

# 2SJ181(L), 2SJ181(S)

R07DS0395EJ0300  
 (Previous: REJ03G0848-0200)  
 Rev.3.00  
 May 16, 2011

## Silicon P Channel MOS FET

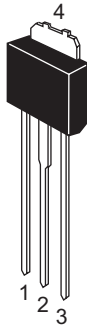
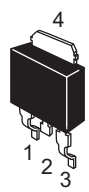
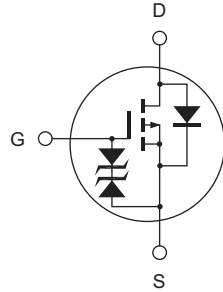
### Description

High speed power switching

### Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter

### Outline

RENESAS Package code: PRSS0004ZD-A (Package name: DPAK (L)-(1) )	RENESAS Package code: PRSS0004ZD-C (Package name: DPAK (S) )
	
	
1. Gate 2. Drain 3. Source 4. Drain	

### Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	$V_{DSS}$	-600	V
Gate to source voltage	$V_{GSS}$	±15	V
Drain current	$I_D$	-0.5	A
Drain peak current	$I_{D(pulse)}$ <sup>Note 1</sup>	-1.0	A
Body to drain diode reverse drain current	$I_{DR}$	-0.5	A
Channel dissipation	$P_{ch}$ <sup>Note 2</sup>	20	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes: 1.  $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$   
 2. Value at  $T_c = 25^\circ C$

