PRODUCT DATA SHEET

To learn more about JGSEMI, please visit our website at

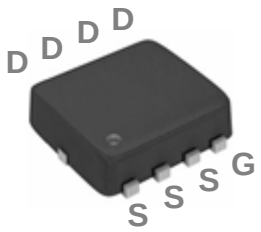
Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

GTMQ1829A

P-Ch 20V Fast Switching MOSFETs

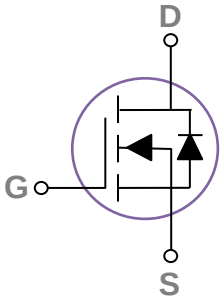
Product Summary

BVDSS	RDSON	ID
-20V	6.6mΩ	-60A



PPAK3X3

- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology



Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_C = 25℃	-60	A
		T_C = 100℃	-39	
I_{DM}	Pulsed Drain Current note1		-240	A
P_D	Power Dissipation	T_C= 25℃	70	W
$R_{\theta JC}$	Thermal Resistance, Junction to Ambient		2.1	℃/ W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +175	℃

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D= -250μA	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -20V, V_{GS} = 0V,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} =0V, V_{GS} = ±12V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D= -250μA	-0.35	-0.65	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	V_{GS} =-4.5V, I_D =-15A	-	6.6	8.5	mΩ
		V_{GS} =-2.5V, I_D =-12A	-	8	12	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} =-10V, V_{GS} =0V, f = 1.0MHz	-	4590	-	pF
C_{oss}	Output Capacitance		-	505	-	pF
C_{rss}	Reverse Transfer Capacitance		-	440	-	pF
Q_g	Total Gate Charge	V_{DS} =-10V, I_D =-15A, V_{GS} =-4.5V	-	46	-	nC
Q_{gs}	Gate-Source Charge		-	7.3	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	10	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD} =-10V, I_D =-14A, R_{GEN}=2.7Ω, V_{GS} =-10V	-	8	-	ns
t_r	Turn-on Rise Time		-	59	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	111	-	ns
t_f	Turn-off Fall Time		-	43	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-60	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-240	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S =-20A	-	-	-1.2	V
trr	Reverse Recovery Time	T_J=25℃,I_{SD}=-15A, V_{GS}=0V di/dt=-100A/μs	-	18	-	ns
Qrr	Reverse Recovery Charge		-	7.7	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: T_J=25℃,V_{DD}=-10V,V_G=-10V, R_G=5.9Ω, L=0.5mh,I_{AS}=-13.2A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Performance Characteristics

