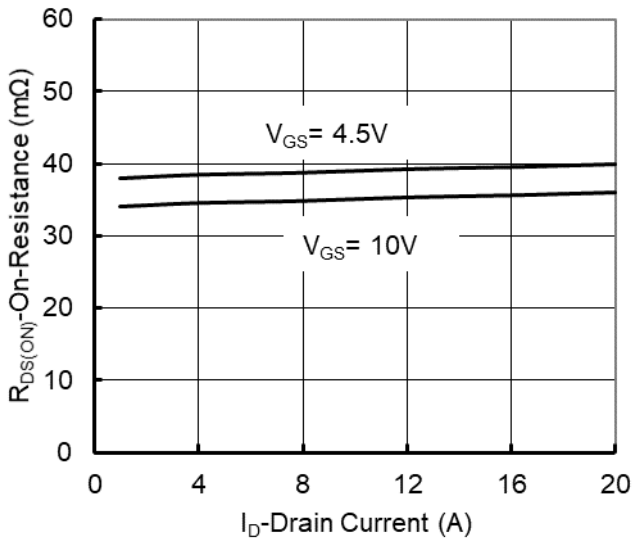


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

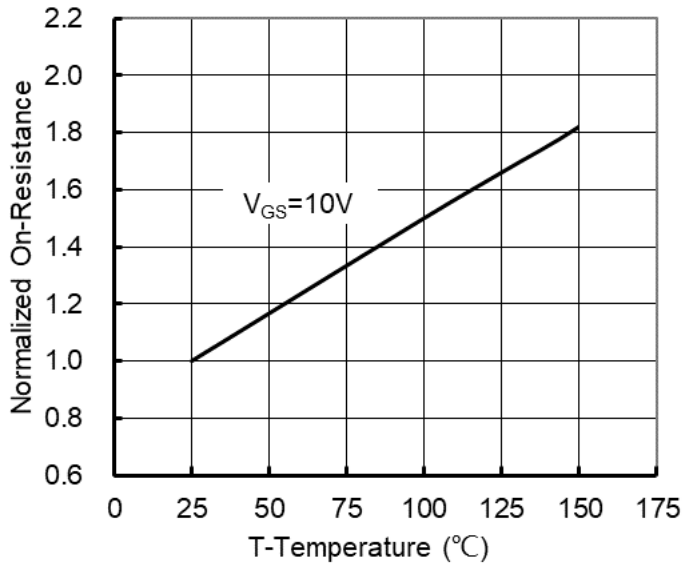


Figure 4. On-Resistance vs. Junction Temperature

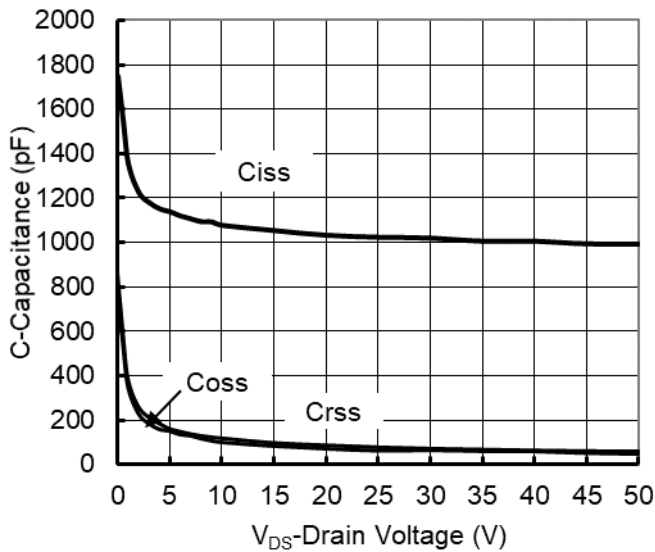


Figure 5. Capacitance Characteristics

