

RJK6034DPH-E0

600V - 1A - MOS FET
High Speed Power Switching

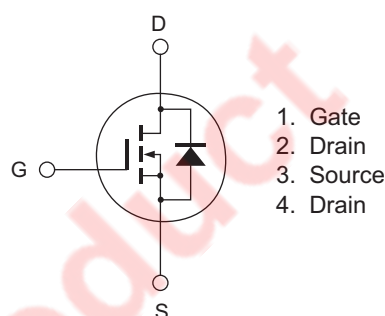
R07DS1046EJ0100
Rev.1.00
Mar 19, 2013

Features

- Low on-resistance
 $R_{DS(on)} = 9.8 \Omega$ typ. (at $I_D = 0.5 \text{ A}$, $V_{GS} = 10 \text{ V}$, $T_a = 25^\circ\text{C}$)
- Low leakage current
- High speed switching

Outline

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



Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	600	V
Gate to source voltage	V_{GSS}	± 30	V
Drain current	I_D	1	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	2	A
Avalanche current	I_{AP} ^{Note3}	1	A
Channel dissipation	P_{ch} ^{Note2}	36.7	W
Channel to case thermal impedance	θ_{ch-c}	3.4	$^\circ\text{C}/\text{W}$
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

- Notes: 1. Pulse width limited by safe operating area
2. Value at $T_c = 25^\circ\text{C}$
3. $ST_{ch} = 25^\circ\text{C}$, $T_{ch} \leq 150^\circ\text{C}$

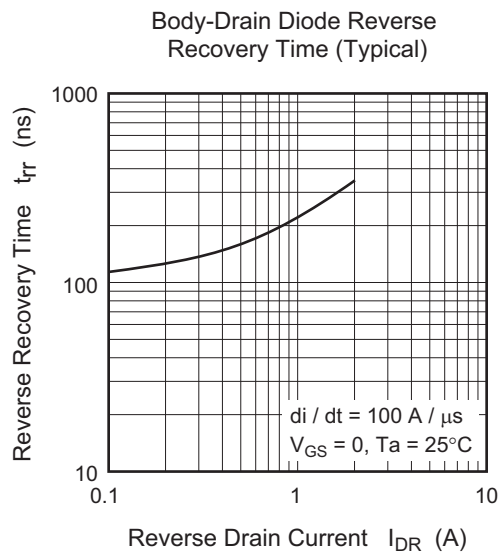
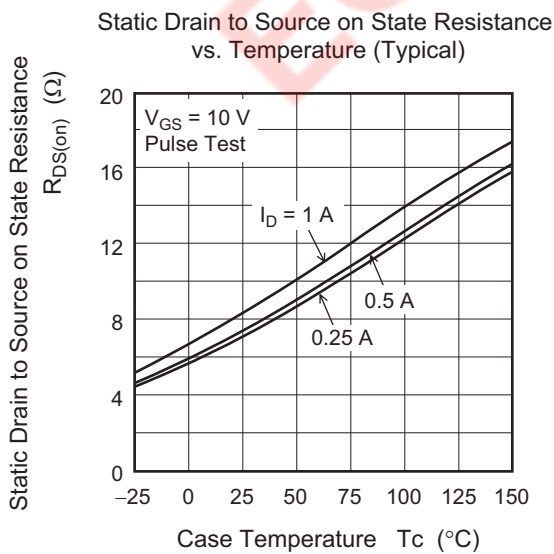
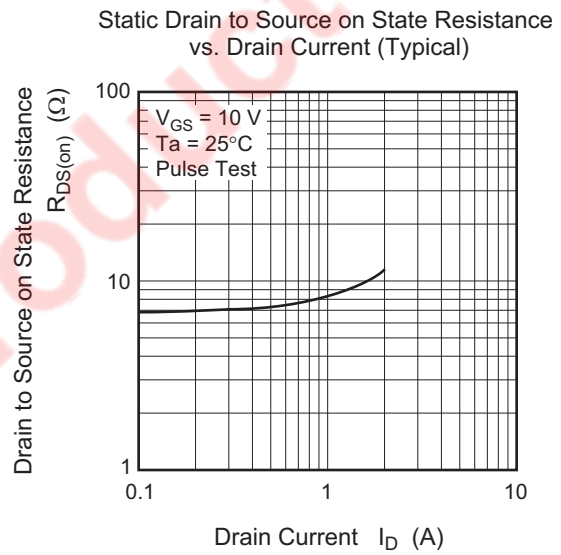
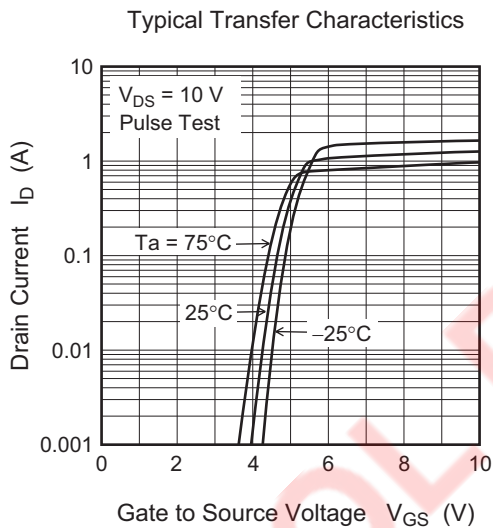
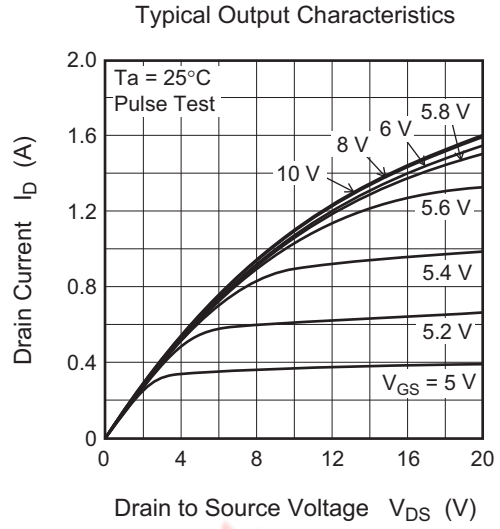
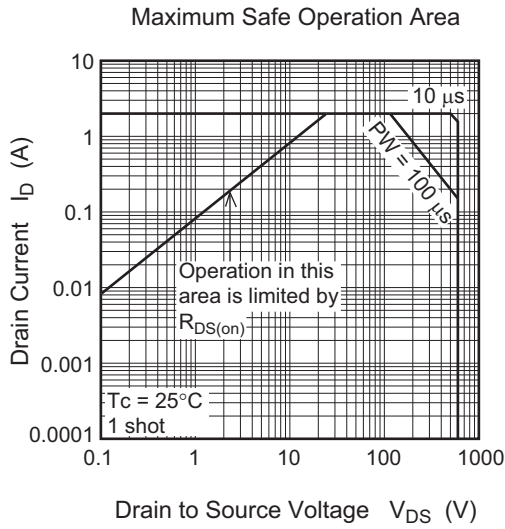
Electrical Characteristics