Figure1: Output Characteristics

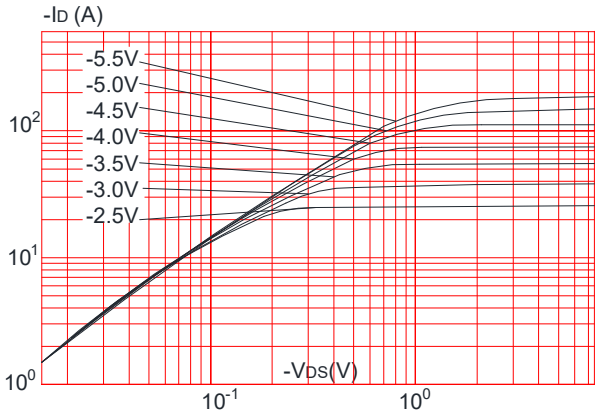


Figure 2: Typical Transfer Characteristics

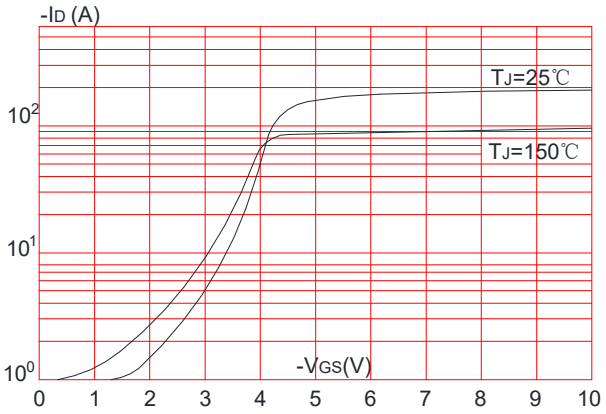


Figure 3: On-resistance vs. Drain Current

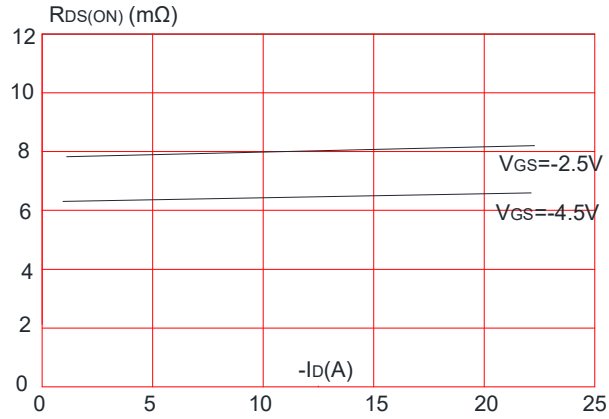


Figure 4: Body Diode Characteristics

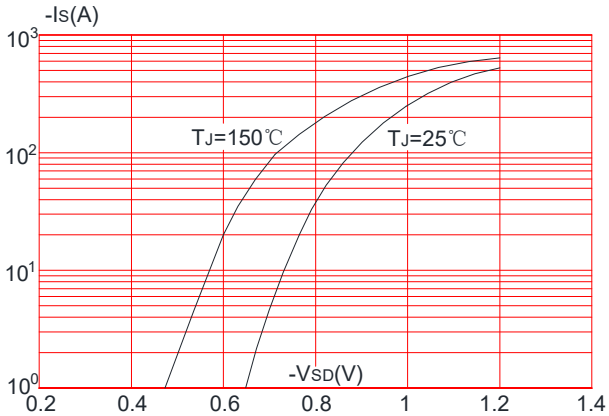


Figure 5: Gate Charge Characteristics

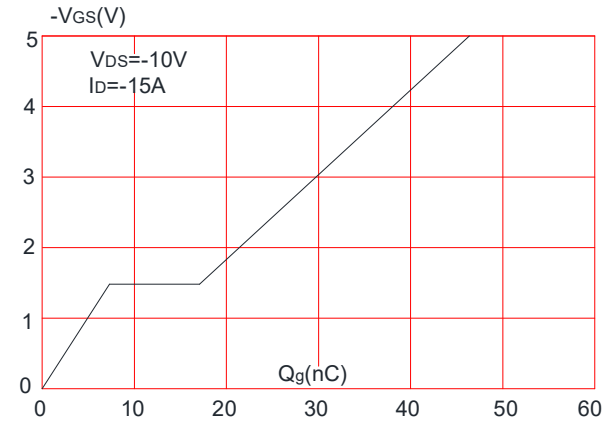


Figure 6: Capacitance Characteristics

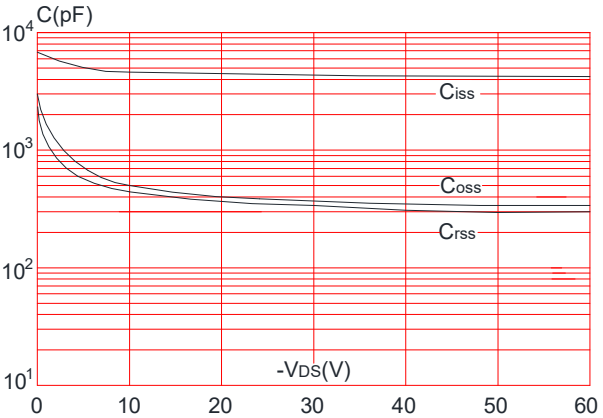


