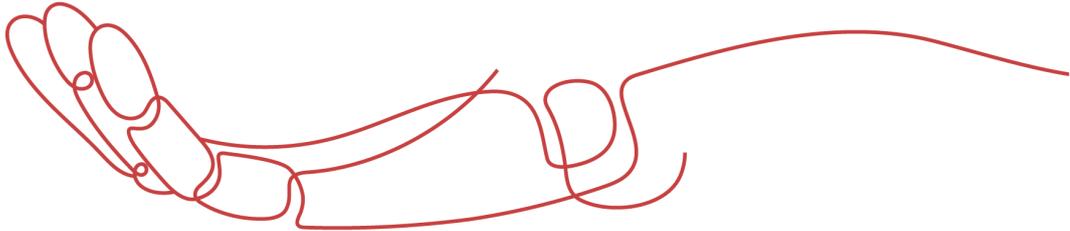


PRODUCT DATA SHEET



To learn more about JGSEMI, please visit our website at



Datasheet



Resources



Samples

Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

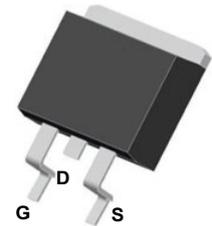
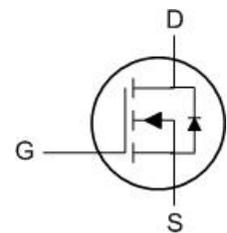
BVDSS	RDSON	ID
100V	2.4 mΩ	260A

Features

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

Applications

- DC-DC Converters
- Power management functions
- Synchronous-rectification applications


TO&*'


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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^\circ\text{C}$	I_D	260	A
	$T_C=100^\circ\text{C}$		163	
Pulsed Drain Current ¹		I_{DM}	1028	A
Single Pulse Avalanche Energy ²		EAS	583	mJ
Total Power Dissipation	$T_C=25^\circ\text{C}$	P_D	379	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient ³	$R_{\theta JA}$	59	$^\circ\text{C/W}$

Electrical Characteristics (T_J = 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	100	-	-	V
Gate-body Leakage current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T _J =25°C	I _{DSS} V _{DS} =100V, V _{GS} = 0V	-	-	1	μA
	T _J =100°C		-	-	100	
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2	3	4	V
Drain-Source on-Resistance ⁴	R _{DS(on)}	V _{GS} = 10V, I _D = 20A	-	2.4	2.8	mΩ
Forward Transconductance ⁴	g _{fs}	V _{DS} =10V, I _D =20A	-	76	-	S
Dynamic Characteristics⁵						
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz	-	9030	-	pF
Output Capacitance	C _{oss}		-	1505	-	
Reverse Transfer Capacitance	C _{rss}		-	40	-	
Gate Resistance	R _g	f = 1MHz	-	2.3	-	Ω
Switching Characteristics⁵						
Total Gate Charge	Q _g	V _{GS} = 10V, V _{DS} = 50V, I _D =20A	-	150	-	nC
Gate-Source Charge	Q _{gs}		-	32.5	-	
Gate-Drain Charge	Q _{gd}		-	49	-	
Turn-on Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 50V, R _G = 3Ω, I _D = 20A	-	27	-	ns
Rise Time	t _r		-	78.5	-	
Turn-off Delay Time	t _{d(off)}		-	110	-	
Fall Time	t _f		-	86	-	
Body Diode Reverse Recovery Time	t _{rr}	I _F = 20A, dI/dt=100A/μs	-	88	-	ns
Body Diode Reverse Recovery Charge	Q _{rr}		-	220	-	nC
Drain-Source Body Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	I _D = 20A, V _{GS} = 0V	-	-	1.2	V
Continuous Source Current	I _s	T _C =25°C	-	-	260	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C.
2. The EAS data shows Max. rating . The test condition is V_{DD}=50V, V_{GS}=10V, L=0.4mH, I_{AS}=54A.
3. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
4. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
5. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

