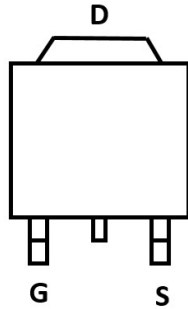
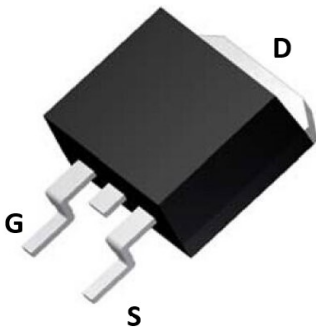
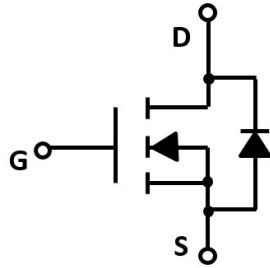


N-Channel Enhancement Mode Field Effect Transistor



TO-263



Product Summary

- V_{DS} 60V
- I_D 200A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <2.6 mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <3.6 mohm
- 100% UIS Tested
- 100% ∇V_{DS} Tested

General Description

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- Consumer electronic power supply
- Isolated DC-DC Converters
- Motor control
- Invertors

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	60	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current ^A	$T_C=25^\circ\text{C}$	I_D	200	A
	$T_C=100^\circ\text{C}$		125	
Pulsed Drain Current ^B		I_{DM}	600	A
Avalanche energy ^C		E_{AS}	500	mJ
Total Power Dissipation ^D		P_D	260	W
Thermal Resistance Junction-to-Case		$R_{\theta JC}$	0.48	°C/W
Thermal Resistance Junction-to-Ambient ^E		$R_{\theta JA}$	28	
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	°C

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJB200G06A	F2	YJB200G06A	800	/	8000	13" reel



YJB200G06A

■ Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	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} = ±20V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	1.2	1.6	2.2	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D =20A		2.35	2.6	mΩ
		V _{GS} = 4.5V, I _D =15A		2.9	3.6	
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.2	V
Maximum Body-Diode Continuous Current	I _S				200	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=100KHZ		5950		pF
Output Capacitance	C _{oss}			1250		
Reverse Transfer Capacitance	C _{rss}			85		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =50V, I _D =50A		93		nC
Gate-Source Charge	Q _{gs}			17		
Gate-Drain Charge	Q _{gd}			14		
Reverse Recovery Charge	Q _{rr}	I _F =25A, di/dt=100A/us		73		
Reverse Recovery Time	t _{rr}			68		
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =30V, I _D =25A R _{GEN} =2Ω		22.5		ns
Turn-on Rise Time	t _r			6.7		
Turn-off Delay Time	t _{d(off)}			80.3		
Turn-off fall Time	t _f			26.9		

Note:

- The maximum current rating is package limited.
- Repetitive rating; pulse width limited by max. junction temperature.
- V_{DD}=50 V, R_G=25 Ω, L=0.5mH, starting T_J=25 °C.
- P_D is based on max. junction temperature, using junction-case thermal resistance.
- The value of R_{θJA} is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 °C.



