



N-Channel and N-Channel Complementary MOSFET

Product Summary

- V_{DS} 100V
- I_D 20A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) 19m Ω
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) 23m Ω
- 100% EAS Tested
- 100% V_{DS} Tested

General Description

- Split gate trench MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- DC-DC Converters
- Power management functions
- Industrial and Motor Drive application

■ Absolute Maximum Ratings ($T_A=25$



YJGD20G10B

■ 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	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	-	-	1	μA
		V _{DS} =100V, V _{GS} =0V, T _J =150	-	-	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	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A	-	15	19	mΩ
		V _{GS} =4.5V, I _D =7A	-	18	23	
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V	-	-	1.2	V
Gate resistance	R _G	f=1MHz	-	1.5	-	Ω
Maximum Body-Diode Continuous Current	I _S		-	-	20	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f=1MHz	-	1150	-	pF
Output Capacitance	C _{oss}		-	430	-	
Reverse Transfer Capacitance	C _{rss}		-	8	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =50V, I _D =20A	-	20	-	nC
Gate-Source Charge	Q _{gs}		-	5.6	-	
Gate-Drain Charge	Q _{gd}		-	2.8	-	
Reverse Recovery Charge	Q _{rr}	I _F =20A, di/dt=100A/us	-	32	-	nC
Reverse Recovery Time	t _{rr}		-	41	-	ns