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

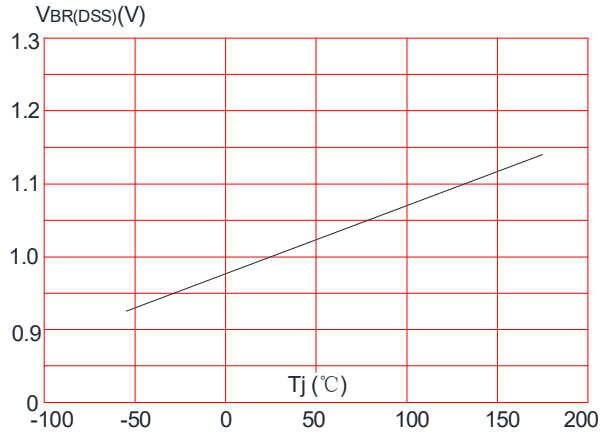


Figure 8: Normalized on Resistance vs. Junction Temperature

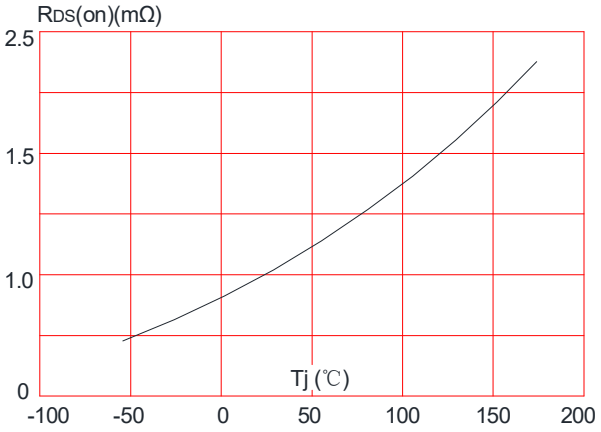


Figure 9: Maximum Safe Operating Area

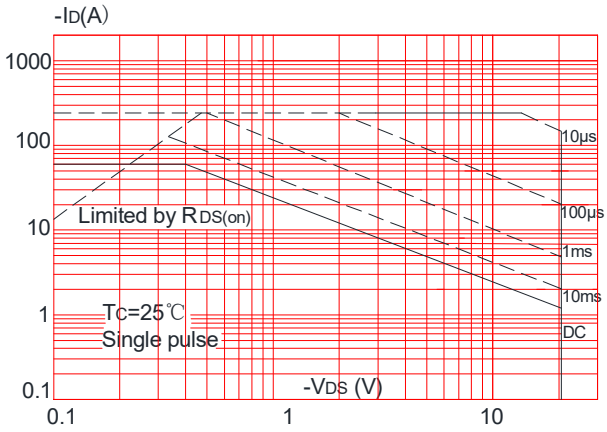


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

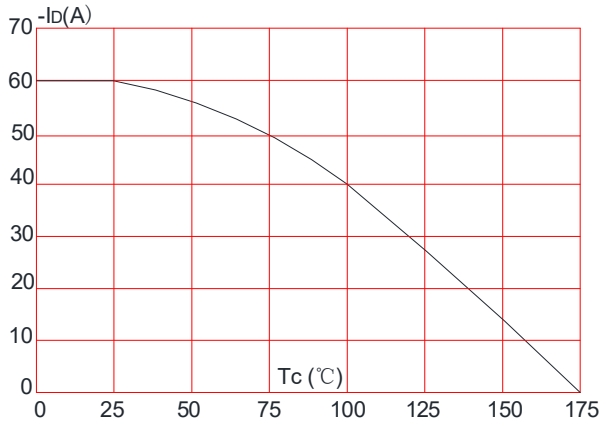
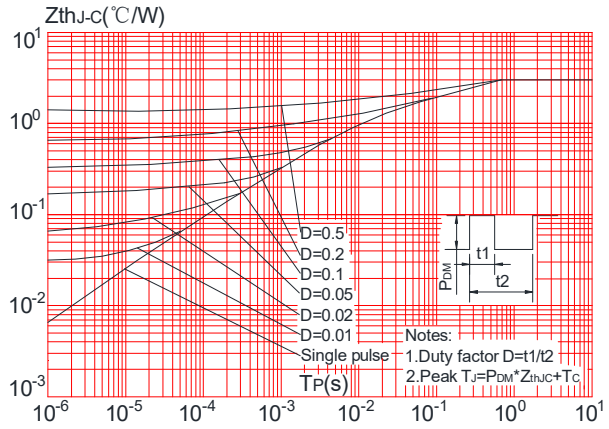
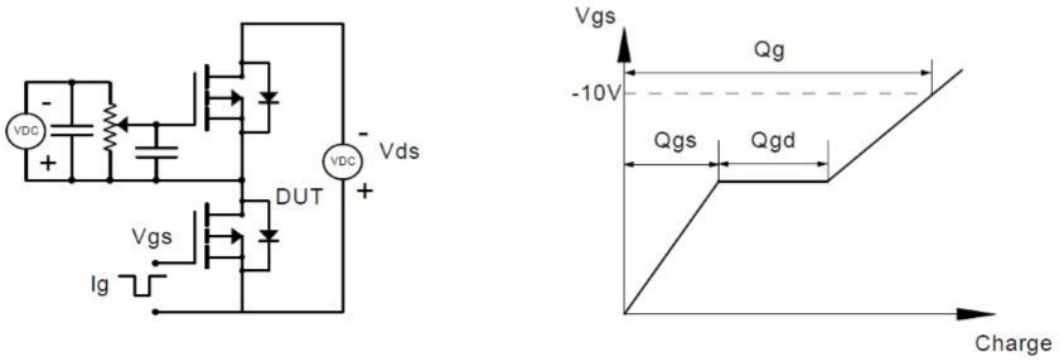


