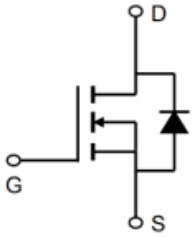
Description

The GR2K2R30 is silicon N-channel Enhanced VDMOSFETs, is obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy. The transistor can be used in various power switching circuit for system miniaturization and higher efficiency.



General Features

V_{DS} = 300V I_D =3A

$R_{DS(ON)}$ < 4000mΩ @ V_{GS}=10V （Type：2600mΩ）

Application

Load switch
Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
GR2K2R30	TO-92-3L	GR2K2R30 XXX YYYY	4000

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

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	300	V
VGS	Gate-Source Voltage	±20	V
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	3	A
I_D@T_A=70℃	Continuous Drain Current, V_{GS} @ 10V[1]	1.7	A
IDM	Pulsed Drain Current[2]	9	A
P_D@T_A=25℃	Total Power Dissipation[3]	1.5	W
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
R_{θ}JA	Thermal Resistance Junction-ambient[1]	100	℃/W
R_{θ}JC	Thermal Resistance Junction-Case[1]	30	℃/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V(BR)DSS	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	300	330	--	V
VGS(th)	Gate-Source Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2.0	3.5	4.0	V
RDS(on)	Drain-Source On-Resistance	V_{GS} = 10V, I_D = 1.5A	--	2600	4000	mΩ
IDSS	Zero Gate Voltage Drain Current	V_{DS} = 300V, V_{GS} = 0V, T_J = 25ºC	--	--	1	μA
		V_{DS} = 240V, V_{GS} = 0V, T_J = 125ºC	--	--	100	
IGSS	Gate-Source Leakage	V_{GS} = ±20V	--	--	±100	nA
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = 20V, f = 1.0MHz	--	138	--	pF
C_{oss}	Output Capacitance		--	30	--	
C_{rss}	Reverse Transfer Capacitance		--	5	--	
Q_g	Total Gate Charge	V_{DD} = 240V, I_D = 3.0A, V_{GS} = 10V	--	4.4	--	nC
Q_{gs}	Gate-Source Charge		--	0.7	--	
Q_{gd}	Gate-Drain Charge		--	2	--	
td(on)	Turn-on Delay Time	V_{DD} = 150V, I_D = 3.0A, R_G = 25 Ω	--	18	--	ns
t_r	Turn-on Rise Time		--	55	--	
td(off)	Turn-off Delay Time		--	60	--	
t_f	Turn-off Fall Time		--	55	--	
I_S	Continuous Body Diode Current	T_C = 25 °C	--	--	3	A
ISM	Pulsed Diode Forward Current		--	--	12	
t_{rr}	Reverse Recovery Time	V_{GS} = 0V,I_S = 3A, di_F/dt =100A/μs	--	250	--	ns
Q_{rr}	Reverse Recovery Charge		--	1.8	--	μC
V_{SD}	Body Diode Voltage	T_J = 25ºC, I_{SD} = 3A, V_{GS} = 0V	--	--	1.4	V

Note :

1、The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3、The power dissipation is limited by 150℃ junction temperature

