

RJK6002DPH-E0

600V - 2A - MOS FET
High Speed Power Switching

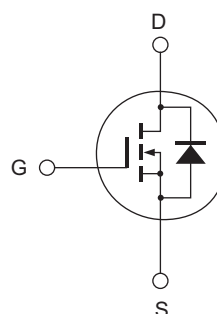
R07DS1047EJ0100
Rev.1.00
Mar 21, 2013

Features

- Low on-resistance
RDS(on) = 5.7 Ω typ. (at I_D = 1 A, V_{GS} = 10 V, Ta = 25°C)
- Low leakage current
- High speed switching

Outline

RENESAS Package code: PRSS0004ZJ-B
(Package name: TO-251)



1. Gate
2. Drain
3. Source
4. Drain

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	600	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	2	A
Drain peak current	I _{D (pulse)} ^{Note1}	4	A
Body-drain diode reverse drain current	I _{DR}	2	A
Body-drain diode reverse drain peak current	I _{DR (pulse)} ^{Note1}	4	A
Avalanche current	I _{AP} ^{Note3}	1	A
Avalanche energy	E _{AR} ^{Note3}	0.05	mJ
Channel dissipation	P _{ch} ^{Note2}	30	W
Channel to case thermal impedance	θ _{ch-c}	4.17	°C/W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

- Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%
 2. Value at T_c = 25°C
 3. ST_{ch} = 25°C, T_{ch} ≤ 150°C

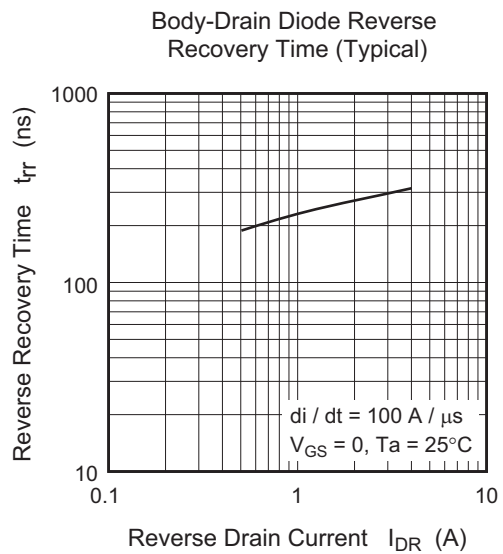
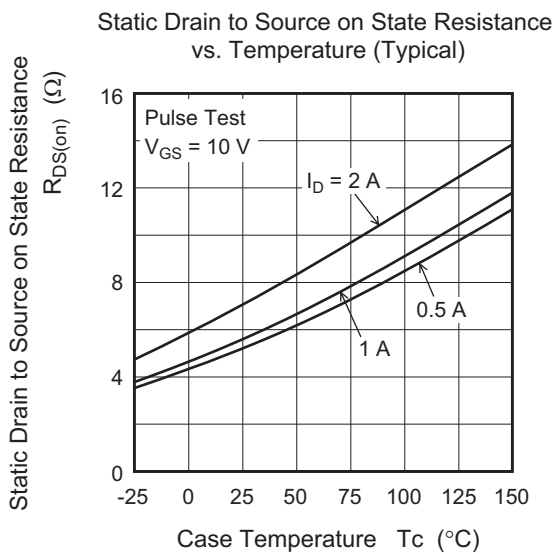
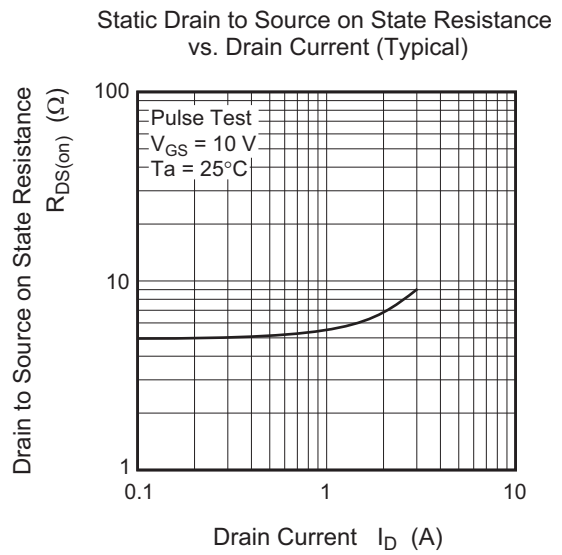
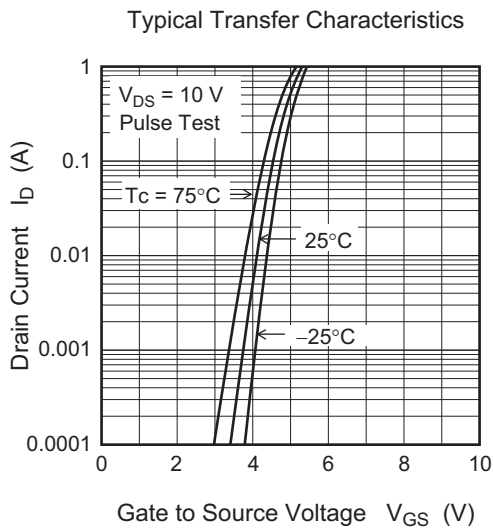
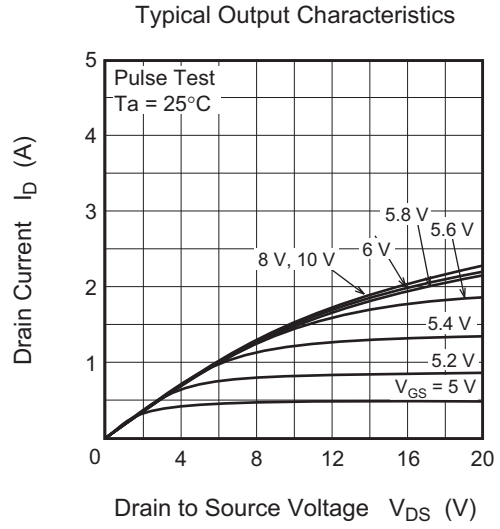
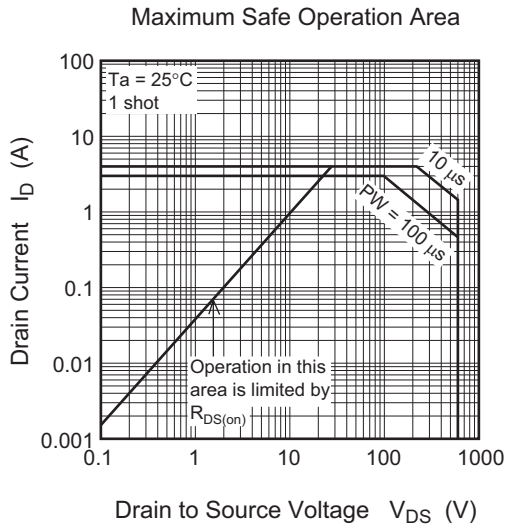
Electrical Characteristics

