RJK0629DPK

60V, 85A, 4.5mΩ max.
N Channel Power MOS FET
High-Speed Switching Use

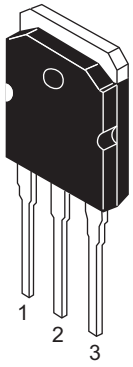
R07DS1061EJ0200
(Previous: REJ03G1875-0100)
Rev.2.00
Apr 09, 2013

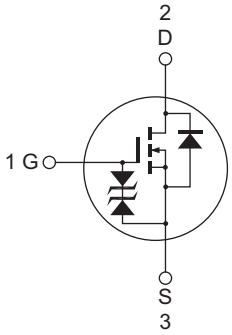
Features

- V_{DSS}: 60 V
- $R_{DS(on)}$: 4.5 mΩ (Max)
- I_D: 100 A

Outline

RENESAS Package code: PRSS0004ZE-A
(Package name: TO-3P)





1. Gate
2. Drain (Flange)
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V_{DSS}	60	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	85	A
Drain peak current	I_D (pulse) Note1	340	A
Body-drain diode reverse drain current	I_{DR}	85	A
Body-drain diode reverse drain peak current	I_{DR} (pulse) Note1	340	A
Avalanche current	I_{AP} Note2	55	A
Channel dissipation	Pch Note3	100	W
Channel to case thermal impedance	θch-c	1.25	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. Tch ≤ 150°C
2. STch = 25°C, Tch ≤ 150°C, L = 100 μH
3. Value at Tc = 25°C

Electrical Characteristics

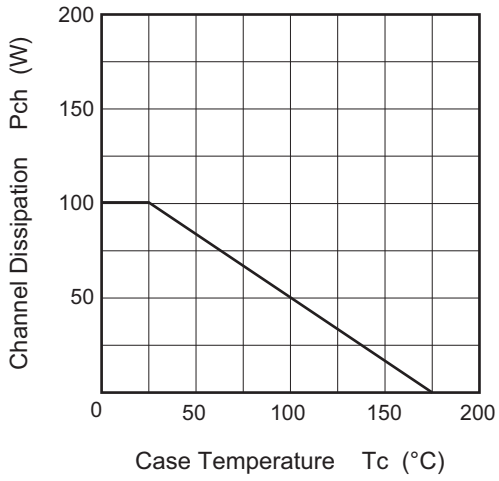
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	I_D = 100 μA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 μA, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	V_{DS} = 60 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	μA	V_{GS} = ±20 V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	I_D = 1 mA, V_{DS} = 10 V
Static drain to source on state voltage	$V_{DS(on)}$	—	161	194	mV	I_D = 43A, V_{GS} = 10 V [Note4]
Static drain to source on state resistance	$R_{DS(on)}$	—	3.75	4.5	mΩ	I_D = 43A, V_{GS} = 10 V [Note4]
		—	4.9	6.6	mΩ	I_D = 43 A, V_{GS} = 4.5 V [Note4]
Input capacitance	Ciss	—	4100	—	pF	V_{DS} = 10 V, V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	1000	—	pF	
Reverse transfer capacitance	Crss	—	780	—	pF	
Total gate charge	Qg	—	85	—	nC	V_{DD} = 25 V, V_{GS} = 10 V, I_D = 85 A
Gate to source charge	Qgs	—	11	—	nC	
Gate to drain charge	Qgd	—	25	—	nC	
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	V_{DD} = 30V, I_D= 43A, V_{GS} = 10 V, R_G = 4.7 Ω
Rise time	t_r	—	40	—	ns	
Turn-off delay time	$t_{d(off)}$	—	100	—	ns	
Fall time	t_f	—	40	—	ns	
Body-drain diode forward voltage	V_{DF}	—	0.92	1.2	V	I_F = 85 A, V_{GS} = 0 [Note4]
Body-drain diode reverse recovery time	t_{rr}	—	50	—	ns	I_F = 85 A, V_{GS} = 0, di_F/dt = 100 A/μs

