

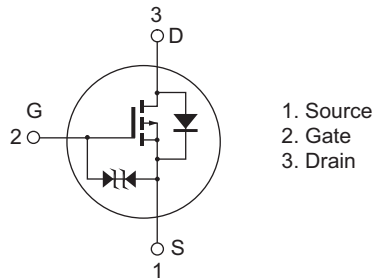
# RQJ0302NGDQA

## Features

- Low on-resistance  
 $R_{DS(on)} = 138 \text{ m}\Omega$  typ ( $V_{GS} = -10 \text{ V}$ ,  $I_D = -1.1 \text{ A}$ )
- Low drive current
- High speed switching
- 4.5 V gate drive

## Outline

(Package name: MPAK)



1. Source
2. Gate
3. Drain

Note: Marking is "NG".

## Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	-30	V
Gate to source voltage	$V_{GSS}$	+10 / -20	V
Drain current	$I_D$	-2.2	A
Drain peak current	$I_{D(Pulse)}$ <sup>Note1</sup>	-5	A
Body - drain diode reverse drain current	$I_{DR}$	-2.2	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	0.8	W
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Notes: 1.  $PW \leq 10 \mu\text{s}$ , duty cycle  $\leq 1\%$

2. When using the glass epoxy board (FR-4:  $40 \times 40 \times 1 \text{ mm}$ )

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## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	+10	—	—	V	$I_G = +100 \mu\text{A}, V_{DS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	-20	—	—	V	$I_G = -100 \mu\text{A}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	+10	$\mu\text{A}$	$V_{GS} = +8 \text{ V}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	-10	$\mu\text{A}$	$V_{GS} = -16 \text{ V}, V_{DS} = 0$
Drain to source leak current	$I_{DSS}$	—	—	-1	$\mu\text{A}$	$V_{DS} = -30 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.0	V	$V_{DS} = -10 \text{ V}, I_D = -1 \text{ mA}$
Drain to source on state resistance	$R_{DS(on)}$	—	138	173	$\text{m}\Omega$	$I_D = -1.1 \text{ A}, V_{GS} = -10 \text{ V}^{\text{Note3}}$
	$R_{DS(on)}$	—	216	303	$\text{m}\Omega$	$I_D = -1.1 \text{ A}, V_{GS} = -4.5 \text{ V}^{\text{Note3}}$
Forward transfer admittance	$ y_{fs} $	1.2	2.1	—	S	$I_D = -1.1 \text{ A}, V_{DS} = -10 \text{ V}^{\text{Note3}}$
Input capacitance	$C_{iss}$	—	195	—	pF	$V_{DS} = -10 \text{ V}, V_{GS} = 0,$ $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	42	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	29	—	pF	
Turn - on delay time	$t_{d(on)}$	—	19	—	ns	
Rise time	$t_r$	—	25	—	ns	$I_D = -0.5 \text{ A}, V_{GS} = -10 \text{ V},$ $R_L = 20 \Omega, R_g = 4.7 \Omega$
Turn - off delay time	$t_{d(off)}$	—	30	—	ns	
Fall time	$t_f$	—	4.6	—	ns	
Total gate charge	$Q_g$	—	4.2	—	nC	$V_{DD} = -10 \text{ V}, V_{GS} = -10 \text{ V},$ $I_D = -2.2 \text{ A}$
Gate to source charge	$Q_{gs}$	—	0.7	—	nC	
Gate to drain charge	$Q_{gd}$	—	1.0	—	nC	
Body - drain diode forward voltage	$V_{DF}$	—	-0.9	—	V	$I_F = -1.5 \text{ A}, V_{GS} = 0^{\text{Note3}}$

Notes: 3. Pulse test