(Ta = 25°C)

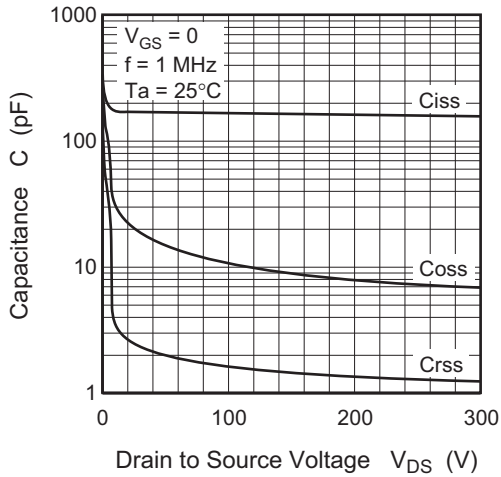
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 600 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	5.7	6.8	Ω	$I_D = 1 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	165	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	C_{oss}	—	20	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	2.5	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	28	—	ns	$I_D = 1 \text{ A}$
Rise time	t_r	—	17	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	47	—	ns	$R_L = 300 \Omega$
Fall time	t_f	—	20	—	ns	$R_g = 10 \Omega$
Total gate charge	Q_g	—	6.2	—	nC	$V_{DD} = 480 \text{ V}$
Gate to source charge	Q_{gs}	—	1.1	—	nC	$V_{GS} = 10 \text{ V}$
Gate to drain charge	Q_{gd}	—	3.6	—	nC	$I_D = 2 \text{ A}$
Body-drain diode forward voltage	V_{DF}	—	0.87	1.45	V	$I_F = 2 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-drain diode reverse recovery time	t_{rr}	—	260	—	ns	$I_F = 2 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Notes: 4. Pulse test