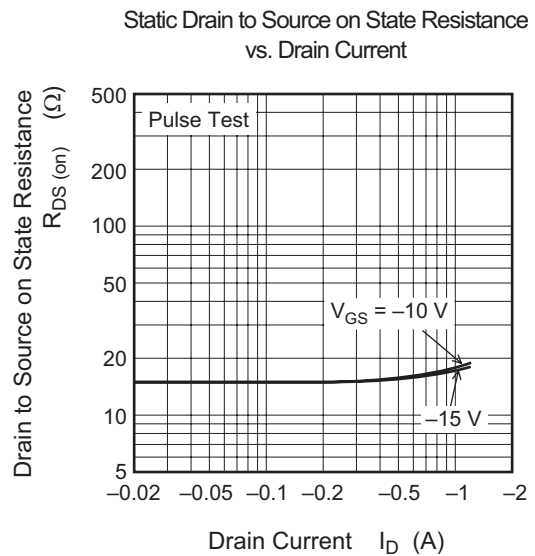
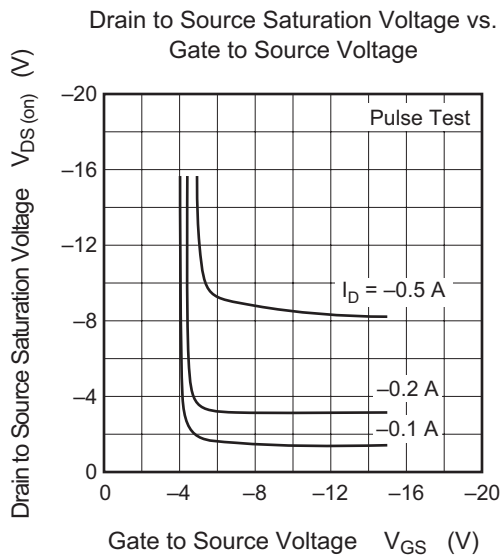
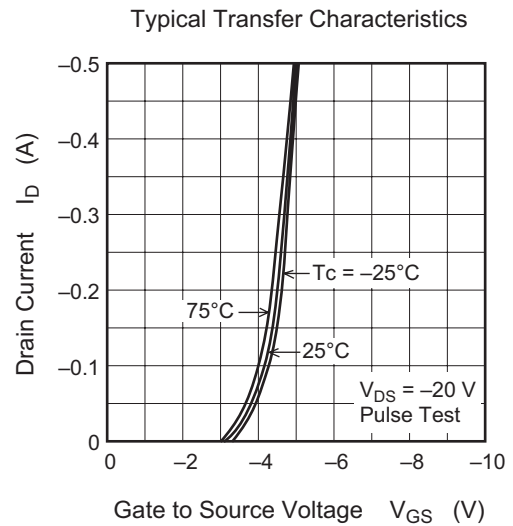
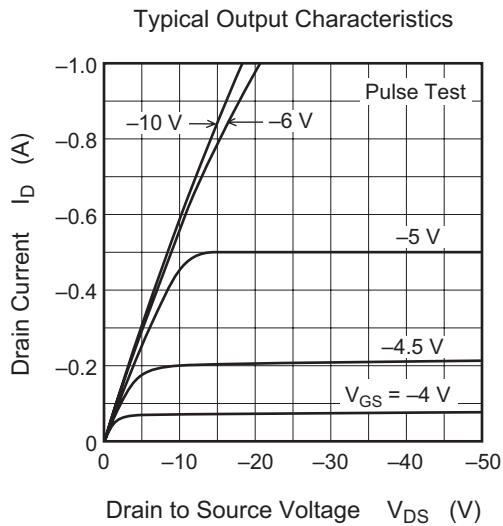
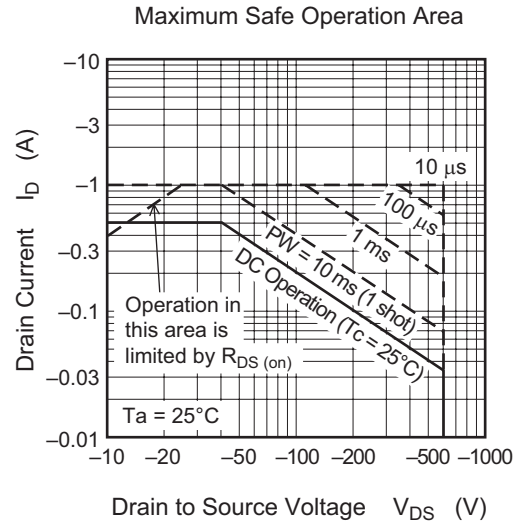
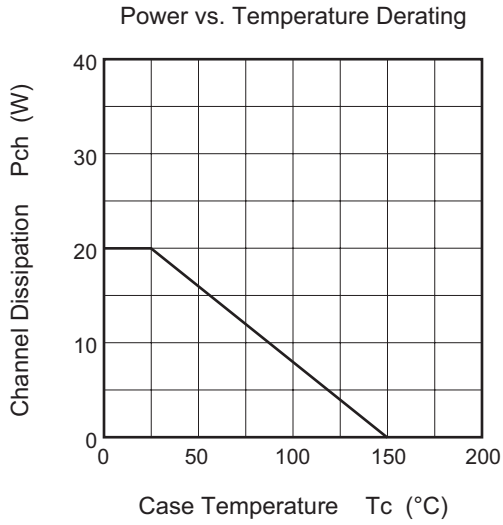
## Electrical Characteristics