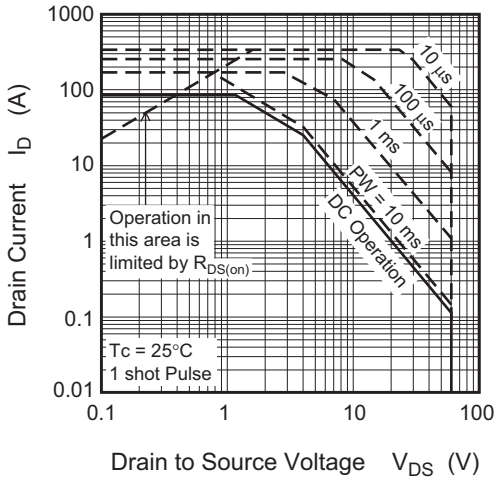
Note: 4. Pulse test

Main Characteristics

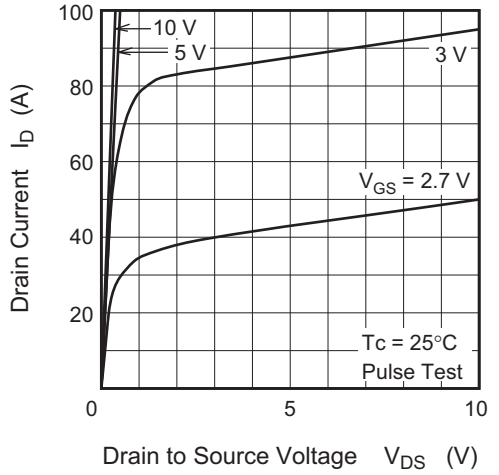
Power vs. Temperature Derating



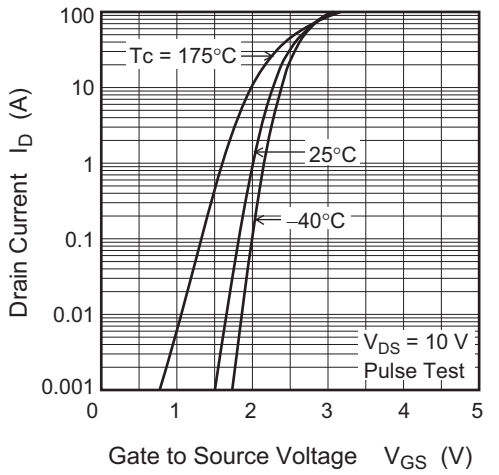
Maximum Safe Operation Area



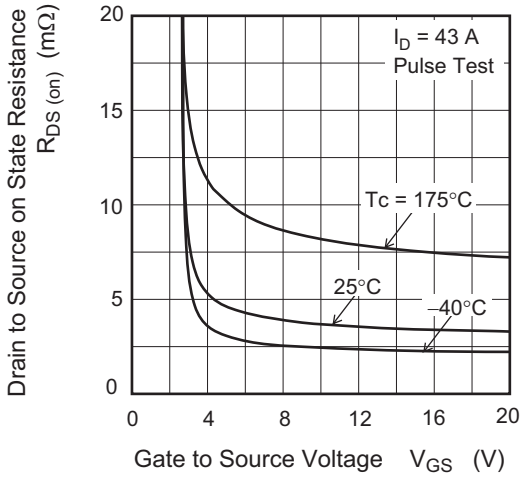
Typical Output Characteristics



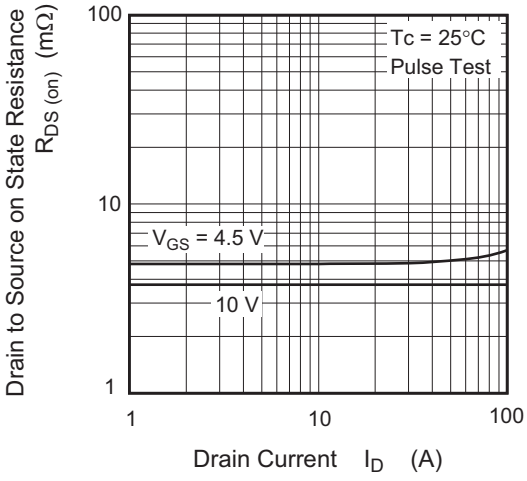
Typical Transfer Characteristics



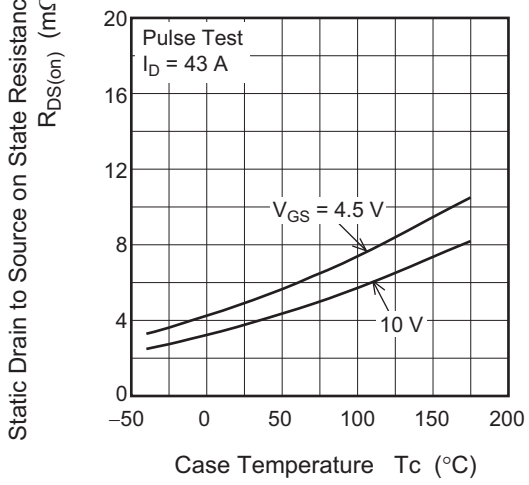
Static Drain to Source on State Resistance vs. Gate to Source Voltage



