



N-Channel Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	30V
I_D	220A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	0.9m
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	1.8m
100% EAS Tested	
100% V_{DS} Tested	

General Description



YJG220G03AJR

Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	30	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
		V _{DS} =30V, V _{GS} =0V, T _J =150°C	-	-	100	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	1.2	1.8	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =110A	-	0.7	0.9	m
		V _{GS} =10V, I _D =20A	-	0.65	0.9	
		V _{GS} =4.5V, I _D =20A	-	1.1	1.8	
Diode Forward Voltage	V _{SD}	I _S =110A, V _{GS} =0V	-	0.85	1.3	V
Gate resistance	R _G	f=1MHz	-	1.4	-	
Maximum Body-Diode Continuous Current	I _S		-	-	220	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=100KHz	-	9600	-	pF
Output Capacitance	C _{oss}		-	5600	-	
Reverse Transfer Capacitance	C _{rss}		-	230	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =50A	-	103	-	nC
Gate-Source Charge	Q _{gs}		-	22	-	
Gate-Drain Charge	Q _{gd}		-	25	-	
Reverse Recovery Charge	Q _{rr}	I _F =50A, di/dt=100A/us	-	96	-	nC
Reverse Recovery Time	t _{rr}		-	70	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =15V, I _D =50A R _{GEN} =3	-	26	-	ns
Turn-on Rise Time	t _r		-	43	-	
Turn-off Delay Time	t _{D(off)}		-	68	-	
Turn-off fall Time	t _f		-	35	-	

A. Repetitive rating; pulse width limited by max. junction temperature.

B. T_J=25°C, V_{DD}=25V, V_G=10V, R_G=25Ω, L=2mH, I_{AS}=26A.

C. P_d is based on max. junction temperature, using junction-case thermal resistance.

D. The value of R_{JA} is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in the still air environment with T_A=25°C. The maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.