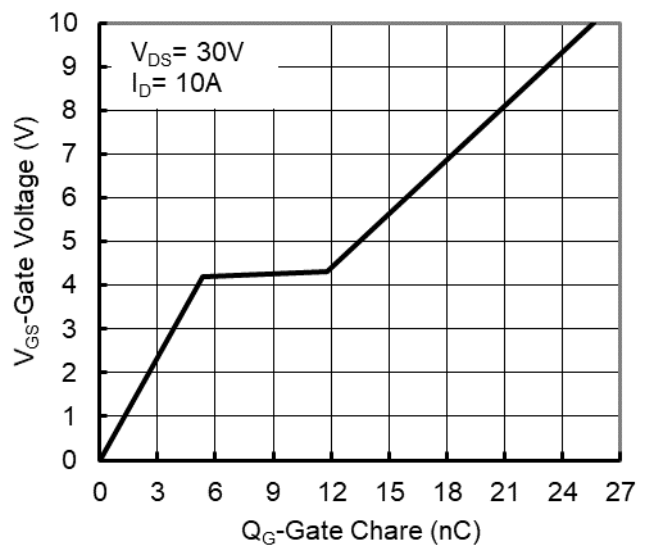


Figure 6. Gate Charge



YJG20N06A

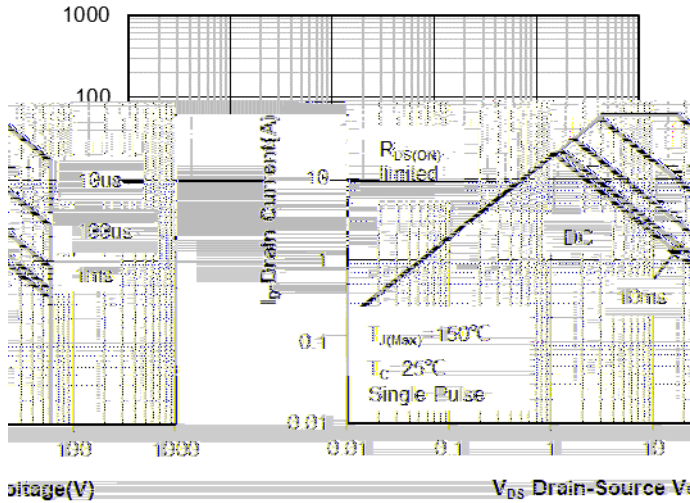


Figure 7. Safe Operation Area

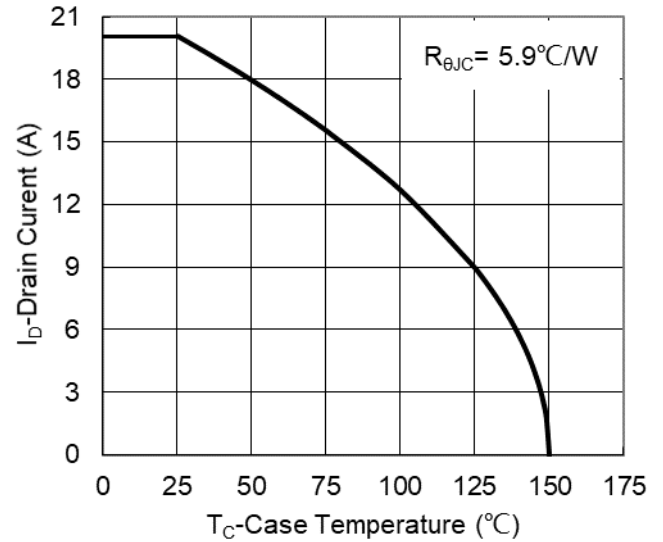


Figure 8. Maximum Continuous Drain Current vs Case Temperature

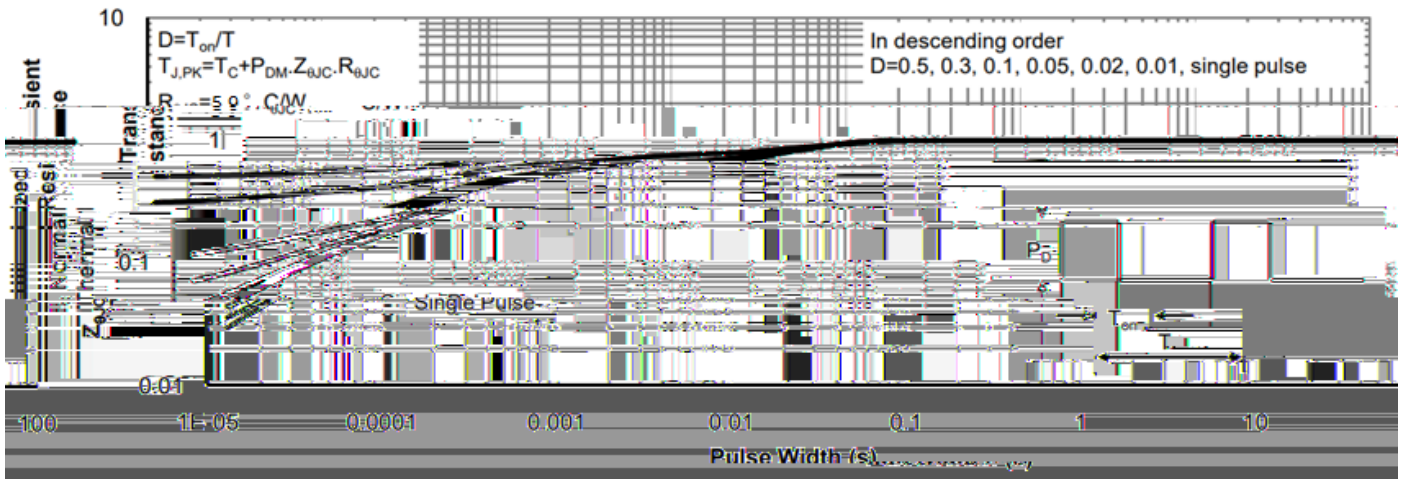
