PRODUCT DATA SHEET

To learn more about JGSEMI, please visit our website at

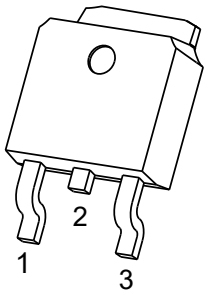
Datasheet Resources Samples

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.

50P06

P-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
-60V	25mΩ@-10V	-50A

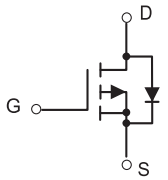


1. GATE
2. DRAIN
3. SOURCE

TO-252-2L

FEATURE

- Advanced trench process technology
- Reliable and rugged
- High density cell design for ultra low On-Resistance



APPLICATION

- Power management in notebook computer
- Portable equipment and battery powered systems

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D ①	-50	A
Pulsed Drain Current	I_{DM} ②	-200	A
Single Pulsed Avalanche Energy	E_{AS} ③	196	mJ
Power Dissipation	P_D ①	75	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ⑥	100	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ①	1.66	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{stg}	-55~+125	℃

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =-250μA		-60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-48V, V_{GS} =0V	T_J =25℃			1.0	μA
			T_J =125℃			100	
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V				±100	nA
On characteristics ④							
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA		-1.0	-1.6	-3.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-20A			25	35	mΩ
Dynamic characteristics ④⑤							
Input capacitance	C_{iss}	V_{DS} =-25V,V_{GS} =0V, f =1MHz			4500	7500	pF
Output capacitance	C_{oss}				705	980	
Reverse transfer capacitance	C_{rss}				515	760	
Gate resistance	Rg	f =1MHz			5.7		Ω
Switching characteristics ④⑤							
Total gate charge	Q_g	V_{GS}=-10V, V_{DS}=-30V, I_D=-20A			72	130	nC
Gate-source charge	Q_{gs}				15	29	
Gate-drain charge	Q_{gd}				17	32	
Turn-on delay time	$t_{d(on)}$	V_{DD}=-30V,R_G=3Ω R_L=1.5Ω,V_{GS}=-10V,			16	30	ns
Turn-on rise time	t_r				18	35	
Turn-off delay time	$t_{d(off)}$				39	78	
Turn-off fall time	t_f				44	87	
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=-20A				-1.2	V
Continuous drain-source diode forward current	I_S ①					-50	A
Pulsed drain-source diode forward current	I_{SM} ②					-200	A

Notes:

1.T_C=25℃ Limited only by maximum temperature allowed.

2.P_W≤10μs, Duty cycle≤1%.

3.EAS condition: V_{DD}=-15V,V_{GS}=-10V, L=0.5mH, R_g=25Ω Starting T_J = 25°℃.

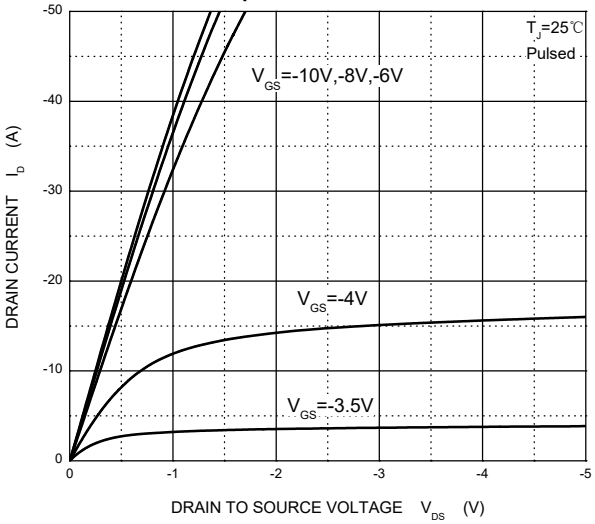
4.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

5.Guaranteed by design, not subject to production.

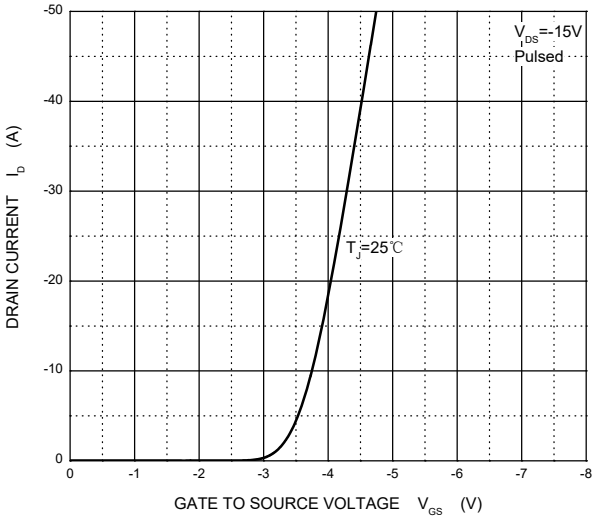
6.The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25℃.