Typical Electrical and Thermal Characteristics Diagrams

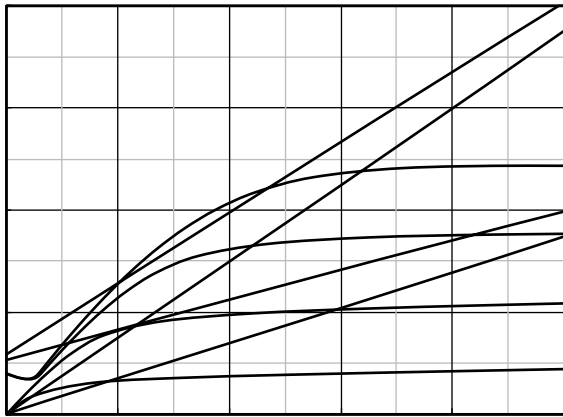


Figure 1. Output Characteristics

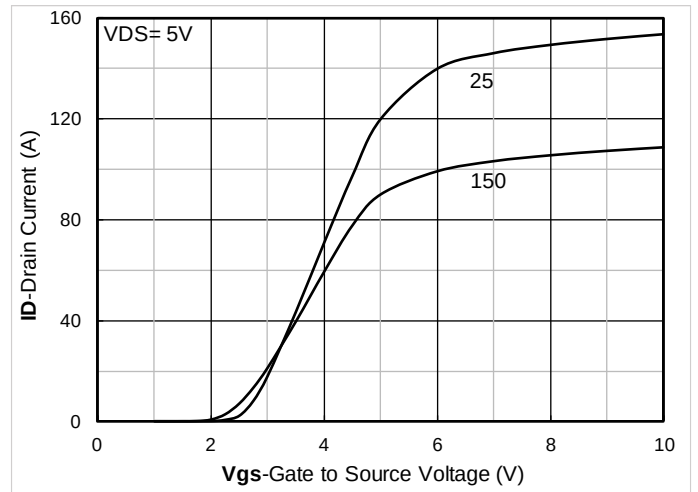


Figure 2. Transfer Characteristics



YJGD20G10B

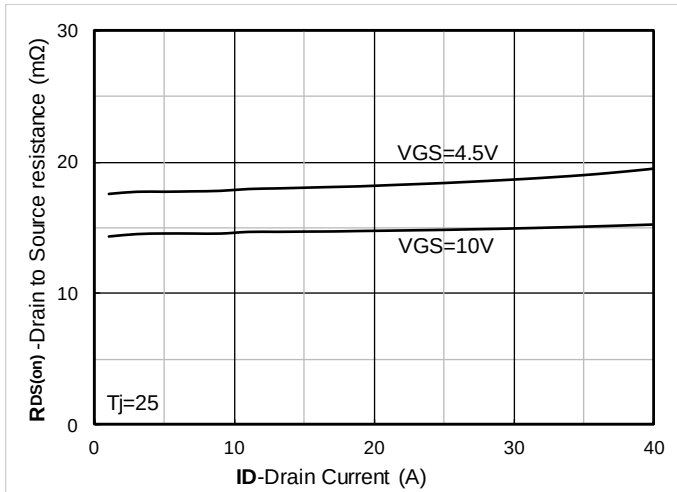


Figure 7. RDS(on) VS Drain Current

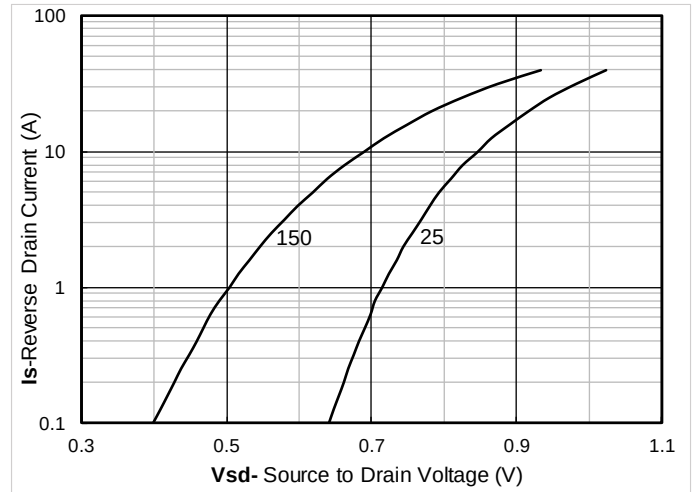


Figure 8. Forward characteristics of reverse diode

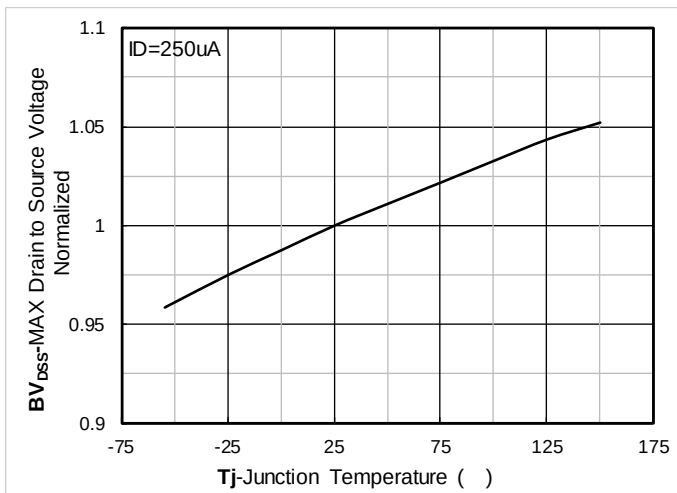


Figure 9. Normalized breakdown voltage

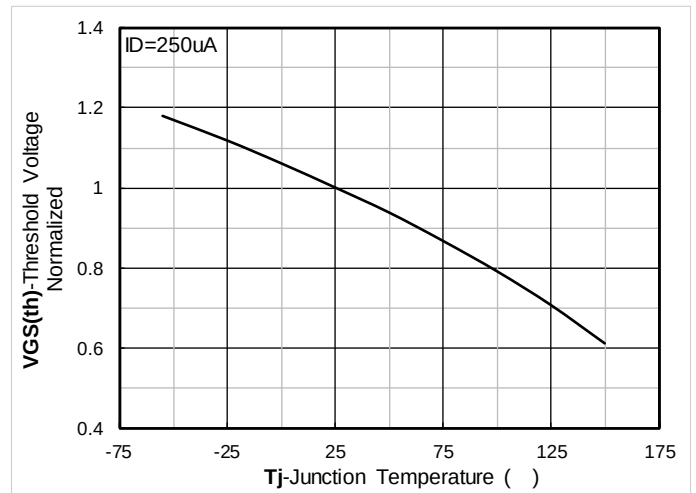


Figure 10. Normalized Threshold voltage

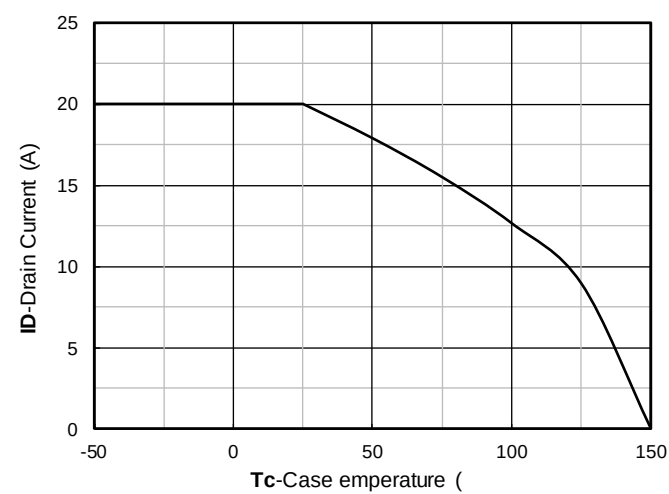


Figure 11. Current dissipation

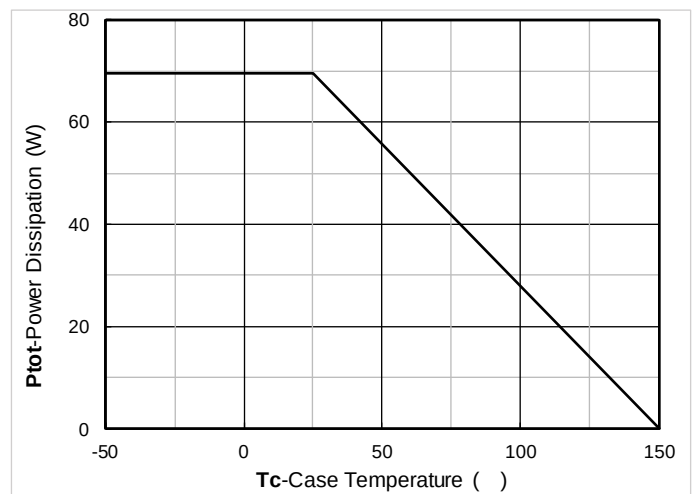


Figure 12. Power dissipation