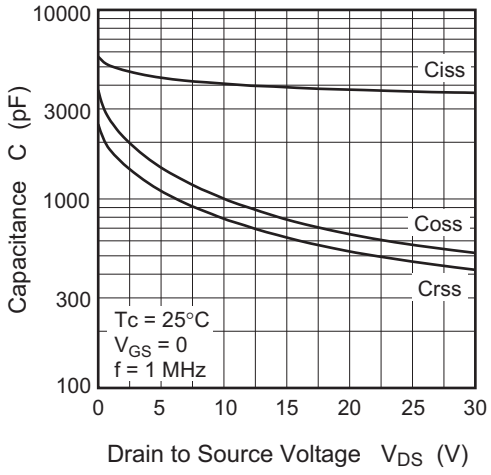
Static Drain to Source on State Resistance vs. Drain Current



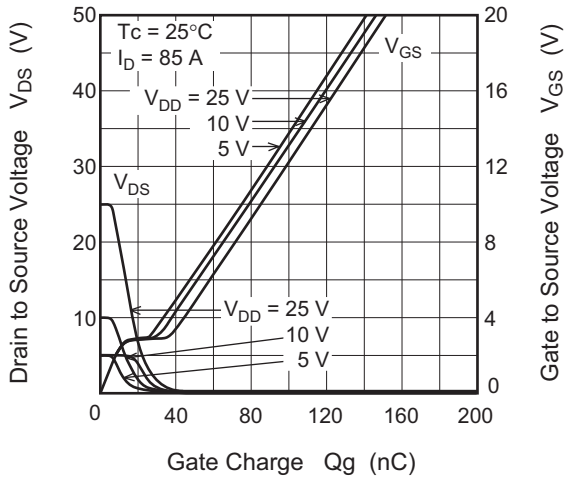
Static Drain to Source on State Resistance vs. Temperature



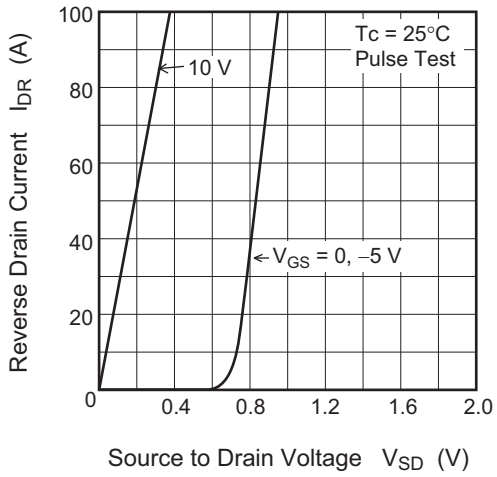
Typical Capacitance vs. Drain to Source Voltage



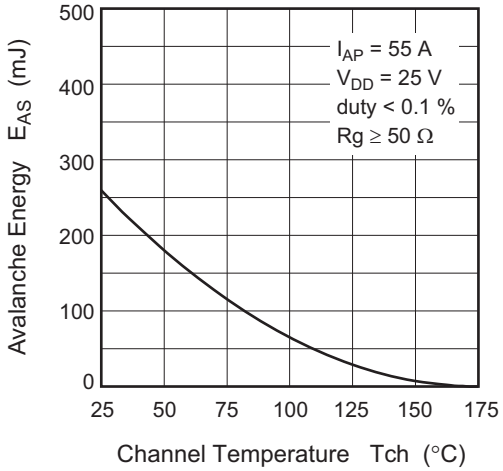
Dynamic Input Characteristics



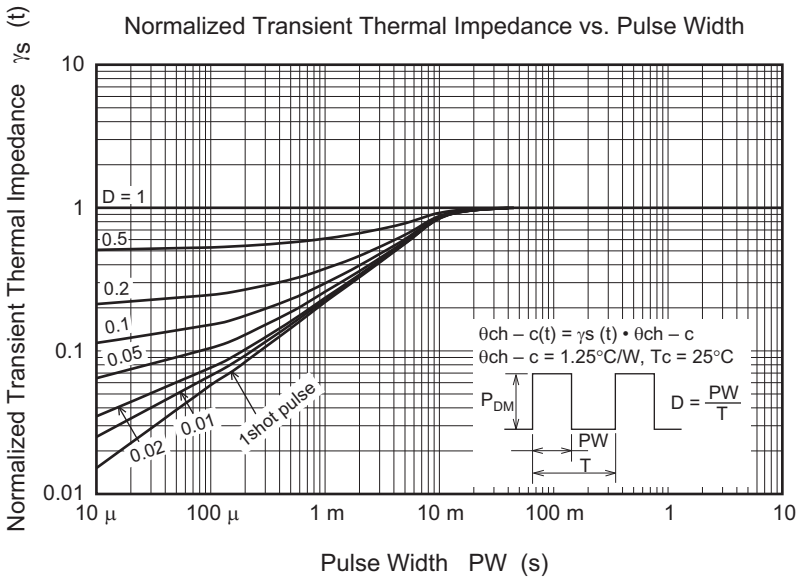
Reverse Drain Current vs. Source to Drain Voltage