4、The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

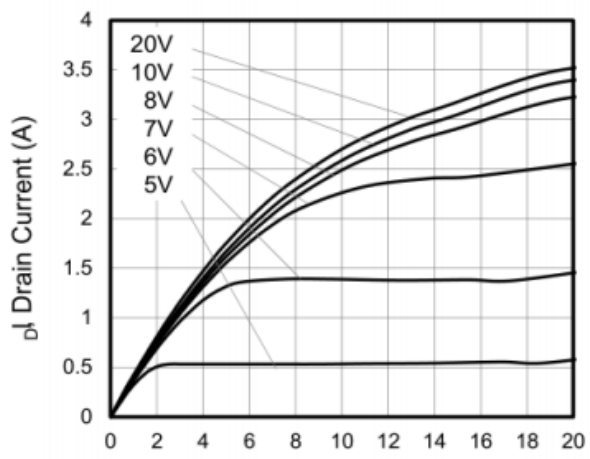


Figure 1. Output Characteristics

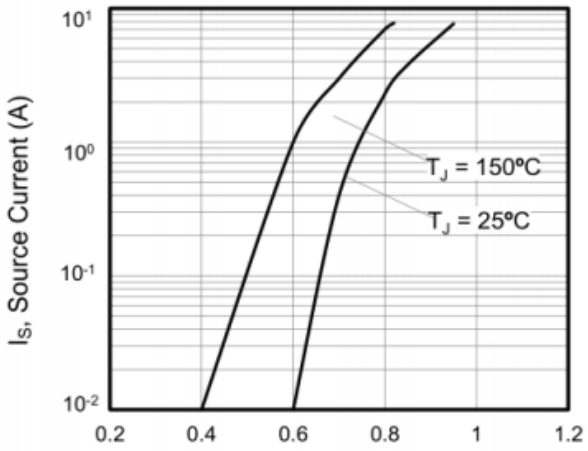


Figure 2. Body Diode Forward Voltage

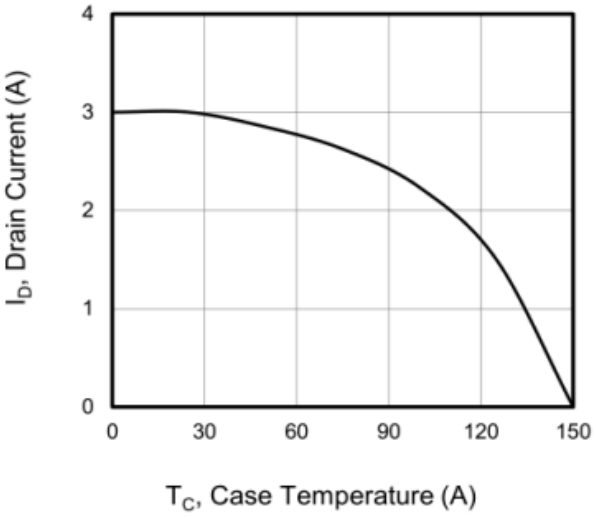


Figure 3. Drain Current vs. Temperature

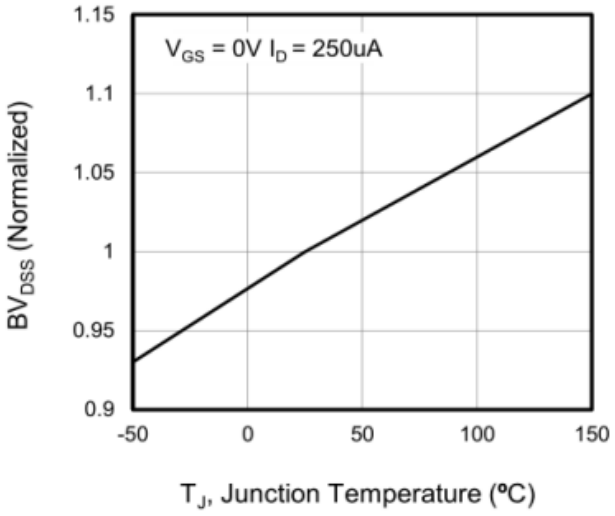


Figure 4. BVDSS Variation vs. Temperature

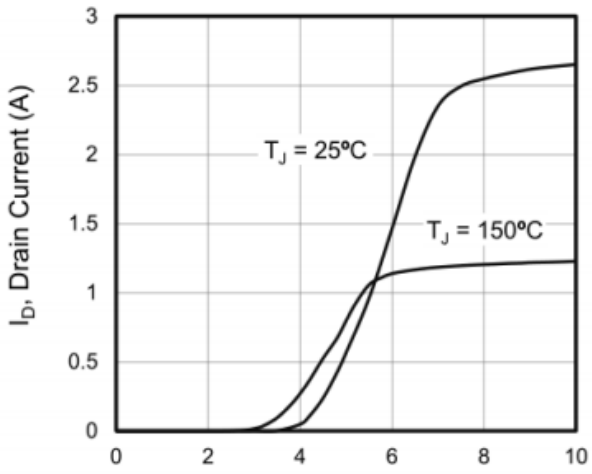


Figure 5. Transfer Characteristics