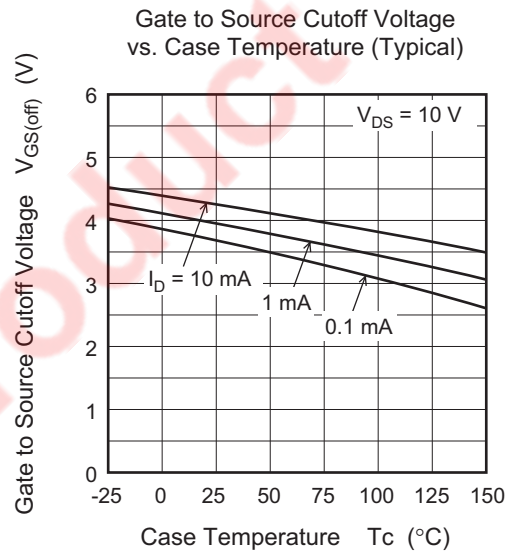
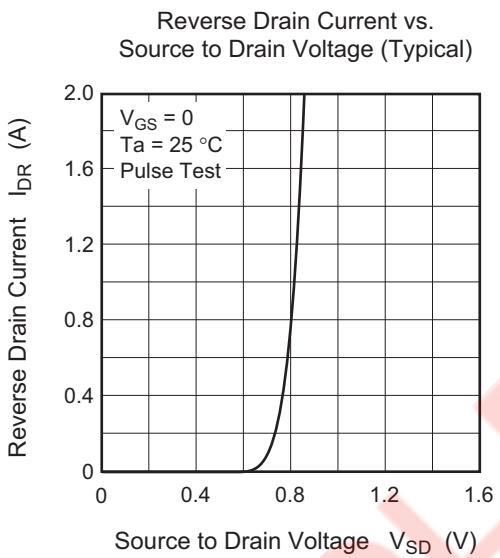
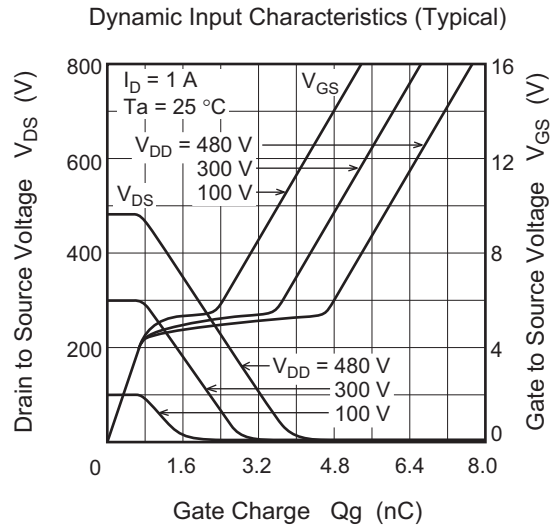
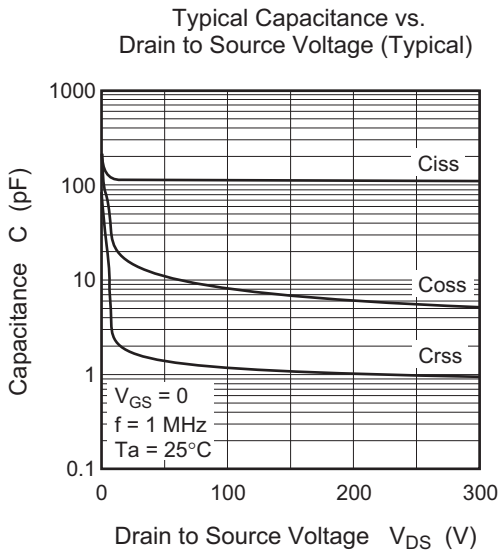
(Ta = 25°C)