Typical Electrical and Thermal Characteristics Diagrams

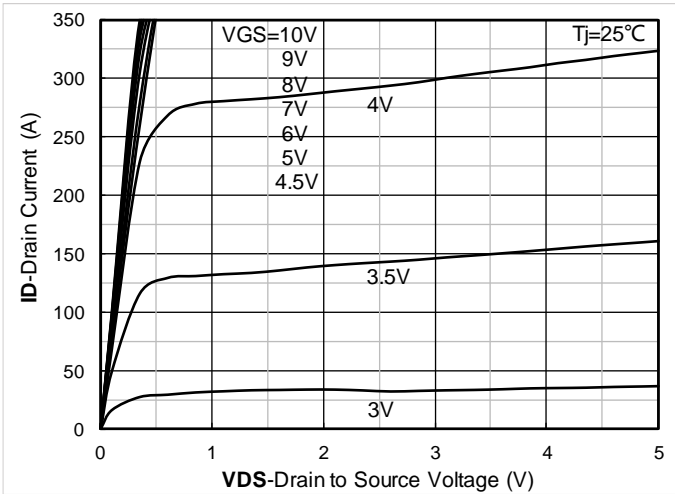


Figure 1. Output Characteristics

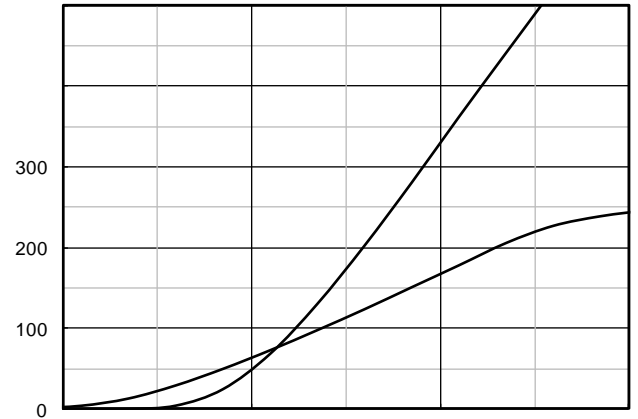


Figure 2. Transfer Characteristics

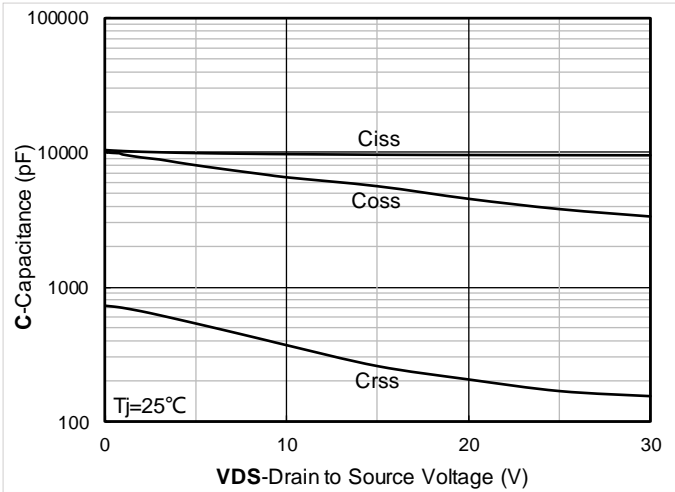


Figure 3. Capacitance Characteristics

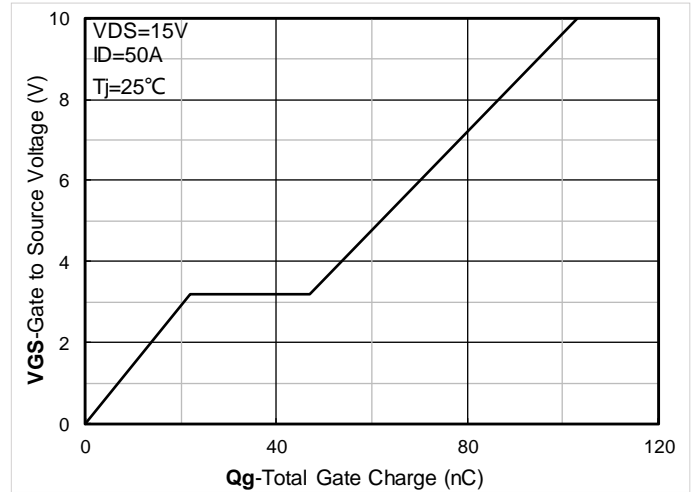


Figure 4. Gate Charge