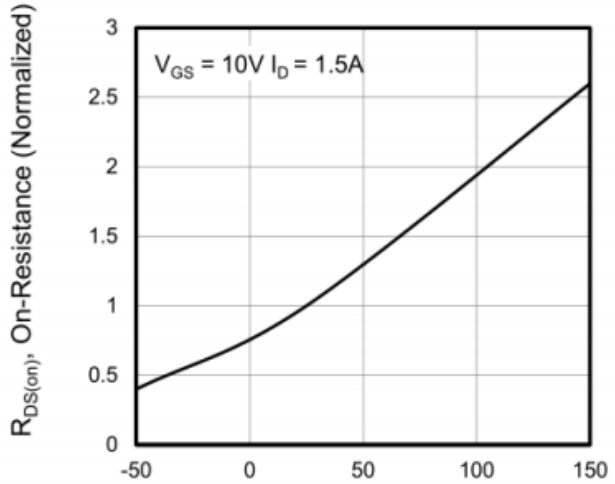


Figure 6. On-Resistance vs. Temperature

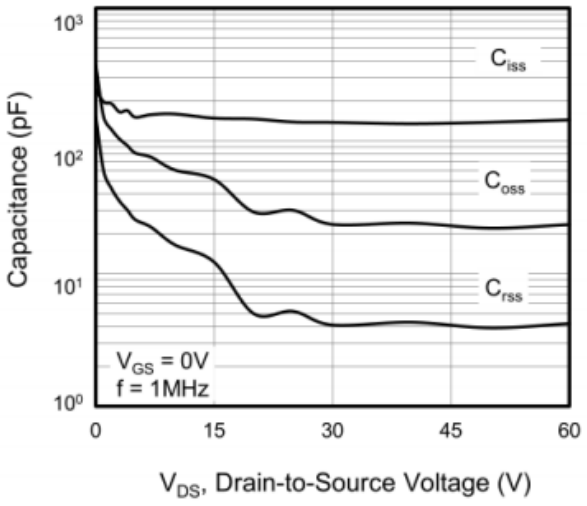


Figure 7. Capacitance

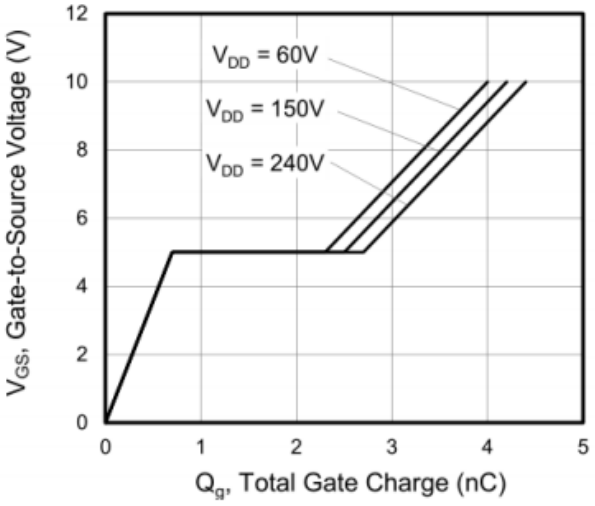


Figure 8. Gate Charge

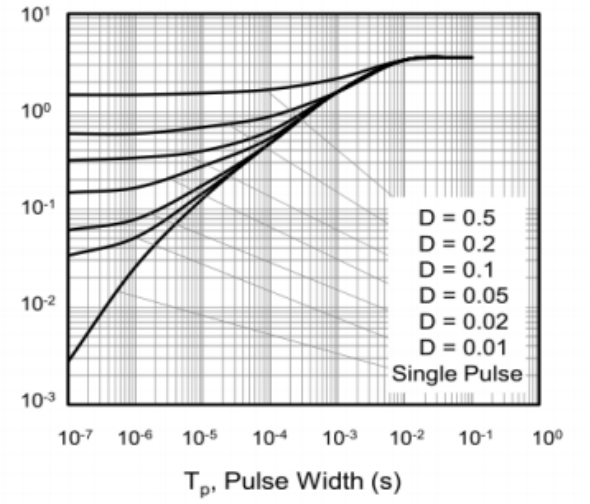
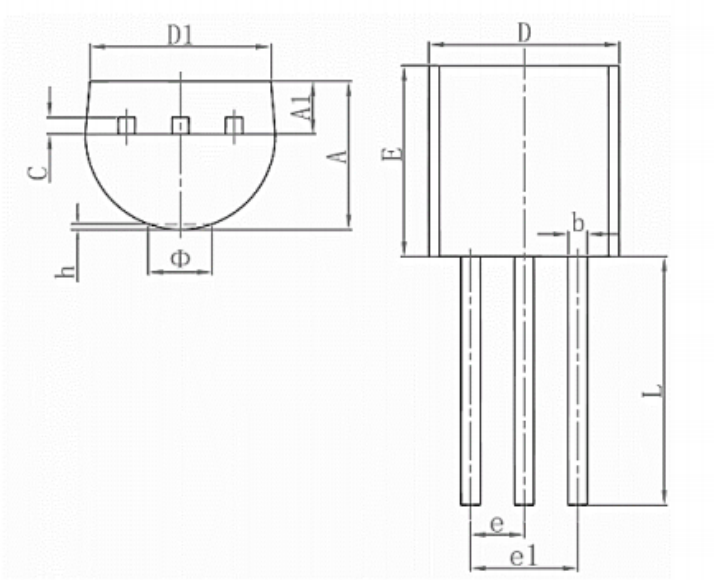


Figure 9. Transient Thermal Impedance

Package Mechanical Data-TO-92-3LSingle



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

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