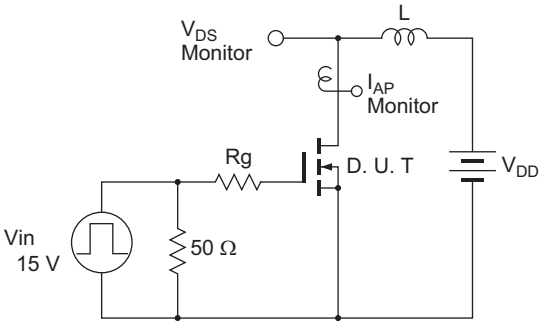
Maximum Avalanche Energy vs. Channel Temperature Derating



Normalized Transient Thermal Impedance vs. Pulse Width

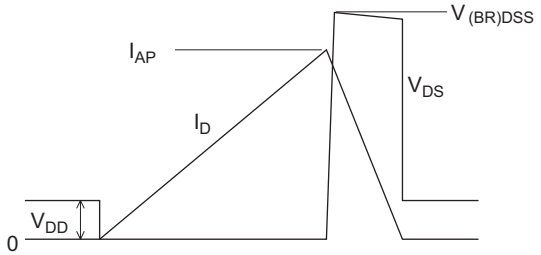


Avalanche Test Circuit

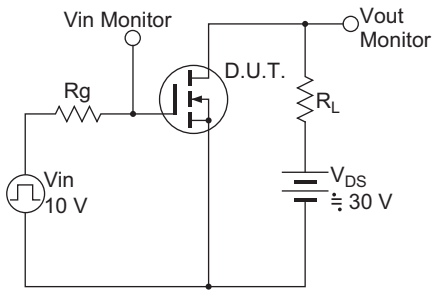


Avalanche Waveform

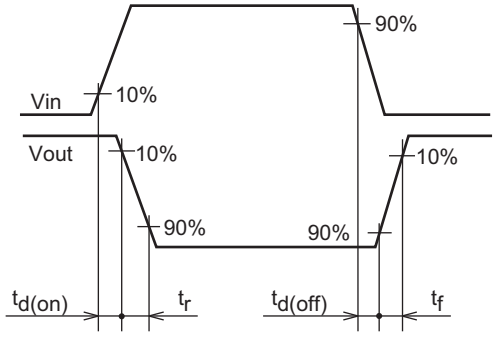
$$E_{AS} = \frac{1}{2} L \bullet I_{AP}^2 \bullet \frac{V_{DSS}}{V_{DSS} - V_{DD}}$$



Switching Time Test Circuit



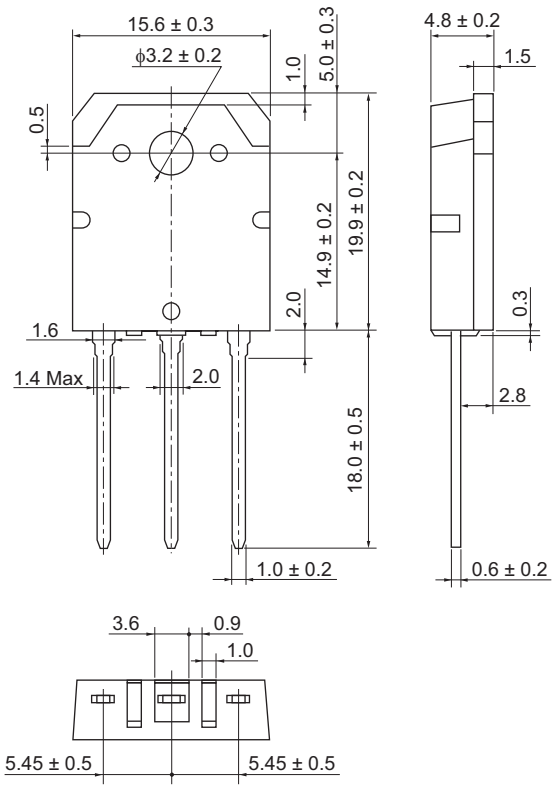
Switching Time Waveform



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-3P	SC-65	PRSS0004ZE-A	TO-3P / TO-3PV	5.0g

Unit: mm



Ordering Information

Part No.	Quantity	Shipping Container
RJK0629DPK-00-T0	360 pcs	Box (Tube)

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Renesas Electronics America Inc.
2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada
Tel: +1-905-898-5441, Fax: +1-905-898-3220

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K
Tel: +44-1628-651-700, Fax: +44-1628-651-804

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

Renesas Electronics Hong Kong Limited
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2886-9318, Fax: +852 2886-9022/9044

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei, Taiwan
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

Renesas Electronics Malaysia Sdn.Bhd.
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics Korea Co., Ltd.
11F., Samik Lavied' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141

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