■ Typical Performance Characteristics

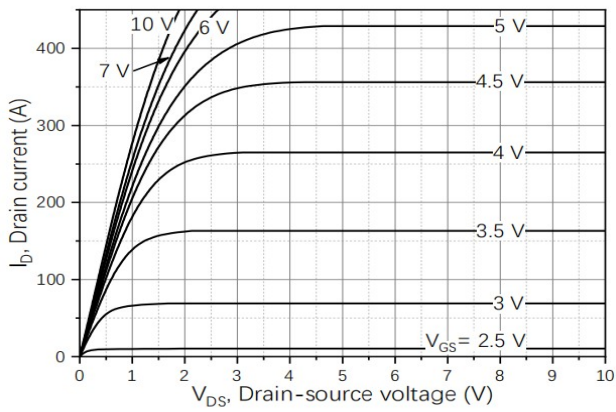


Figure1. Output Characteristics

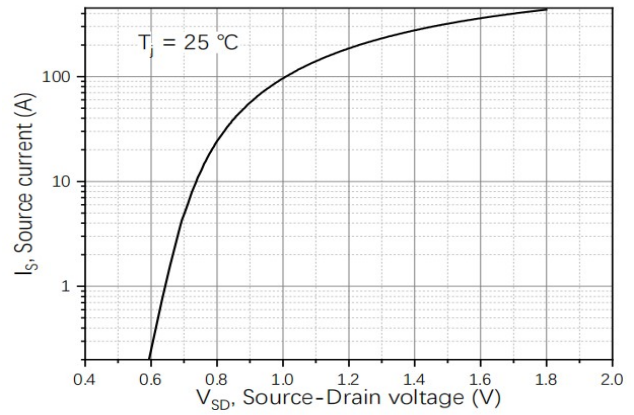


Figure2. Transfer Characteristics

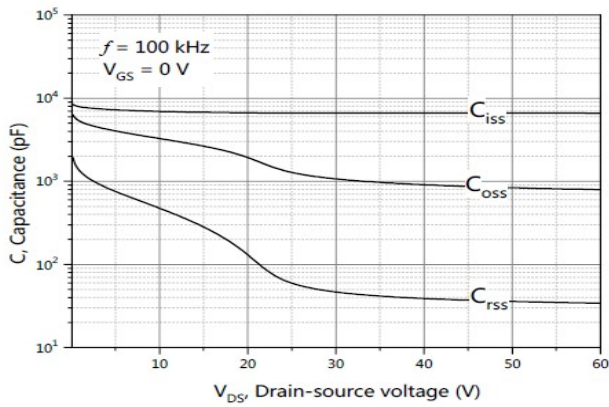


Figure3. Capacitance Characteristics

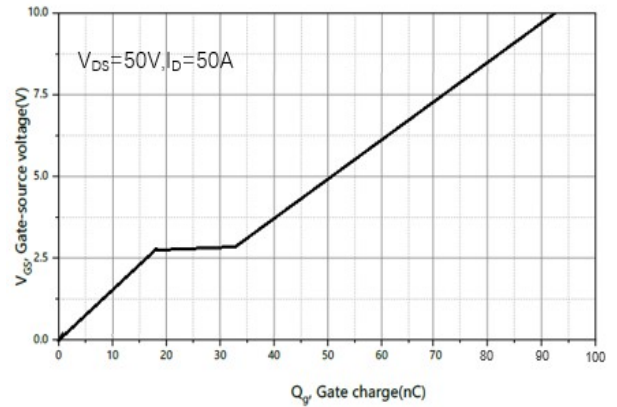


Figure4. Gate Charge

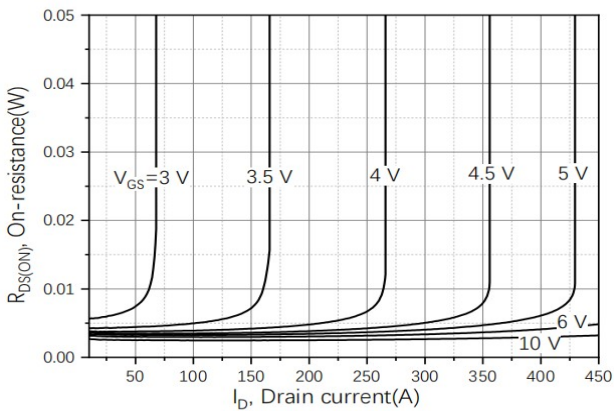


Figure5. Drain-Source on Resistance

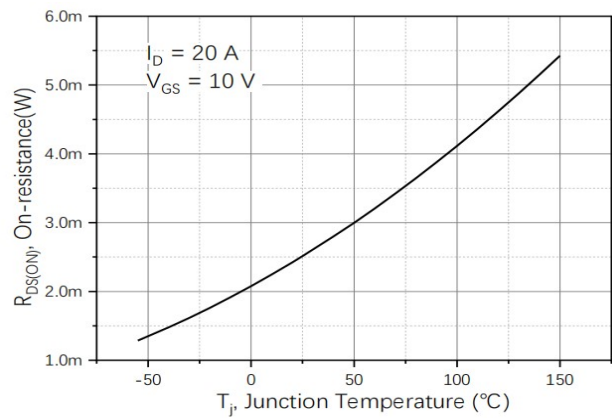


Figure6. Drain-Source on Resistance



YJB200G06A

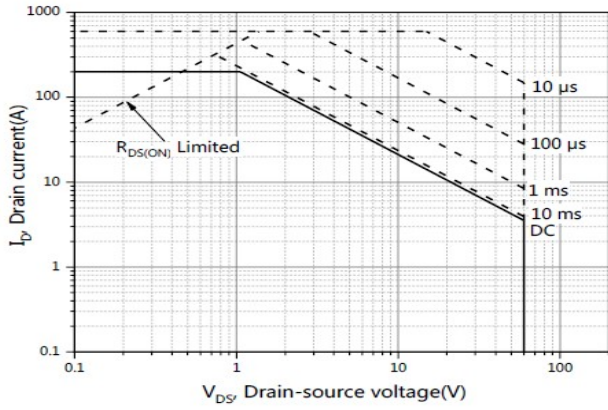


Figure7. Safe Operation Area

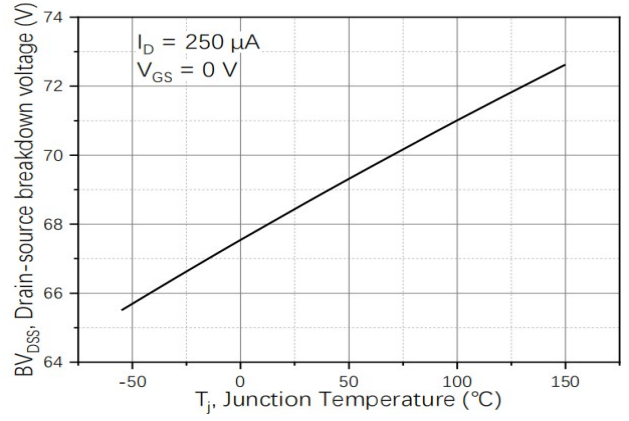


Figure8. Drain-source breakdown voltage

■ Test circuits and waveforms