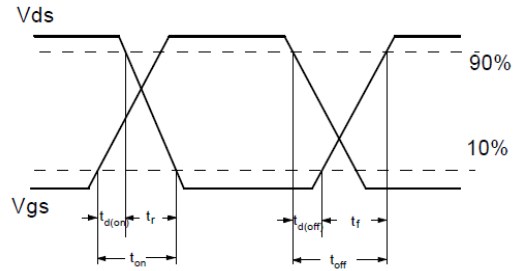
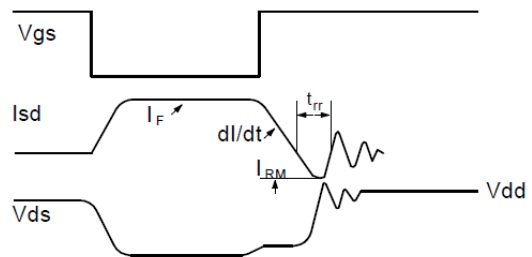
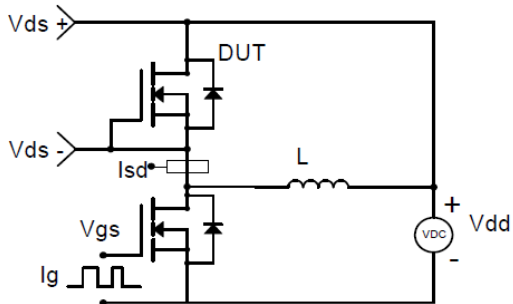


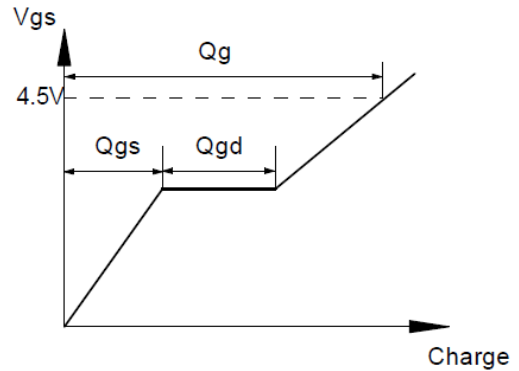
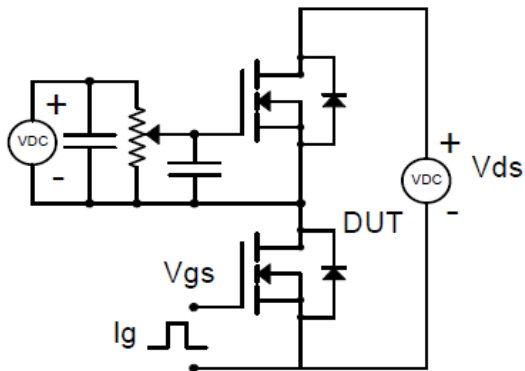
Figure 9. Normalized Maximum Transient Thermal Impedance