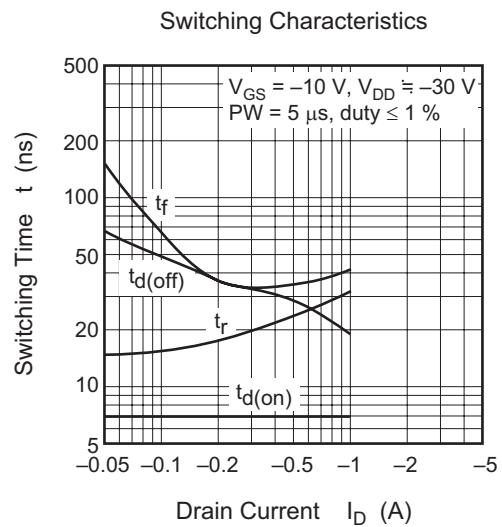
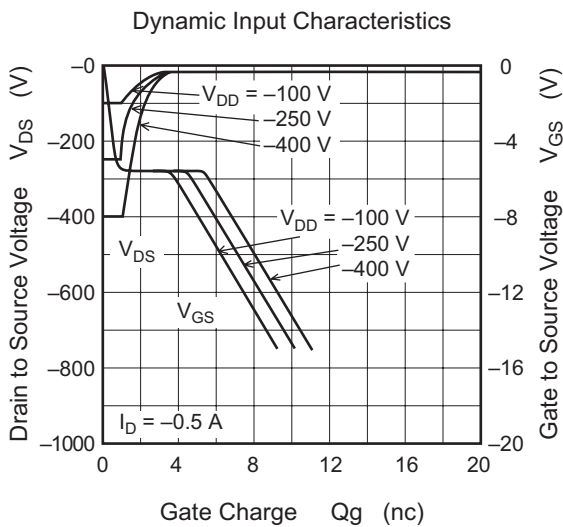
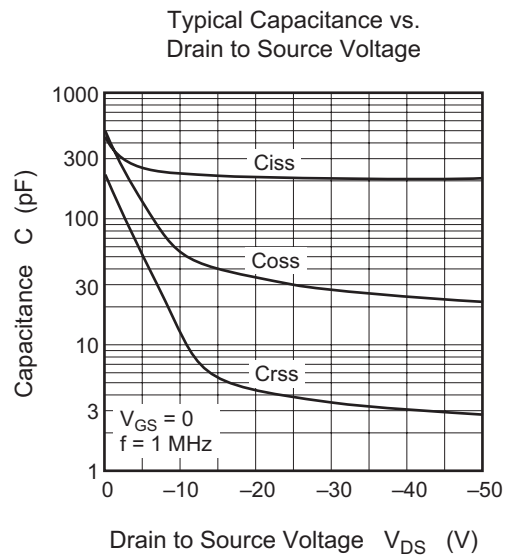
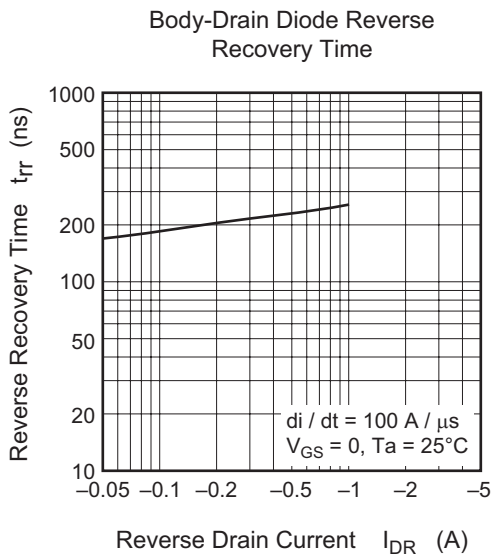
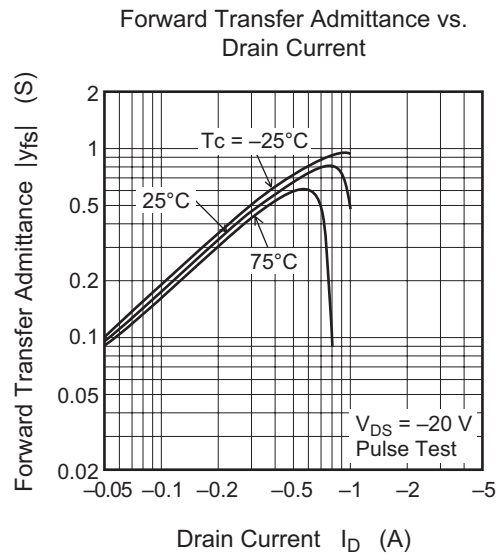
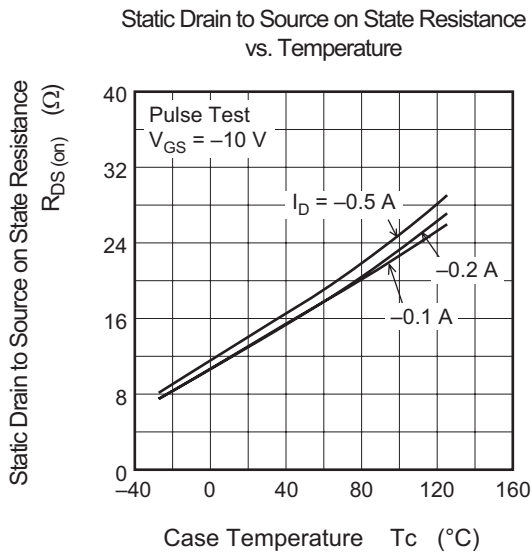
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-600	—	—	V	$I_D = -10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 15$	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 12 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	-100	$\mu\text{A}$	$V_{DS} = -500 \text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-2.0	—	-4.0	V	$I_D = -1 \text{ mA}$ , $V_{DS} = -10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	15	25	$\Omega$	$I_D = -0.3 \text{ A}$ , $V_{GS} = -10 \text{ V}$ <sup>Note 3</sup>
Forward transfer admittance	$ y_{fs} $	0.3	0.45	—	S	$I_D = -0.3 \text{ A}$ , $V_{DS} = -20 \text{ V}$ <sup>Note 3</sup>
Input capacitance	$C_{iss}$	—	220	—	pF	$V_{DS} = -10 \text{ V}$
Output capacitance	$C_{oss}$	—	55	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	13	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	7	—	ns	$I_D = -0.3 \text{ A}$
Rise time	$t_r$	—	20	—	ns	$V_{GS} = -10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	35	—	ns	$R_L = 100 \text{ }\Omega$
Fall time	$t_f$	—	35	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	-0.85	—	V	$I_F = -0.5 \text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	230	—	ns	$I_F = -0.5 \text{ A}$ , $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu\text{s}$