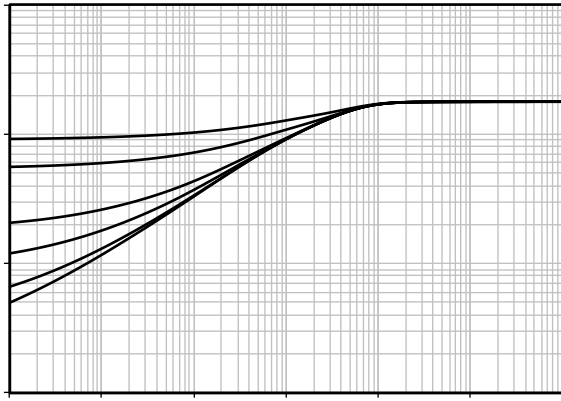


Figure 13. Maximum Transient Thermal Impedance

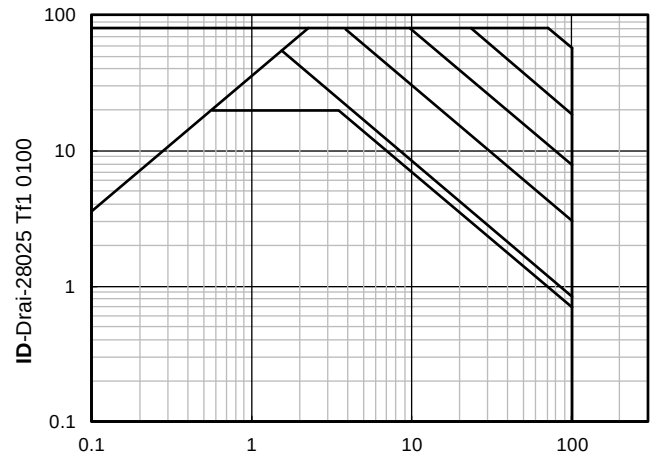


Figure 14. Safe Operation Area

■ Test Circuits & Waveforms

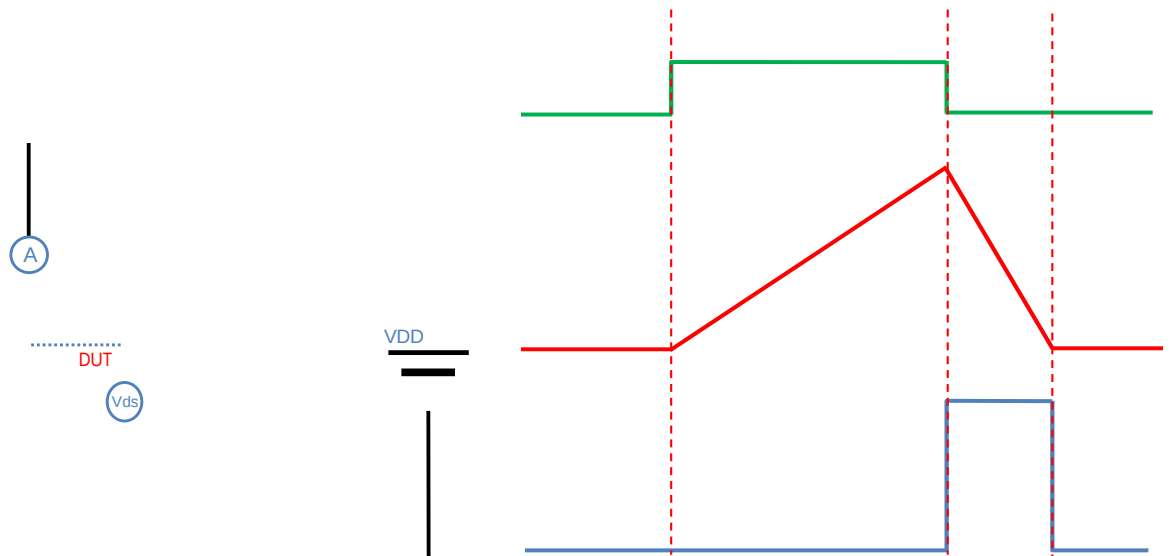


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

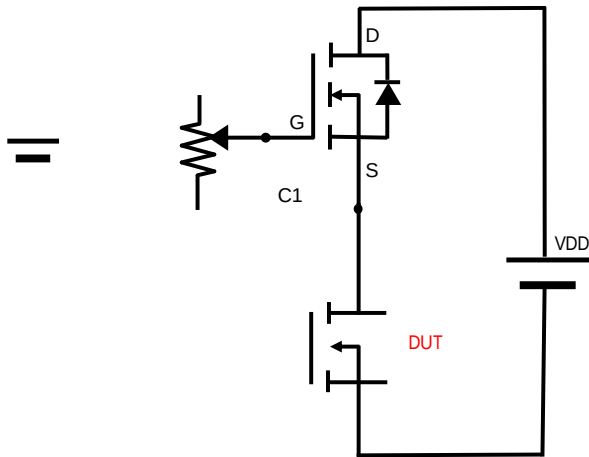


Figure B. Gate Charge Test Circuit & Waveform

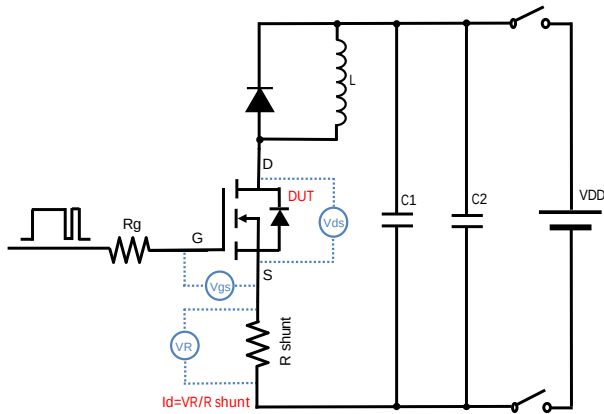


Figure C. Resistive Switching Test Circuit & Waveform

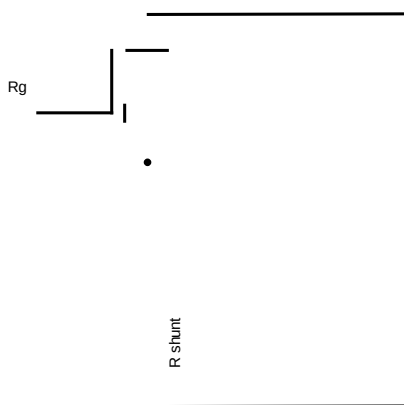


Figure D. Diode Recovery Test Circuit & Waveform



The drawing shows a mechanical assembly with three views: Bottom View, Side View, and Top View. The assembly consists of a central cylindrical component with a circular feature on top. The dimensions are as follows:

- Bottom View:**
 - Overall width: 1.00
 - Overall height: 1.10
 - Inner width: 1.20
 - Inner height: 0.10
 - Material: 0.254 BSC
- Side View:**
 - Overall width: 1.50
 - Overall height: 1.70
 - Inner width: 1.90
 - Inner height: 0.10
 - Material: 0.254 RIF
- Top View:**
 - Overall width: 3.52
 - Overall height: 3.72
 - Inner width: 3.92
 - Inner height: 0.10
 - Material: 0.21 RIF

Additional dimensions and material specifications are provided for the assembly:

- Overall width: 1.27 BSC
- Overall height: 1.34
- Inner width: 1.12
- Inner height: 1.27
- Material: 0.254 BSC



Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed hereinn ,bq17.28 l(L)-3(t)ty 11ET43(lu09(ni)9(n)-3()-3(n-3