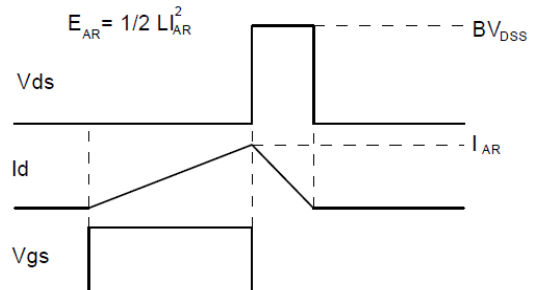
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Gate Charge Test Circuit & Waveform

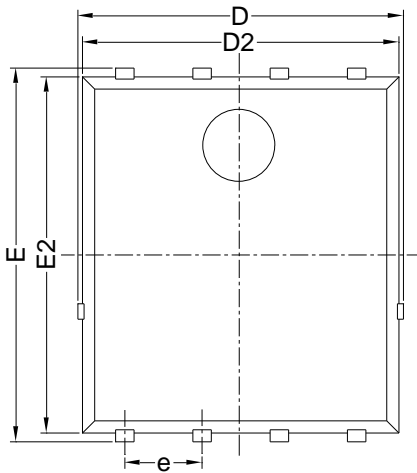


Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

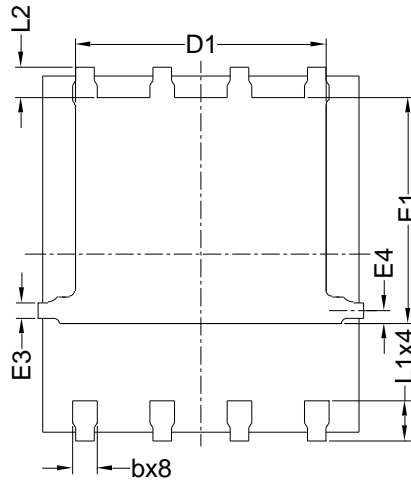


YJG20N06A

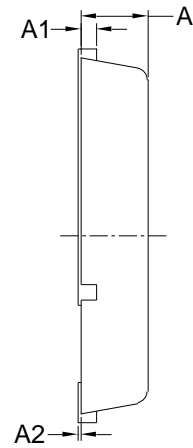
PDFN5060-8L-B-1.1MM Package Information



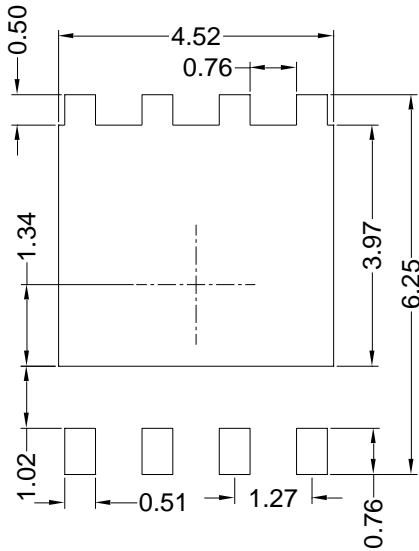
Top View
正面视图



Bottom View
背面视图



Side View
侧面视图



Suggested Solder Pad Layout
Top View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	5.15	5.35	5.55
E	5.95	6.15	6.35
A	1.00	1.10	1.20
A1	0.254 BSC		
A2			0.10
D1	3.92	4.12	4.32
E1	3.52	3.72	3.92
D2	5.00	5.20	5.40
E2	5.66	5.86	6.06
E3	0.254 REF		
E4	0.21 REF		
L1	0.56	0.66	0.76
L2	0.50 BSC		
b	0.31	0.41	0.51
e	1.27 BSC		

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.10 mm.
3. The pad layout is for reference purposes only.



YJG20N06A

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