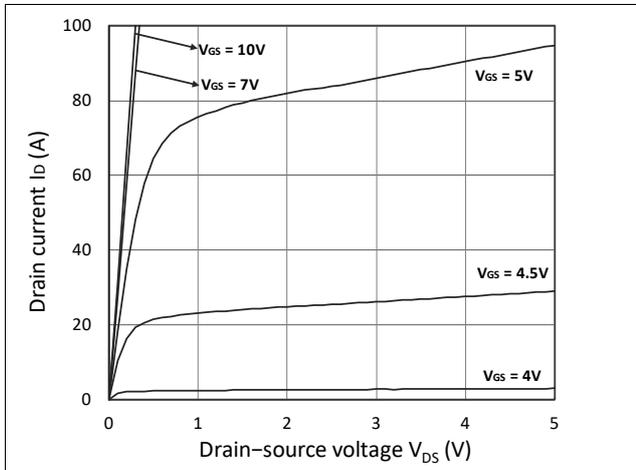


Figure 1. Output Characteristics

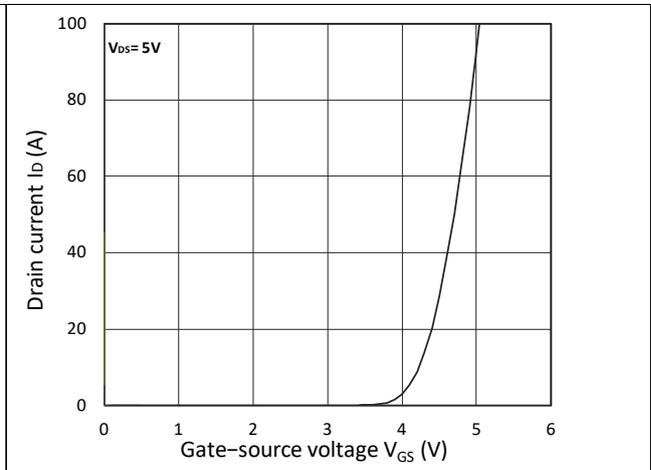


Figure 2. Transfer Characteristics

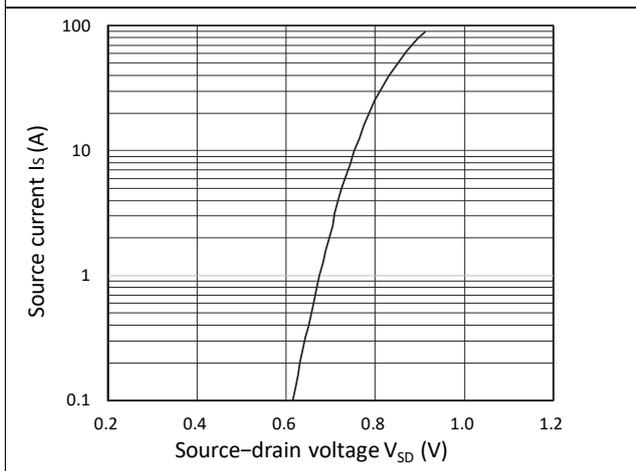


Figure 3. Forward Characteristics of Reverse

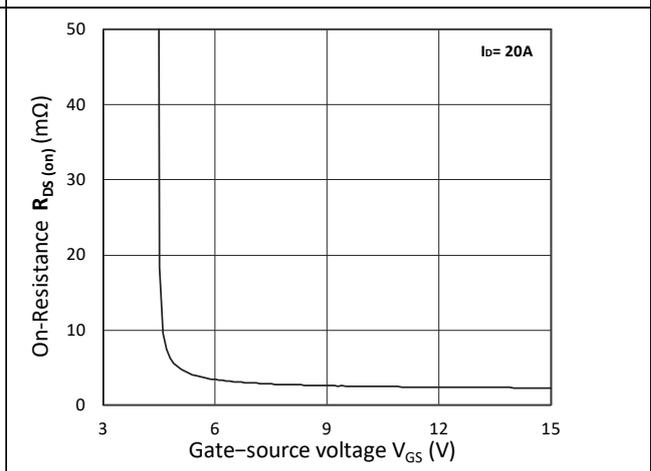


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