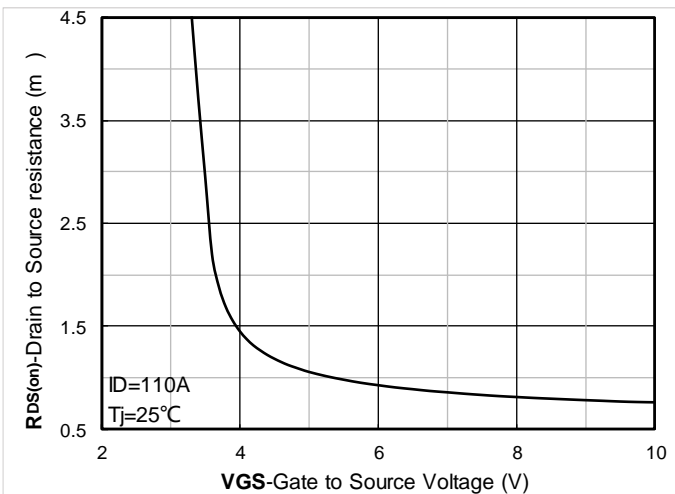


Figure 5. On-Resistance vs Gate to Source Voltage

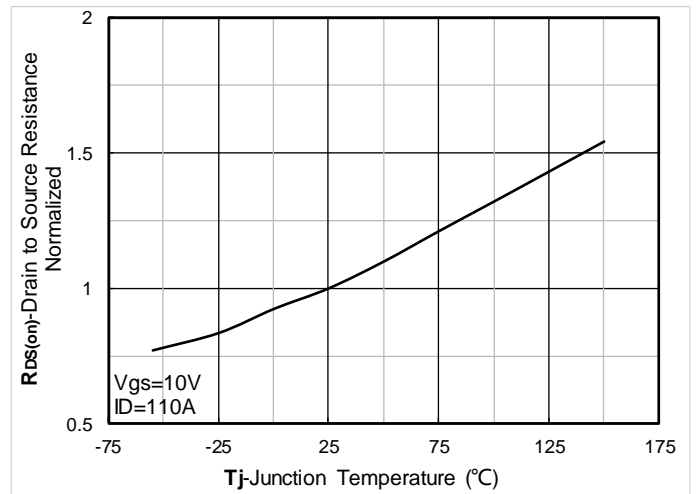


Figure 6. Normalized On-Resistance

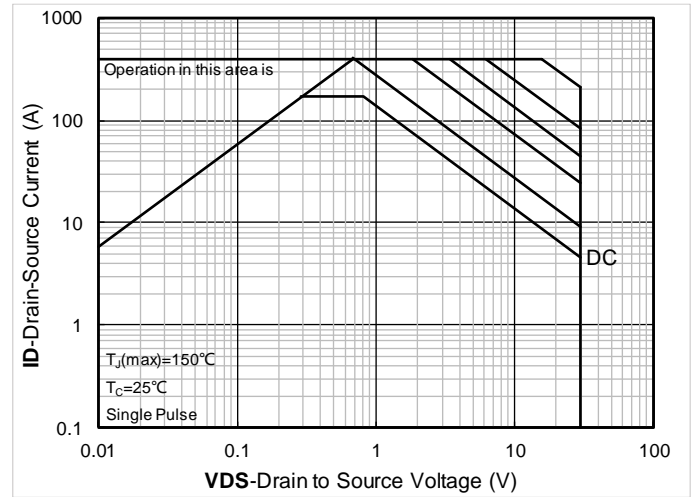


Figure 13. Maximum Transient Thermal Impedance

Figure 14. Safe Operation Area

Test Circuits & Waveforms