Figure A: Gate Charge Test Circuit & Waveforms

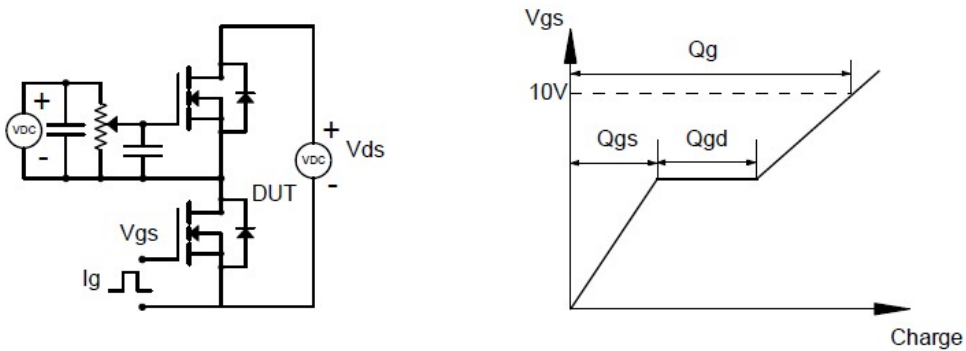


Figure B: Resistive Switching Test Circuit & Waveforms

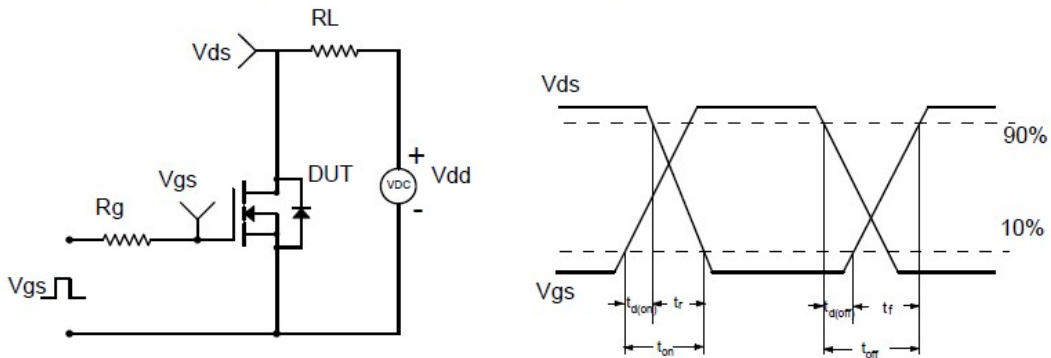


Figure C: Unclamped Inductive Switching (UIS) Test

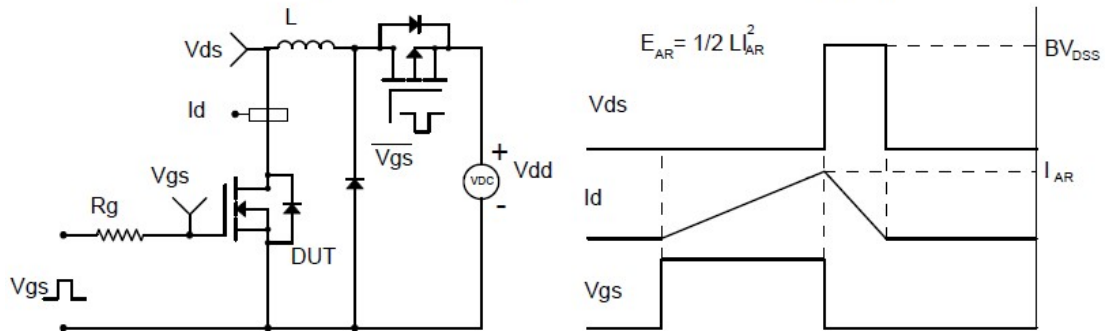
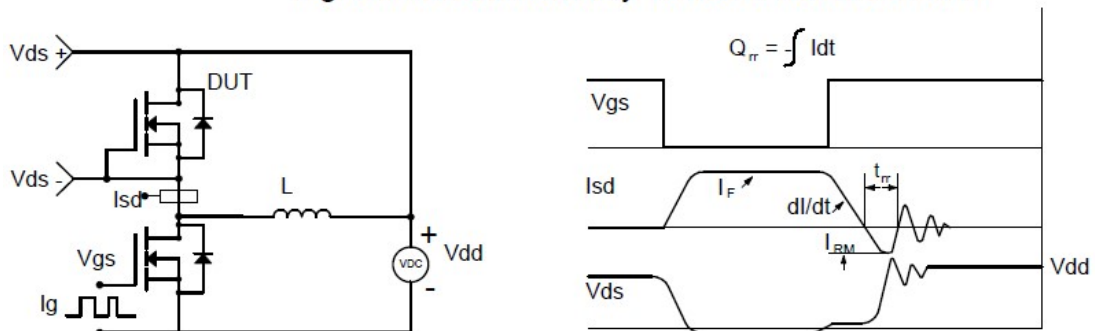


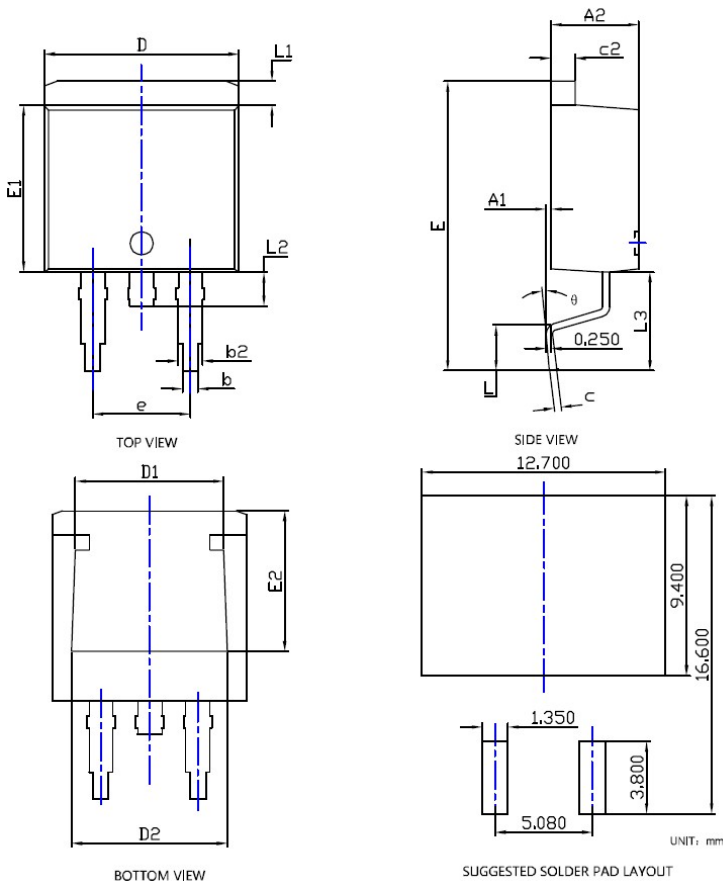
Figure D: Diode Recovery Test Circuit & Waveforms





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■ TO-263 Package information



SYMBOL	DIMENSIONS					
	INCHES			Millimeter		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A1	0,000	---	0,010	0,000	---	0,250
A2	0,174	0,180	0,186	4,430	4,580	4,730
b	0,028	0,032	0,036	0,720	0,820	0,920
b2	0,046	0,050	0,054	1,180	1,280	1,380
c	0,013	0,015	0,018	0,330	0,390	0,450
c2	0,048	0,050	0,053	1,220	1,280	1,34
D	0,394	0,400	0,406	10,000	10,150	10,300
D1	0,295	0,307	0,319	7,500	7,800	8,100
D2	0,303	0,315	0,327	7,700	8,000	8,300
E	0,571	0,591	0,610	14,500	15,000	15,500
E1	0,337	0,341	0,348	8,550	8,700	8,850
E2	0,276	0,287	0,299	7,000	7,300	7,600
e	0,200BSC			5,080BSC		
L	0,070	---	0,110	1,790	---	2,790
L1	0,044	---	0,056	1,120	---	1,420
L2	0,030	---	0,070	0,770	---	1,770
L3	0,197REF			5,000REF		
θ	0°	---	8°	0°	---	8°

NOTE:

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



YJB200G06A

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