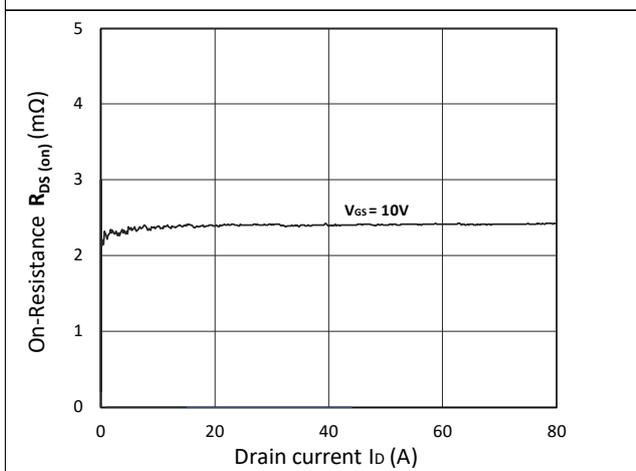


Figure 5. $R_{DS(ON)}$ vs. I_D

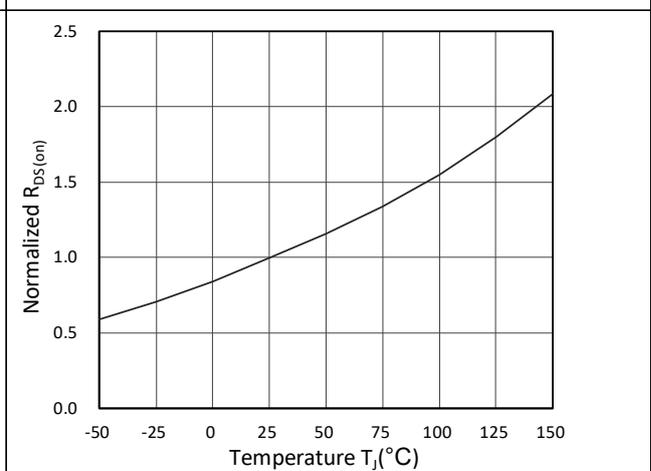


Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature

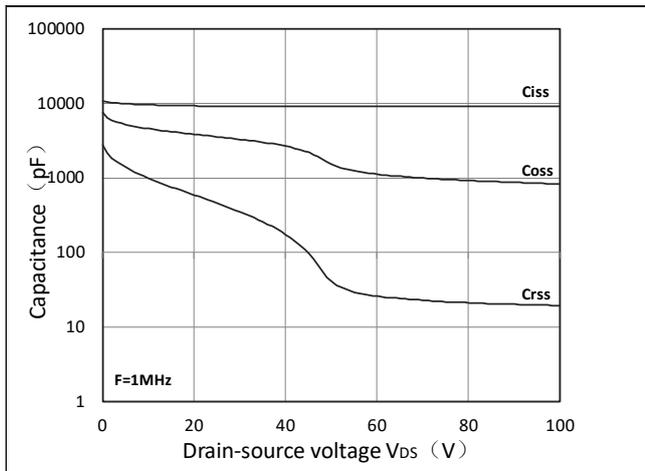


Figure 7. Capacitance Characteristics

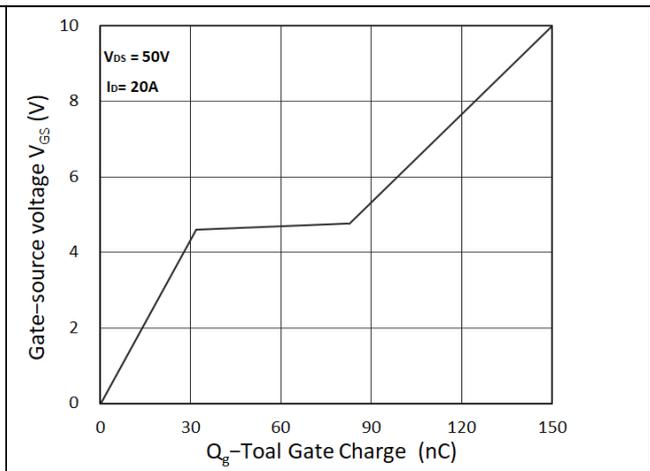