Typical Characteristics

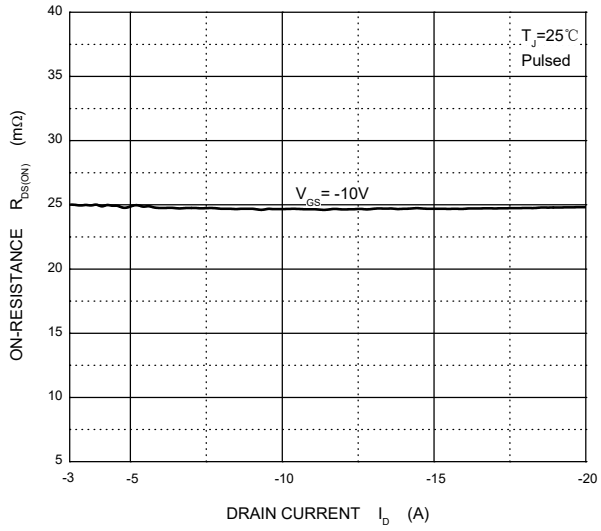
Output Characteristics



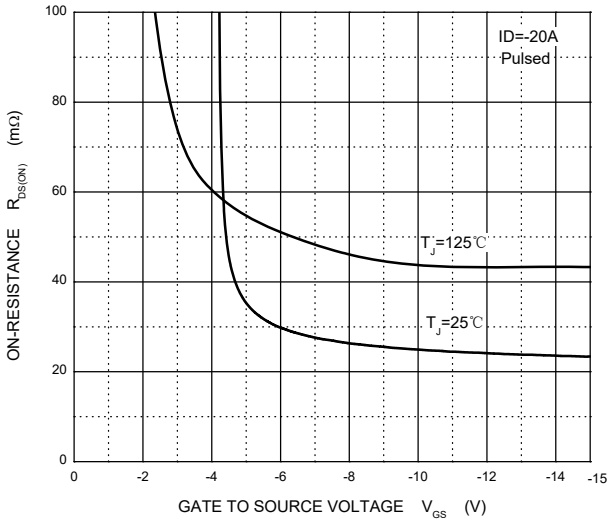
Transfer Characteristics



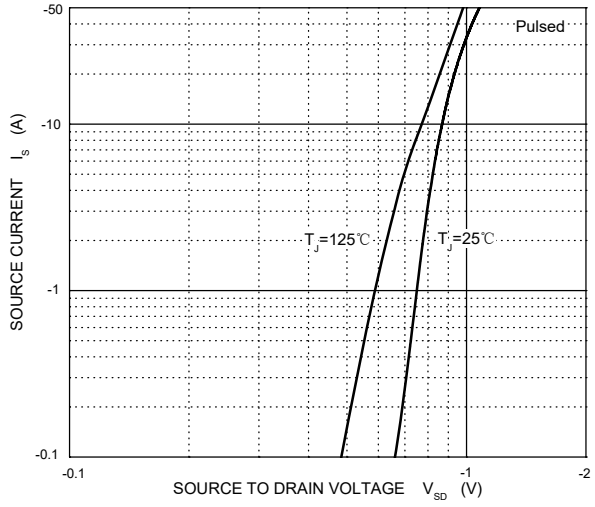
$R_{DS(ON)}$ —— I_D



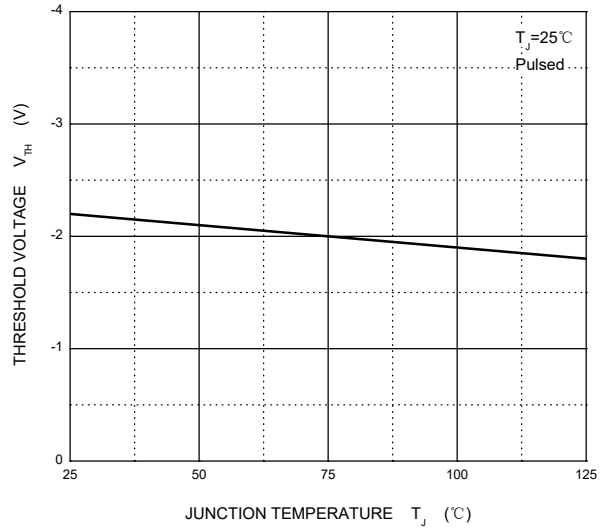
$R_{DS(ON)}$—— V_{GS}



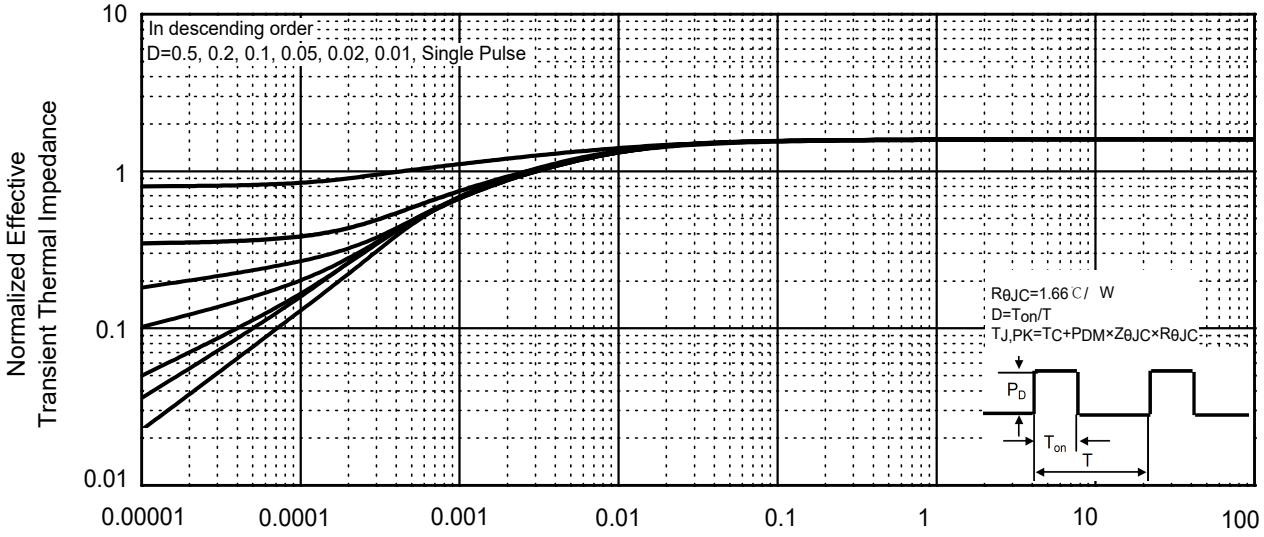
I_S —— V_{SD}



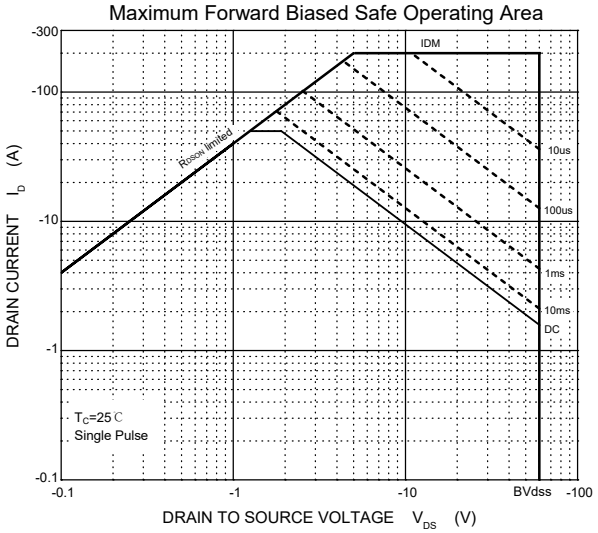