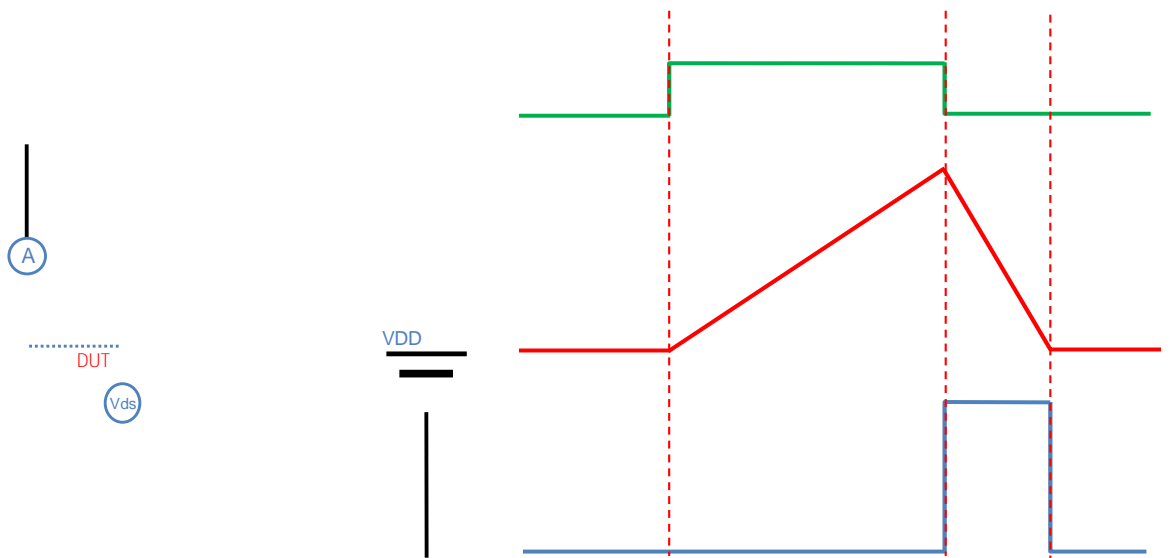


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform



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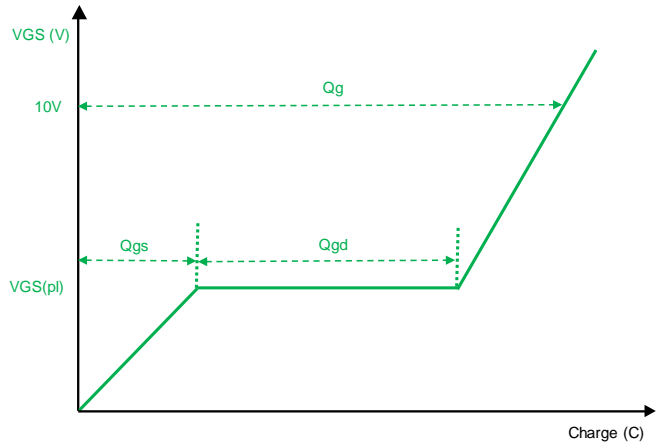
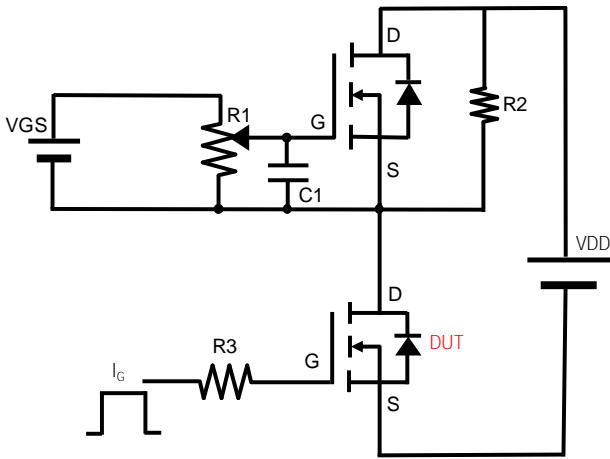


Figure B. Gate Charge Test Circuit & Waveform

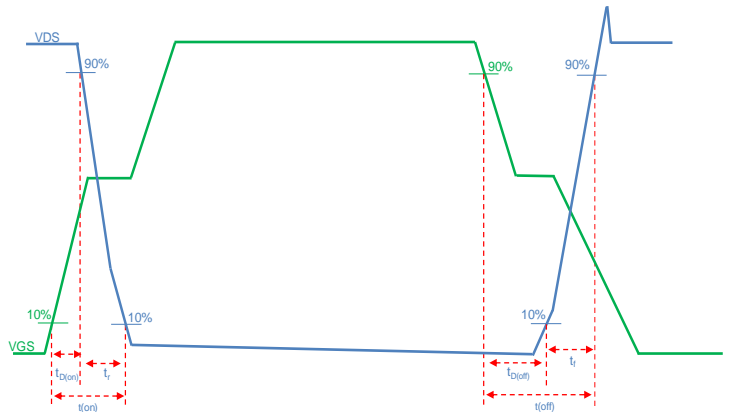
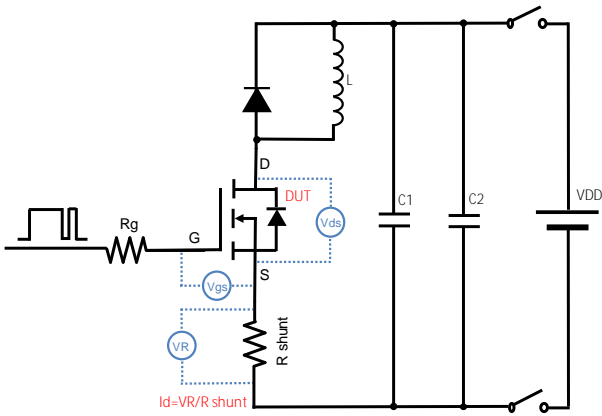


