



PRODUCT DATA SHEET



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Datasheet



Resources

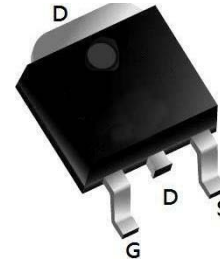


Samples

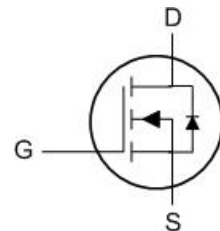
Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

Product Summary

BVDSS	RDSON	ID
100V	65mΩ	20A



TO252 Pin Configuration



- ★ Super Low Gate Charge
- ★ Green Device Available
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench technology

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V^1$	20	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current, $V_{GS} @ 10V^1$	12	A
I_{DM}	Pulsed Drain Current ²	80	A
EAS	Single Pulse Avalanche Energy ³	4.1	mJ
I_{AS}	Avalanche Current	10	A
$P_D@T_C=25^{\circ}C$	Total Power Dissipation ³	41.7	W
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹	---	50	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	3.0	$^{\circ}C/W$

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	1.2	-	2.5	V
Drain-Source on-Resistance ⁴		R _{DS(on)}	V _{GS} = 10V, I _D = 5A	-	65	90	mΩ
			V _{GS} = 4.5V, I _D = 3A	-	75	105	
Forward Transconductance ⁴		g _{fs}	V _{DS} =5V , I _D =5A	-	12	-	S
Dynamic Characteristics ⁵							
Input Capacitance		C _{iss}	V _{DS} = 15V, V _{GS} =0V, f =1MHz	-	1220	-	pF
Output Capacitance		C _{oss}		-	53	-	
Reverse Transfer Capacitance		C _{rss}		-	42	-	
Gate Resistance		R _g	f =1MHz	-	1.3	-	Ω
Switching Characteristics ⁵							
Total Gate Charge		Q _g	V _{GS} = 10V, V _{DS} = 50V, I _D =5A	-	20.6	-	nC
Gate-Source Charge		Q _{gs}		-	4	-	
Gate-Drain Charge		Q _{gd}		-	3.7	-	
Turn-On Delay Time		t _{d(on)}	V _{GS} =10V, V _{DD} =50V, R _G = 3Ω, I _D = 5A	-	4.7	-	ns
Rise Time		t _r		-	21	-	
Turn-Off Delay Time		t _{d(off)}		-	20	-	
Fall Time		t _f		-	16	-	
Drain-Source Body Diode Characteristics							
Diode Forward Voltage ⁴		V _{SD}	I _S = 1A, V _{GS} = 0V	-	-	1.2	V
Continuous Source Current	T _C =25°C	I _S	-	-	-	20	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C.
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%
3. The EAS data shows Max. rating. The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=8A
4. The power dissipation is limited by 150°C junction temperature
5. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