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

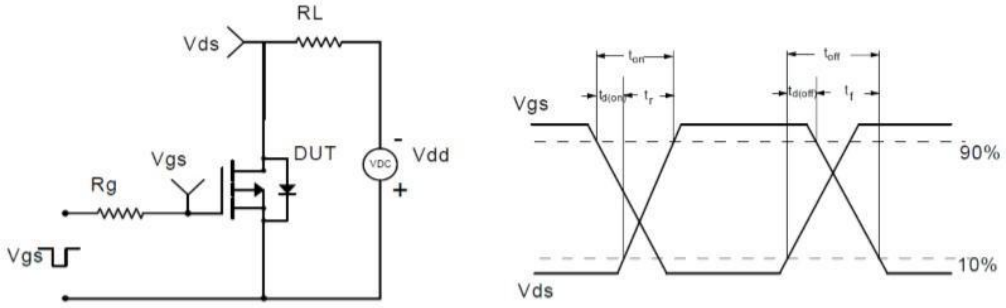


Test Circuit

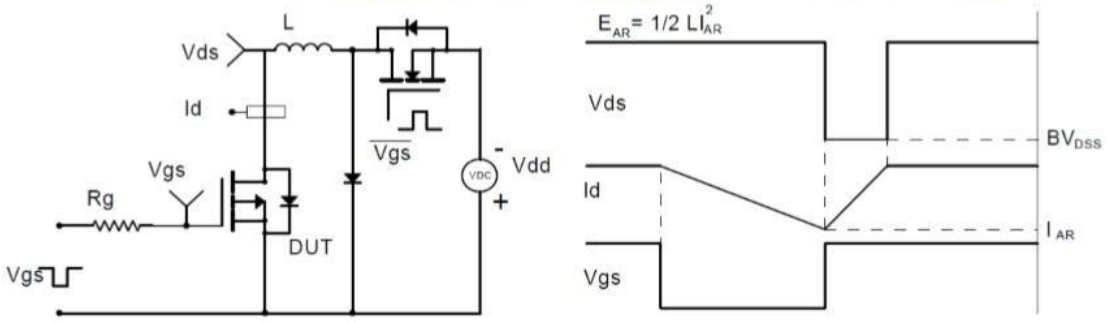
Gate Charge Test Circuit & Waveform



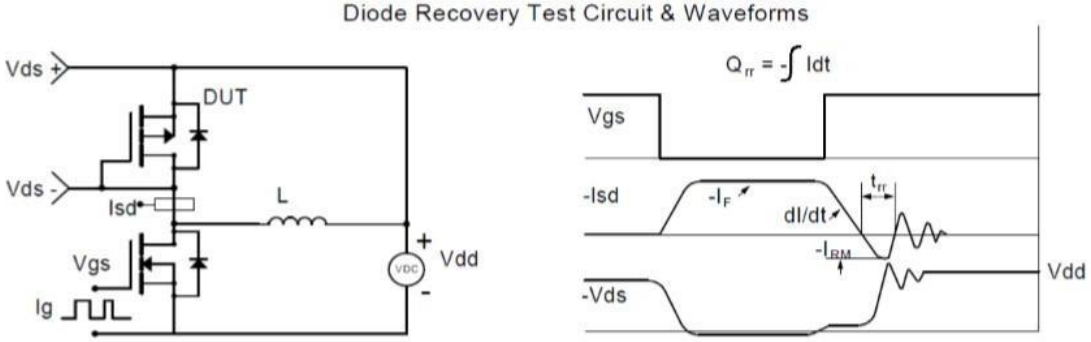
Resistive Switching Test Circuit & Waveforms