Figure 8. Gate Charge Characteristics

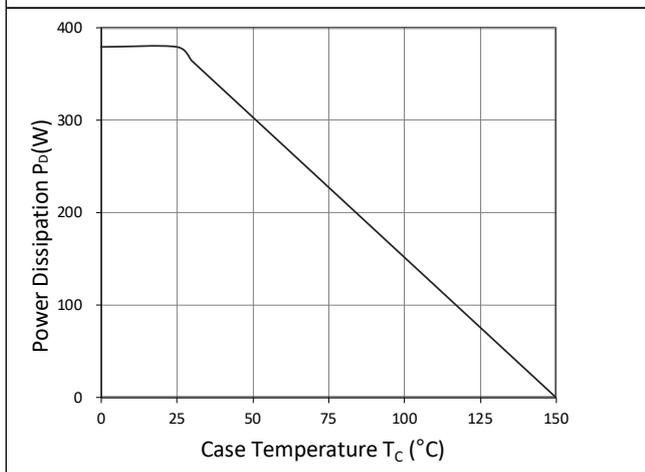


Figure 9. Power Dissipation

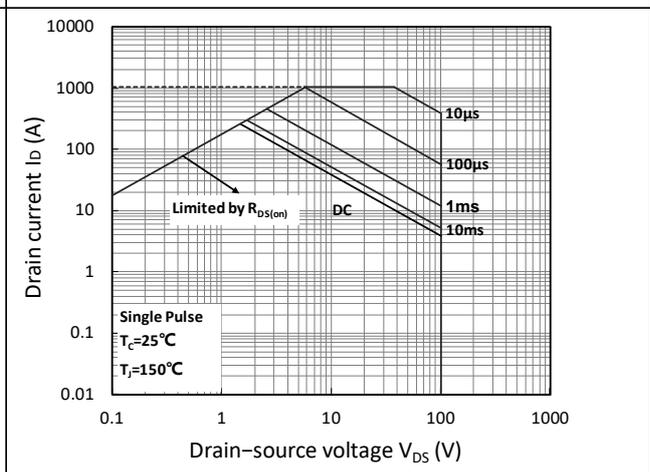


Figure 10. Safe Operating Area

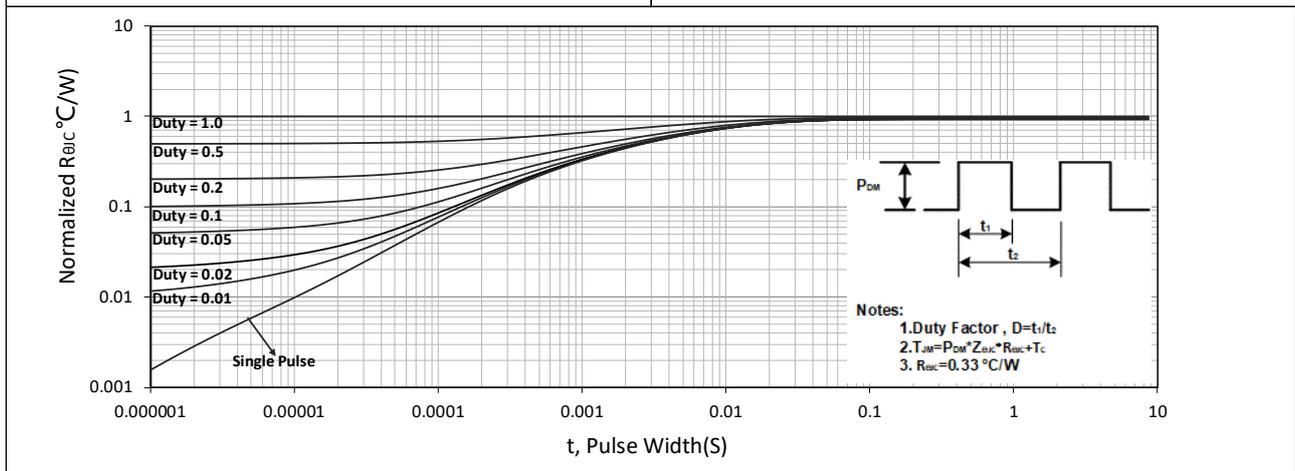


Figure 11. Normalized Maximum Transient Thermal Impedance

Test Circuit

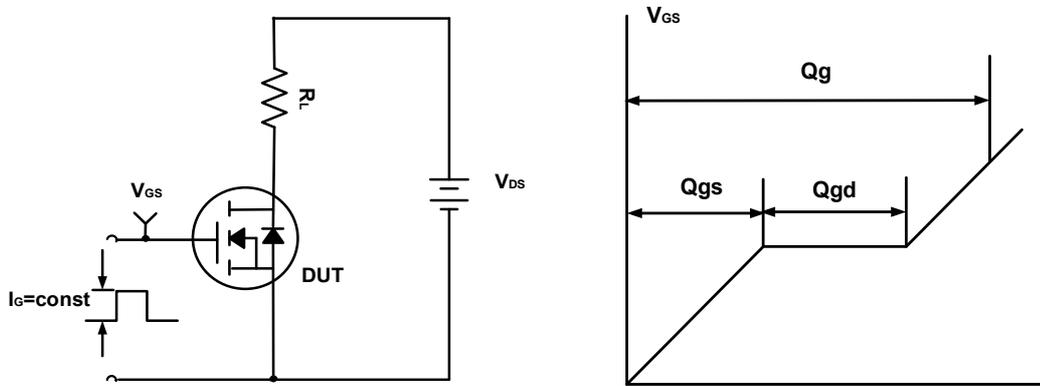


