TY Semicondutor®

Product specification

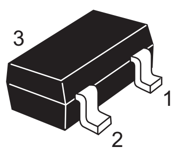
RQJ0304DQDQA

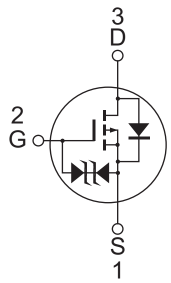
Features

- Low gate drive
  V_{DSS} : –30 V and 2.5 V gate drive
- Low drive current
- High speed switching
- Small traditional package (MPAK)

Outline

(Package name: MPAK)





1. Source
2. Gate
3. Drain

Notes: Marking is "DQ".

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	–30	V
Gate to source voltage	V_{GSS}	+8 / –12	V
Drain current	I_D	–1.8	A
Drain peak current	$I_{D(pulse)}$ Note1	–8	A
Body - drain diode reverse drain current	I_{DR}	1.8	A
Channel dissipation	Pch Note2	0.8	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, Duty cycle ≤ 1%
2. When using the glass epoxy board (FR-4 40 × 40 × 1 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 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	+8	—	—	V	I_G = +100 µA, V_{DS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	–12	—	—	V	I_G = –100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	+10	µA	V_{GS} = +6 V, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	–10	µA	V_{GS} = –10 V, V_{DS} = 0
Drain to source leak current	I_{DSS}	—	—	–1	µA	V_{DS} = –30 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	–0.4	—	–1.4	V	V_{DS} = –10 V, I_D = -1 mA
Drain to source on state resistance	$R_{DS(on)}$	—	195	245	mΩ	I_D = –1.0 A, V_{GS} = –4.5 V Note3
Drain to source on state resistance	$R_{DS(on)}$	—	300	420	mΩ	I_D = –1.0 A, V_{GS} = –2.5 V Note3
Forward transfer admittance	$\|y_{fs}\|$	1.8	2.5	—	S	I_D = –1.0 A, V_{DS} = –10 V Note3
Input capacitance	Ciss	—	185	—	pF	V_{DS} = –10 V, V_{GS} = 0, f = 1 MHz
Output capacitance	Coss	—	45	—	pF	
Reverse transfer capacitance	Crss	—	25	—	pF	
Turn - on delay time	$t_{d(on)}$	—	18	—	ns	I_D = –1.0 A, V_{GS} = –4.5 V, R_L = 10 Ω, R_g = 4.7 Ω
Rise time	t_r	—	33	—	ns	
Turn - off delay time	$t_{d(off)}$	—	22	—	ns	
Fall time	t_f	—	5	—	ns	
Total gate charge	Qg	—	1.9	—	nC	V_{DD} = –10 V, V_{GS} = –4.5 V, I_D = –2.0 A
Gate to Source charge	Qgs	—	0.4	—	nC	
Gate to drain charge	Qgd	—	0.7	—	nC	
Body - drain diode forward voltage	V_{DF}	—	–0.9	–1.3	V	I_F = –2.0 A, V_{GS} = 0 Note3

Notes: 3. Pulse test