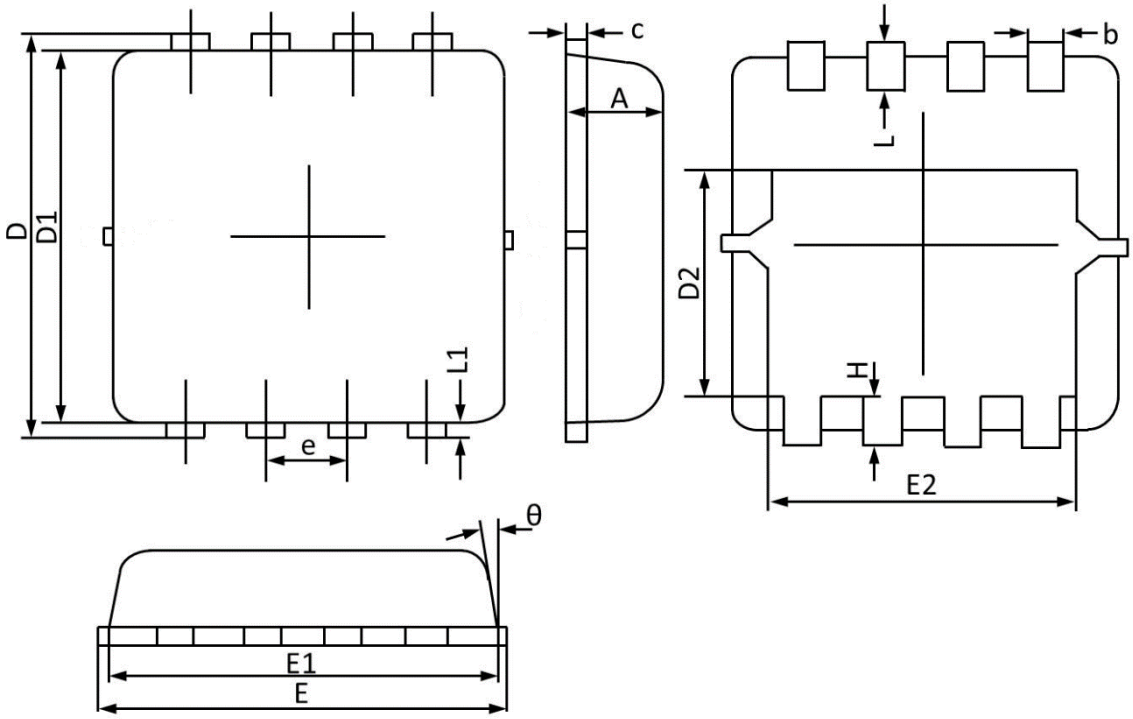
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

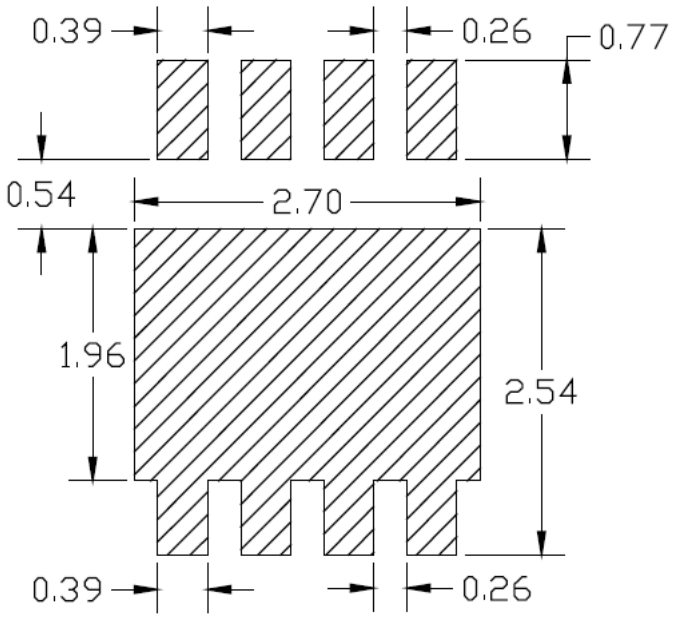


PPAK3x3 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	0.900	0.700	0.035	0.028
b	0.350	0.250	0.014	0.010
c	0.250	0.100	0.010	0.004
D	3.500	3.050	0.138	0.120
D1	3.200	2.900	0.126	0.114
D2	1.950	1.350	0.077	0.053
E	3.400	3.000	0.134	0.118
E1	3.300	2.900	0.130	0.114
E2	2.600	2.350	0.102	0.093
e	0.65BSC		0.026BSC	
H	0.750	0.300	0.030	0.012
L	0.600	0.300	0.024	0.012
L1	0.200	0.060	0.008	0.002
θ	14°	6°	14°	6°

PPAK3X3 RECOMMENDED LAND PATTERN



unit : mm

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