Typical Characteristics

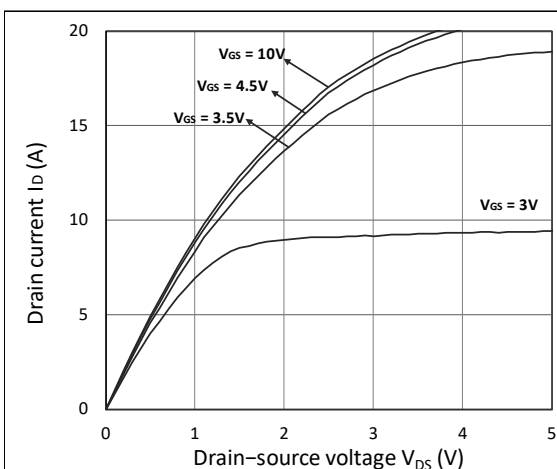


Figure 1. Output Characteristics

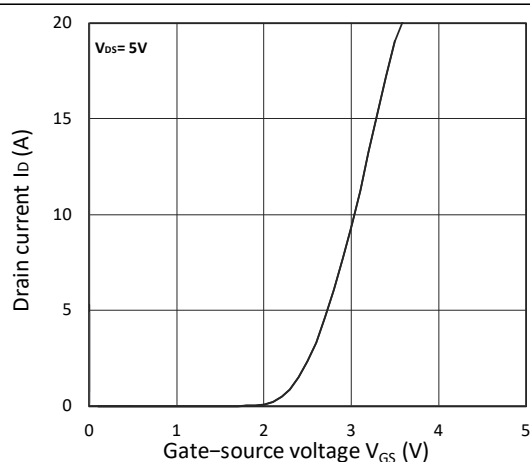


Figure 2. Transfer Characteristics

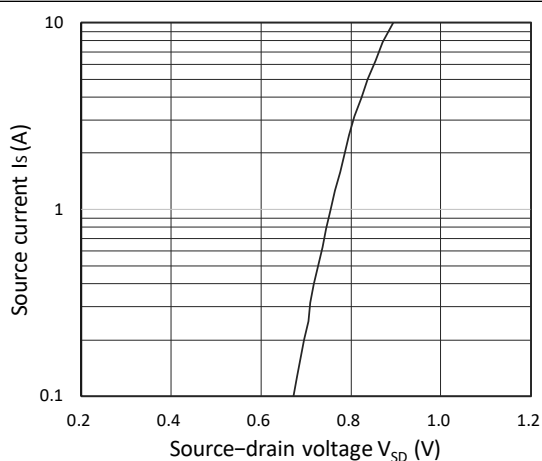


Figure 3. Forward Characteristics of Reverse

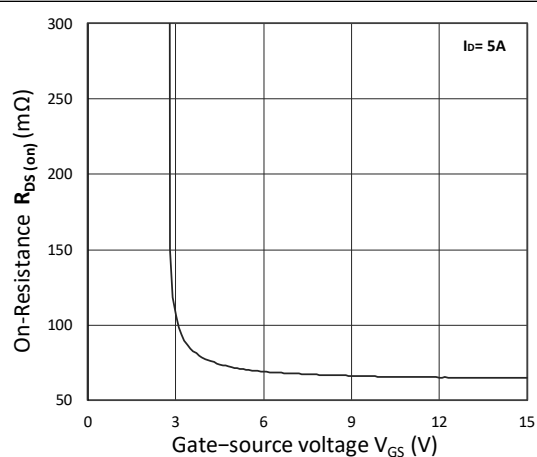


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

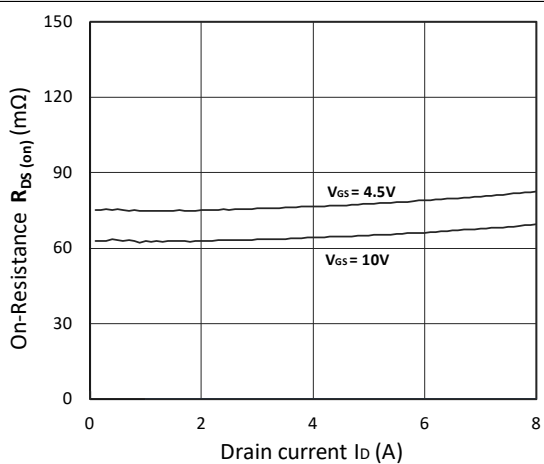


Figure 5. $R_{DS(ON)}$ vs. I_D

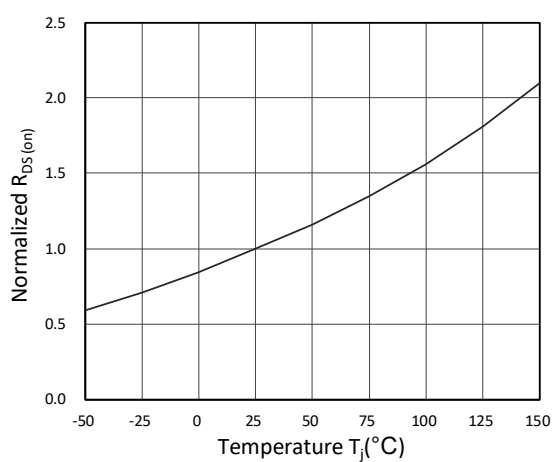


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

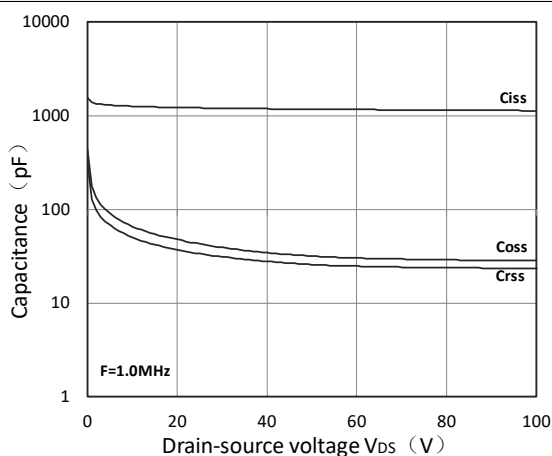