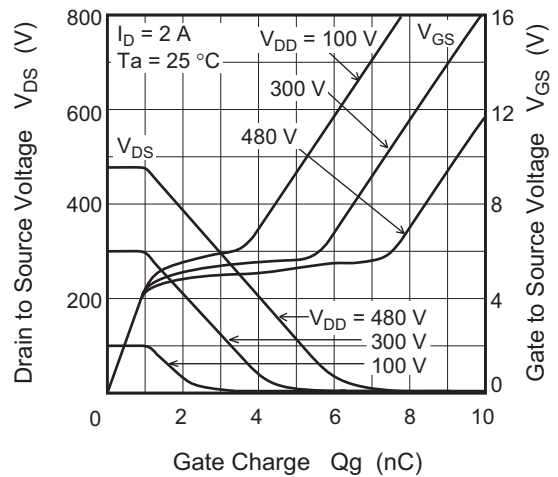
Main Characteristics



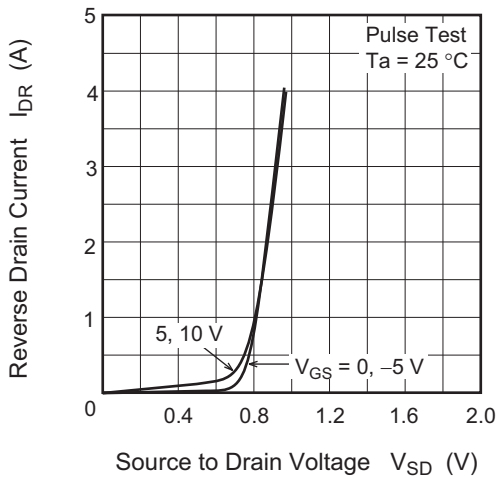
Typical Capacitance vs. Drain to Source Voltage (Typical)



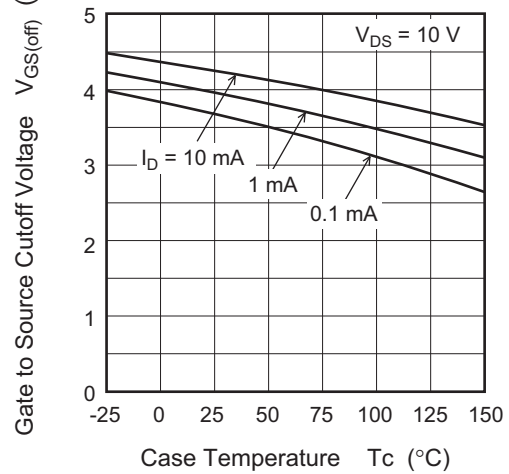
Dynamic Input Characteristics (Typical)



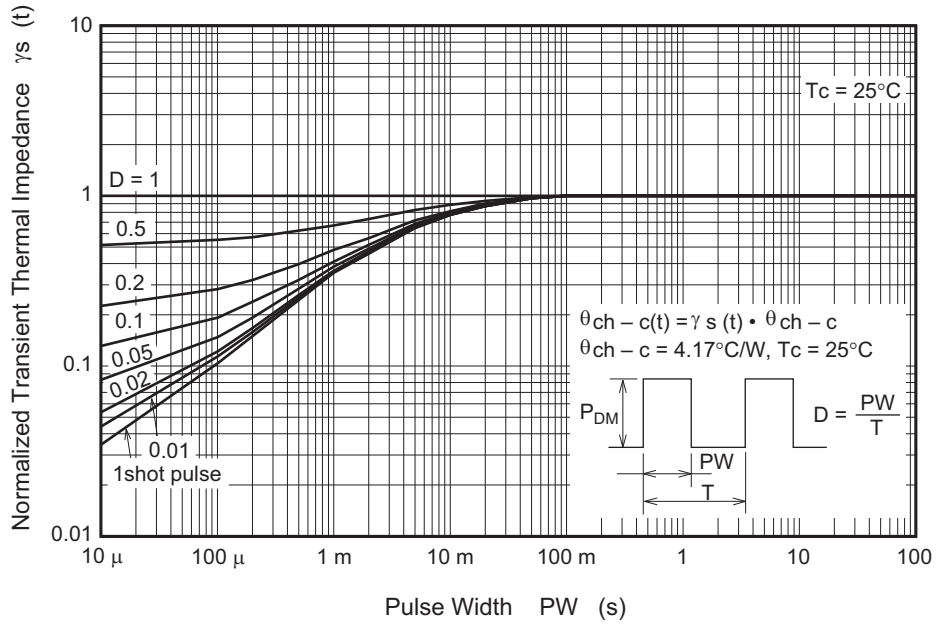
Reverse Drain Current vs. Source to Drain Voltage (Typical)



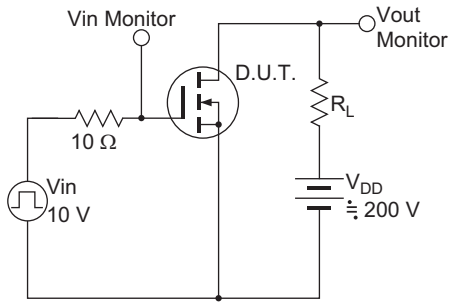
Gate to Source Cutoff Voltage vs. Case Temperature (Typical)