Threshold Voltage



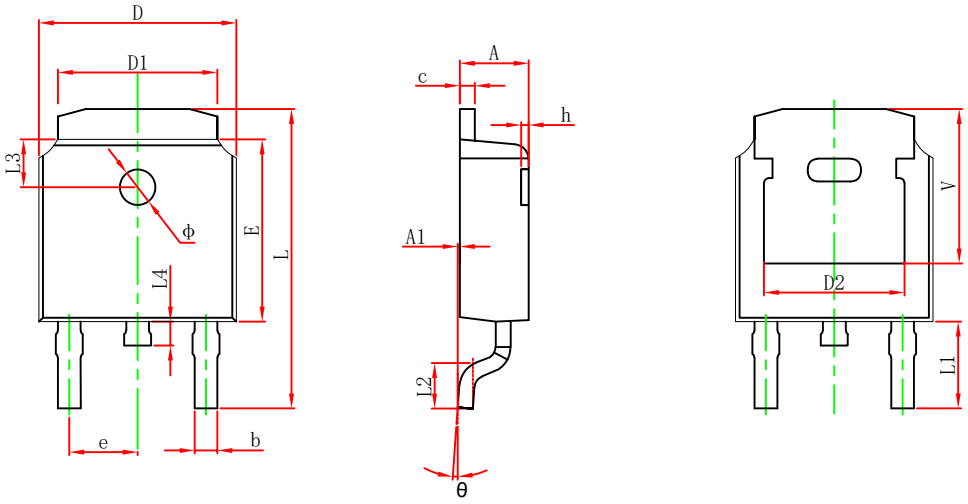
Normalized Maximum Transient Thermal Impedance



Maximum Forward Biased Safe Operating Area

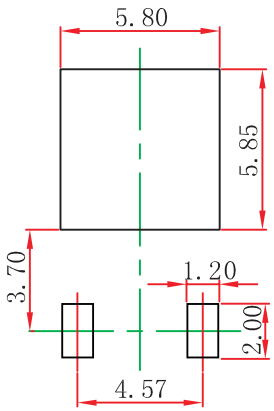


TO-252-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

TO-252-2L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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