Figure C. Resistive Switching Test Circuit & Waveform

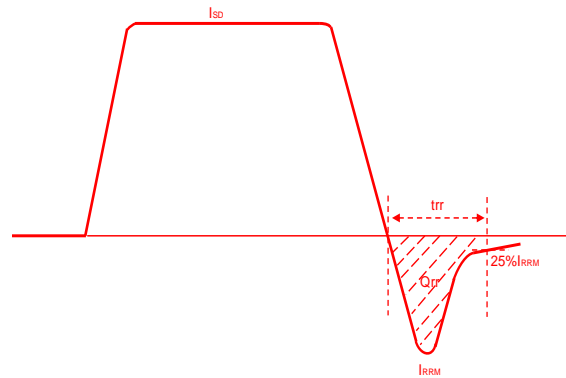
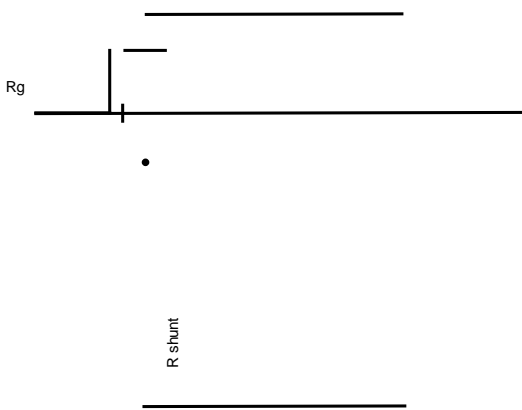
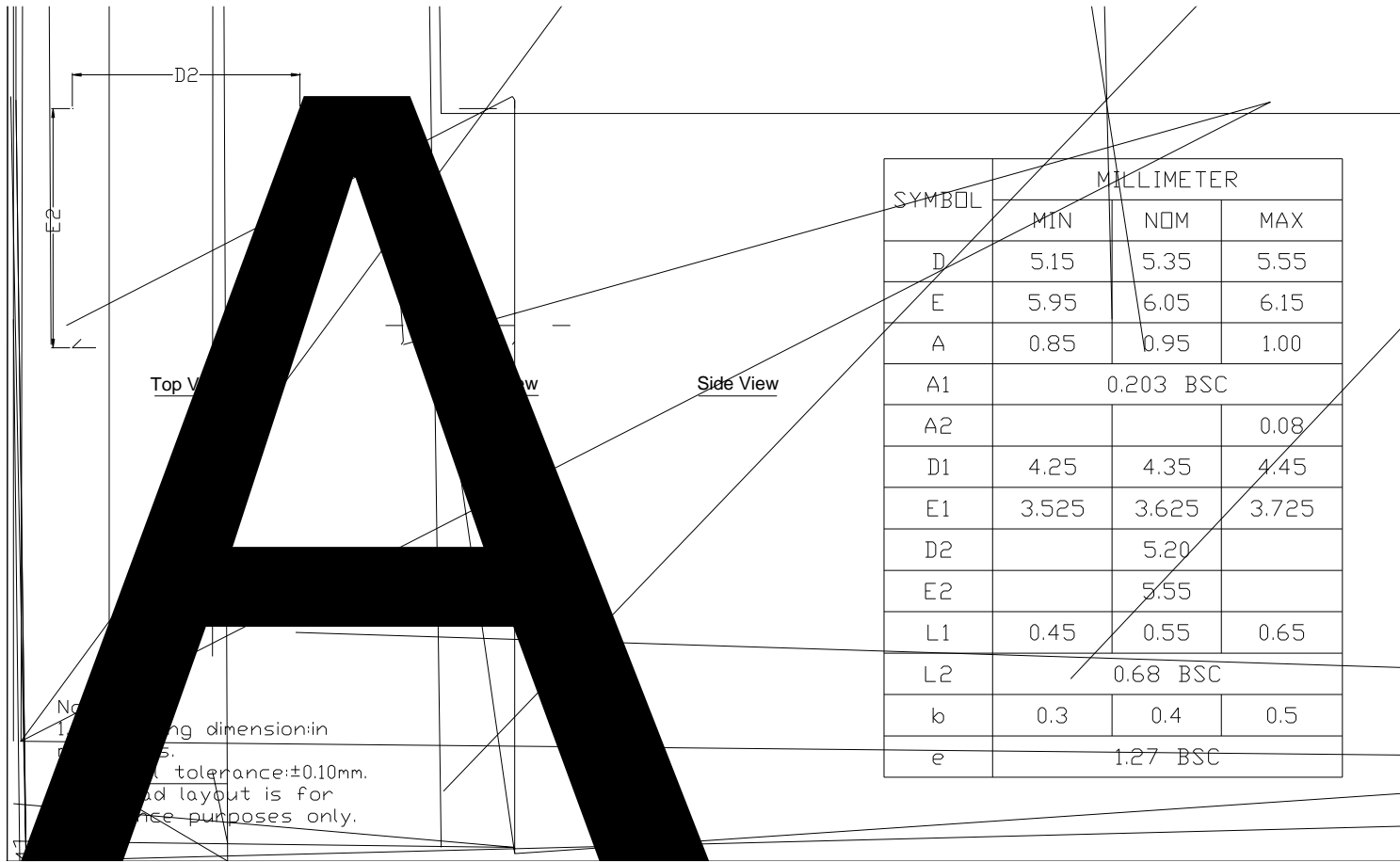


Figure D. Diode Recovery Test Circuit & Waveform



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PDFN5060-8L-D-0.95MM Package information





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