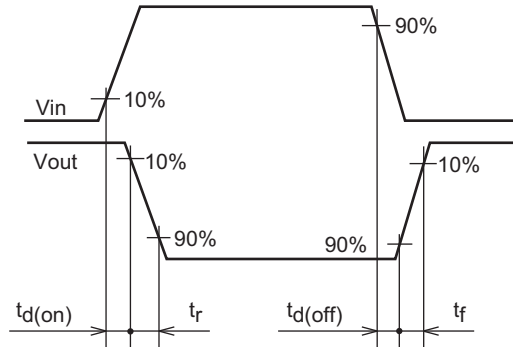
Normalized Transient Thermal Impedance vs. Pulse Width



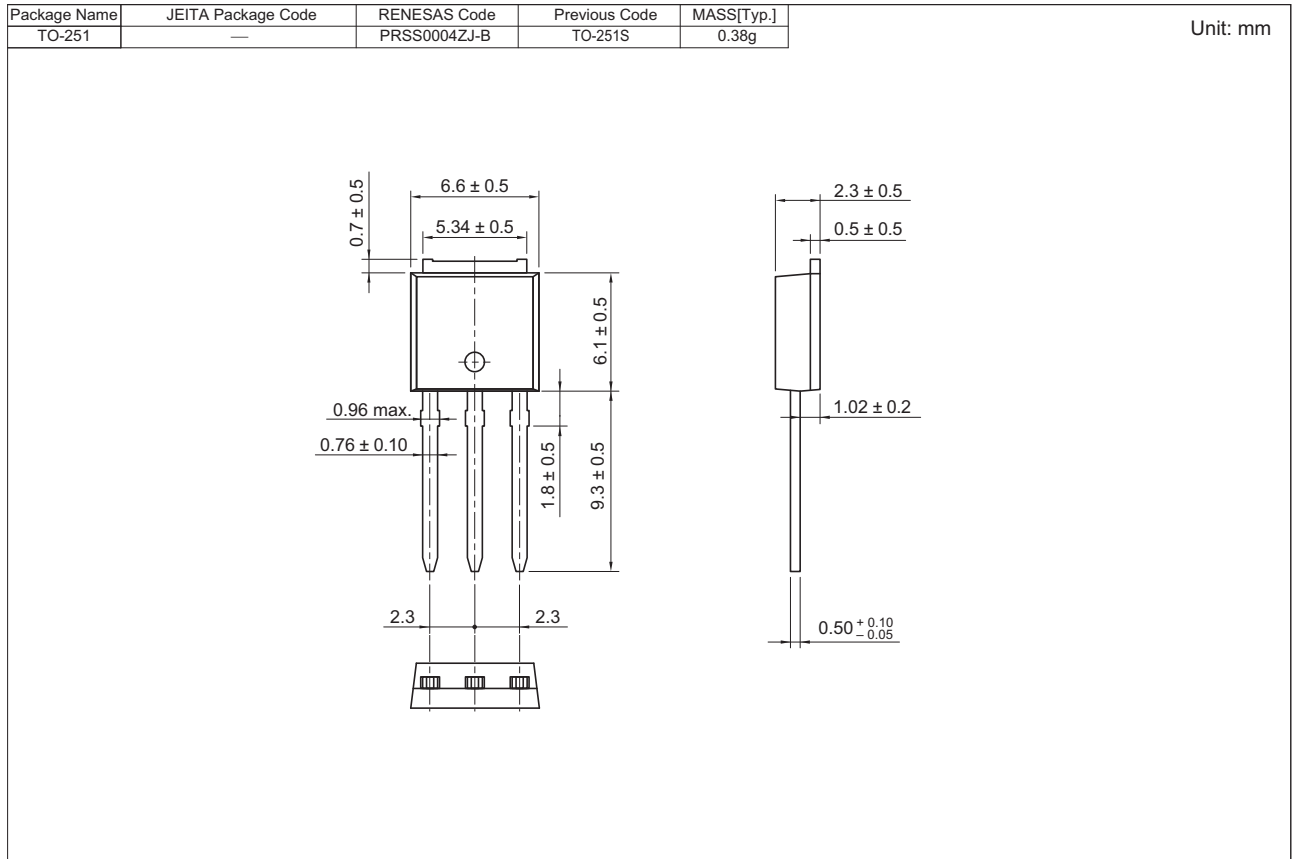
Switching Time Test Circuit



Waveform



Package Dimensions



Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJK6002DPH-E0#T2	70 pcs	Tube

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