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	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	9.8	12.2	Ω	$I_D = 0.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	115	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	C_{oss}	—	14	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	1.7	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	12	—	ns	$I_D = 0.5 \text{ A}$
Rise time	t_r	—	14	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	22	—	ns	$R_L = 600 \Omega$
Fall time	t_f	—	65	—	ns	$R_g = 10 \Omega$
Total gate charge	Q_g	—	5.9	—	nC	$V_{DD} = 480 \text{ V}$
Gate to source charge	Q_{gs}	—	1.0	—	nC	$V_{GS} = 10 \text{ V}$
Gate to drain charge	Q_{gd}	—	3.6	—	nC	$I_D = 1 \text{ A}$
Body-drain diode forward voltage	V_{DF}	—	0.9	1.5	V	$I_F = 1 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-drain diode reverse recovery time	t_{rr}	—	225	—	ns	$I_F = 1 \text{ A}$, $V_{GS} = 0$ $diF/dt = -100 \text{ A}/\mu\text{s}$

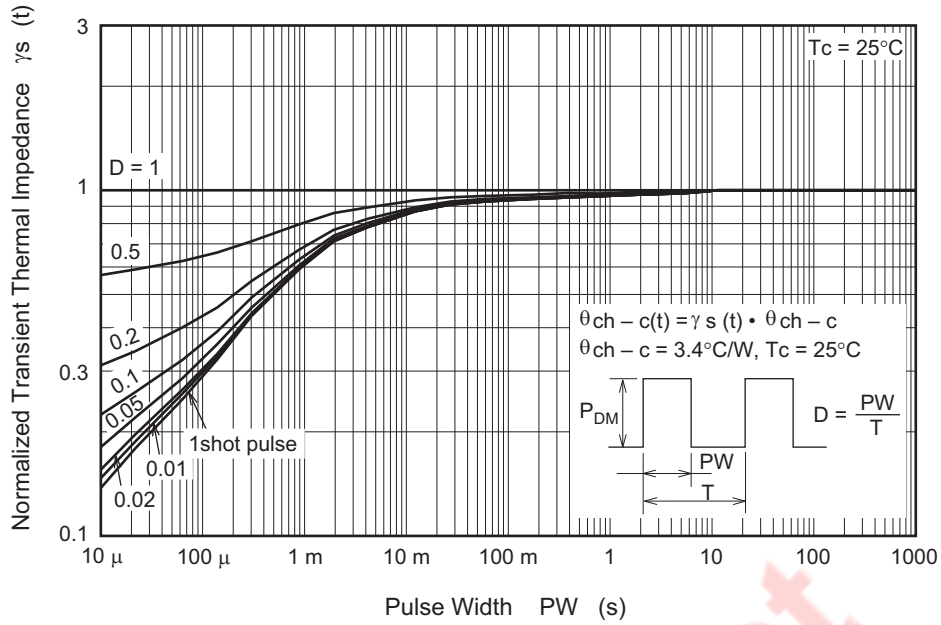
Notes: 4. Pulse test

Main Characteristics

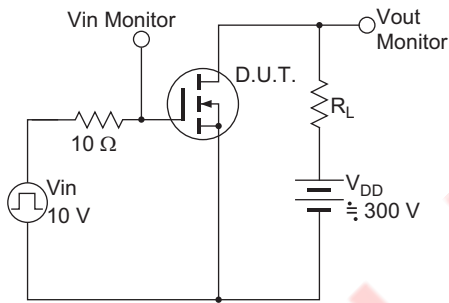




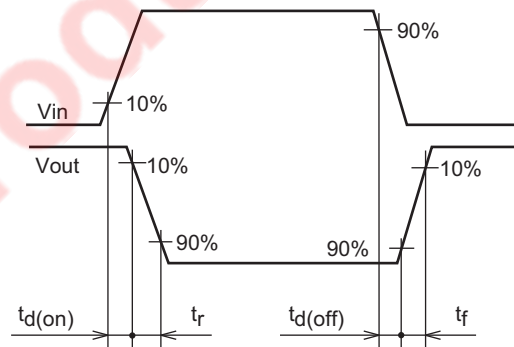
Normalized Transient Thermal Impedance vs. Pulse Width



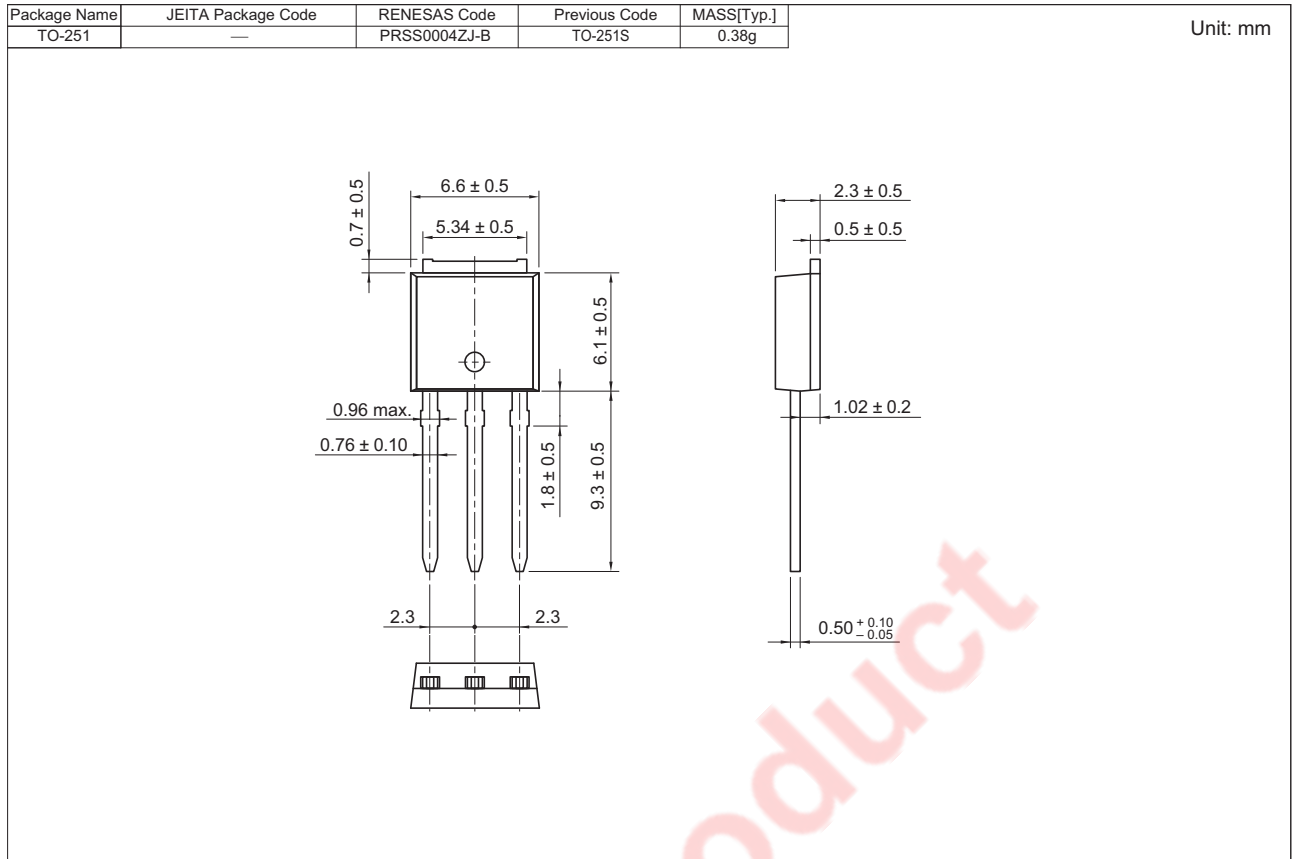
Switching Time Test Circuit



Waveform



Package Dimensions



Ordering Information

Orderable Part Number	Quantity	Shipping Container
RJK6034DPH-E0#T2	70 pcs	Tube

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