Figure 7. Capacitance Characteristics

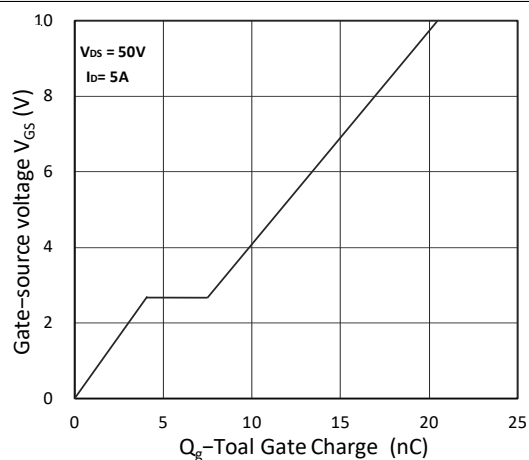


Figure 8. Gate Charge Characteristics

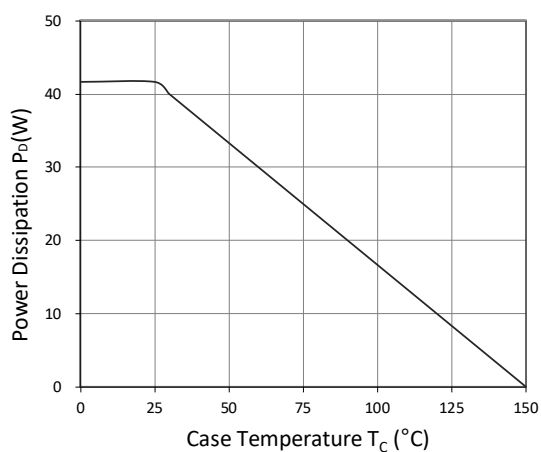


Figure 9. Power Dissipation

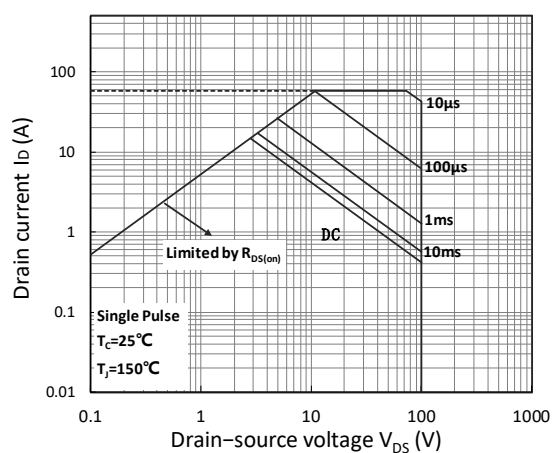


Figure 10. Safe Operating Area

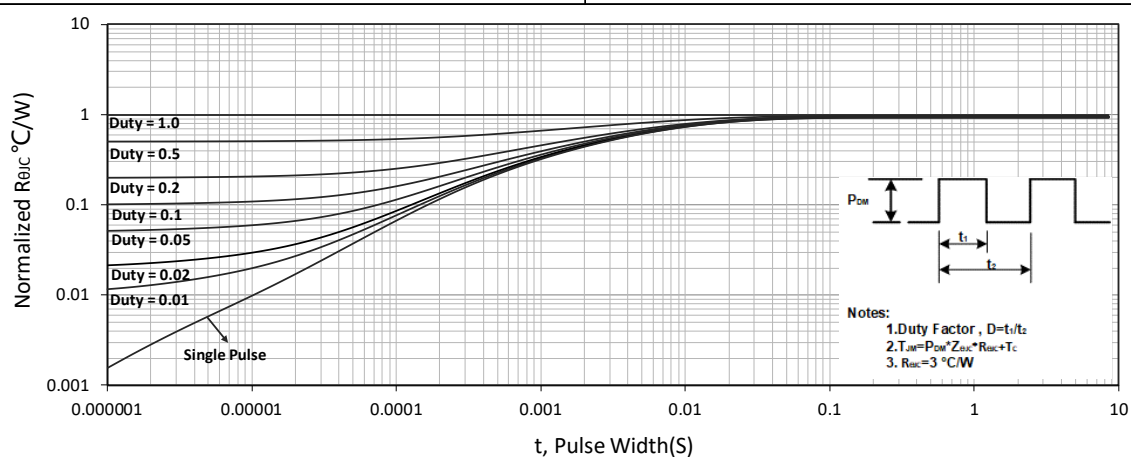
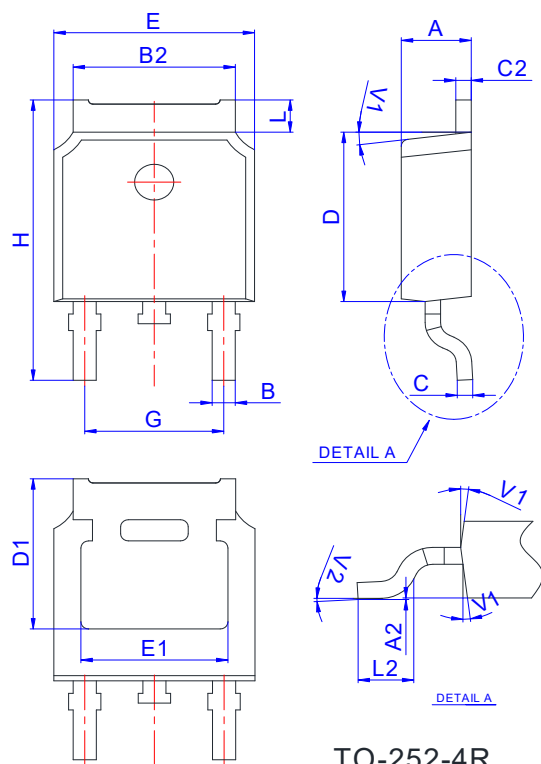


Figure 11. Normalized Maximum Transient Thermal Impedance

TO-252 Package outline



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

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