Figure A. Gate Charge Test Circuit & Waveforms

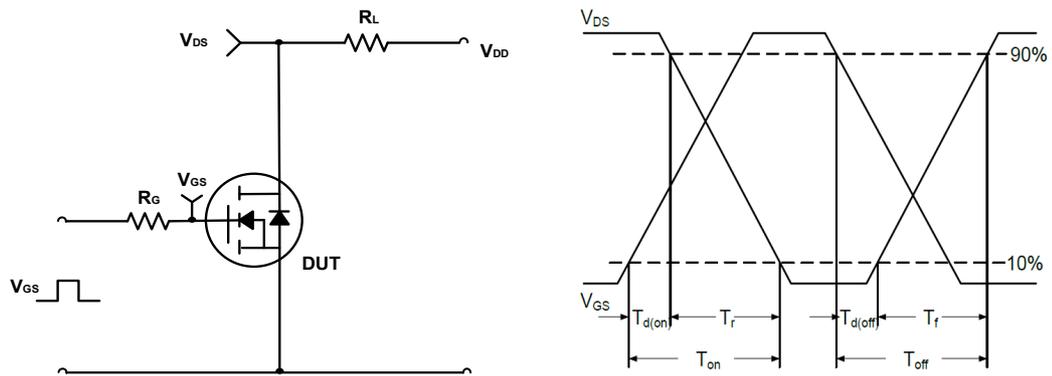
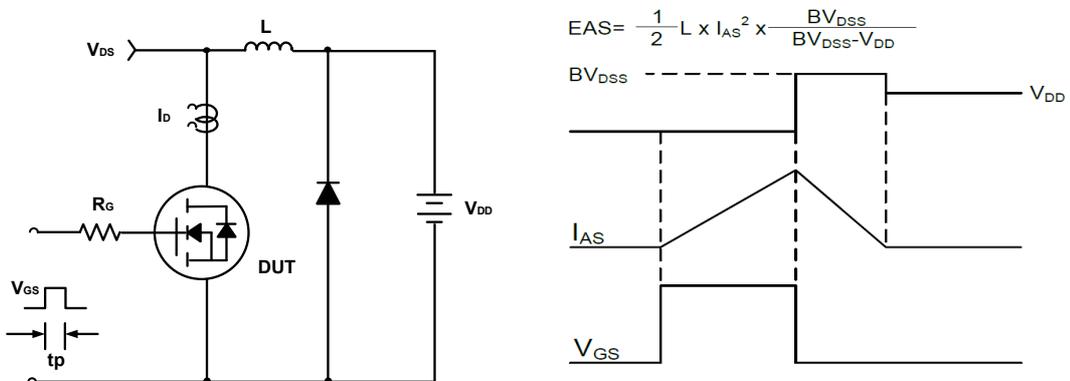
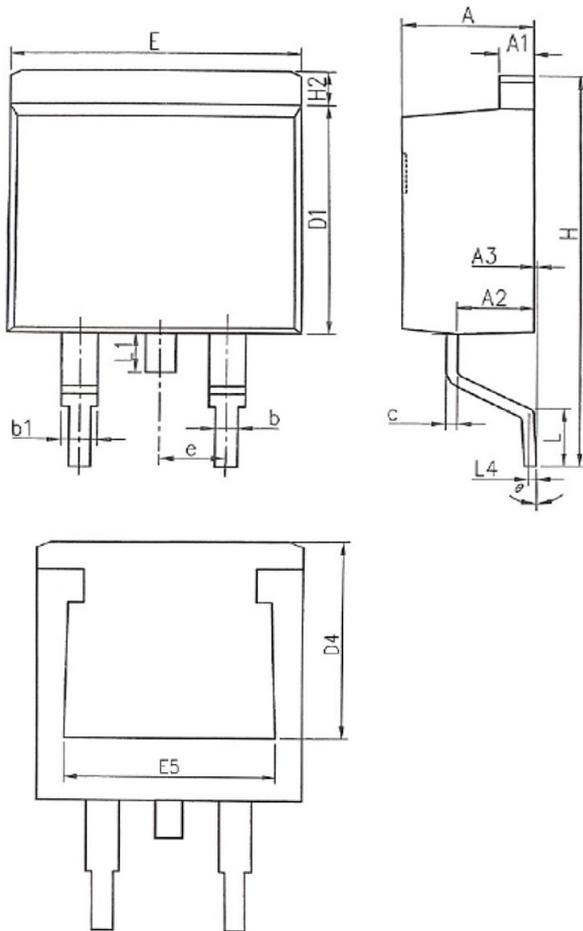


Figure B. Switching Test Circuit & Waveforms



$$EAS = \frac{1}{2} L \times I_{AS}^2 \times \frac{BV_{DSS}}{BV_{DSS} - V_{DD}}$$

Mechanical Dimensions for TO-263

COMMON DIMENSIONS

SYMBOL	MM	
	MIN	MAX
A	4.37	4.89
A1	1.17	1.42
A2	2.20	2.90
A3	0.00	0.25
b	0.70	0.96
b1	1.17	1.47
c	0.28	0.60
D1	8.45	9.30
D4	6.60	-
E	9.80	10.40
E5	7.06	-
e	2.54BSC	
H	14.70	15.70
H2	1.07	1.47
L	2.00	2.80
L1	-	1.75
L4	0.254BSC	
θ	0°	9°

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