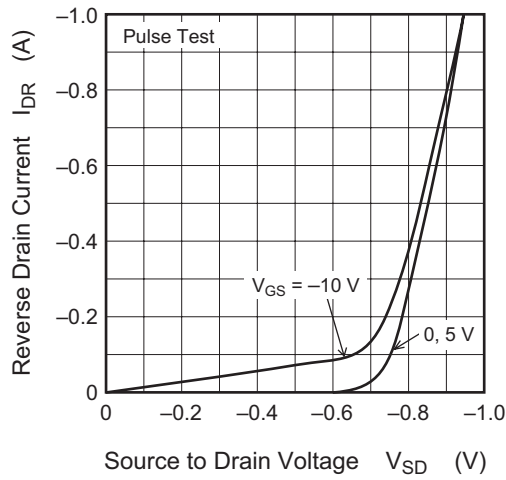
Note: 3. Pulse test

### Main Characteristics

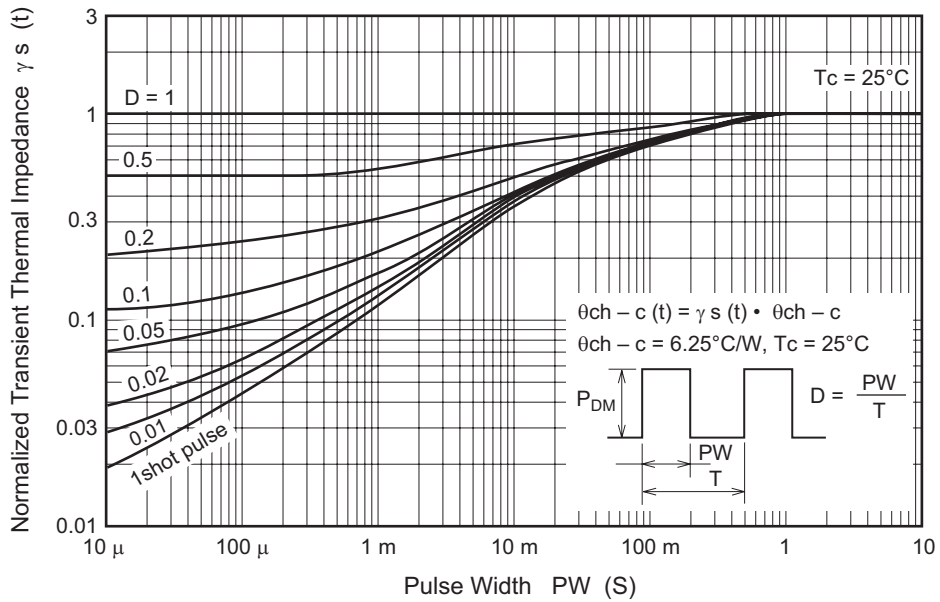




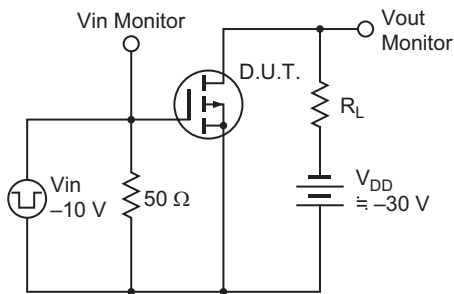
Reverse Drain Current vs. Source to Drain Voltage



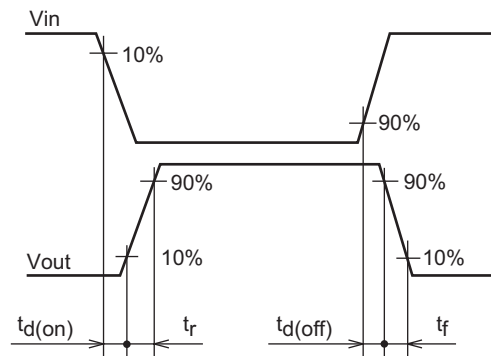
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

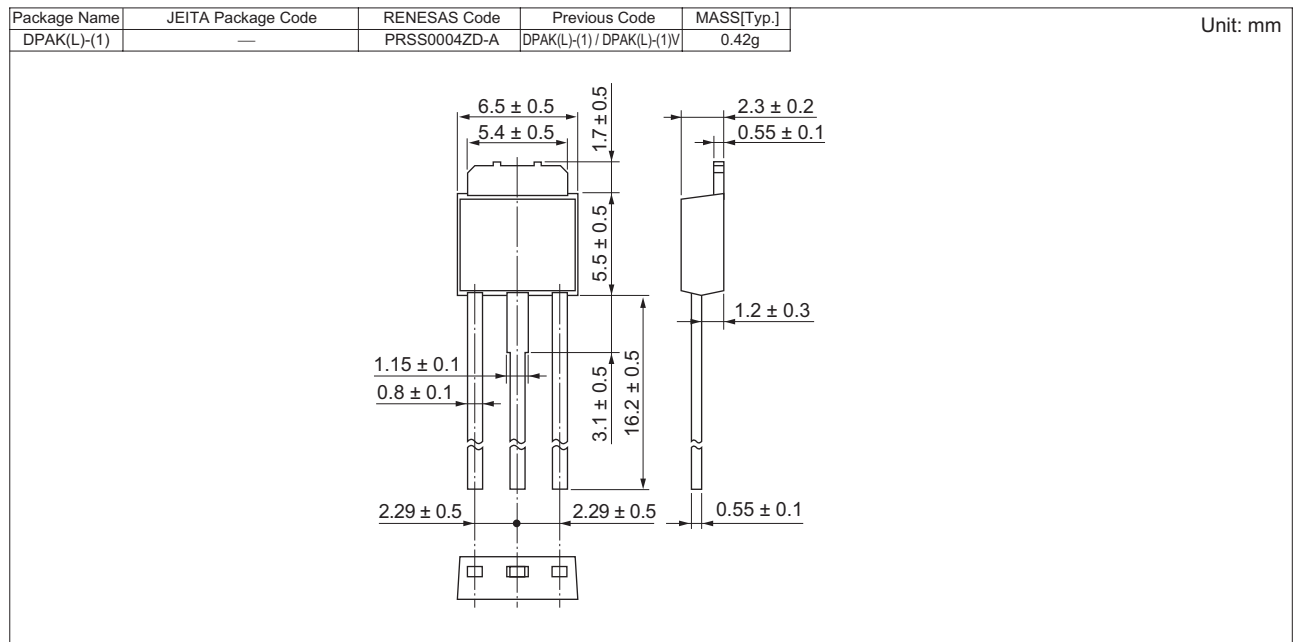


Waveform

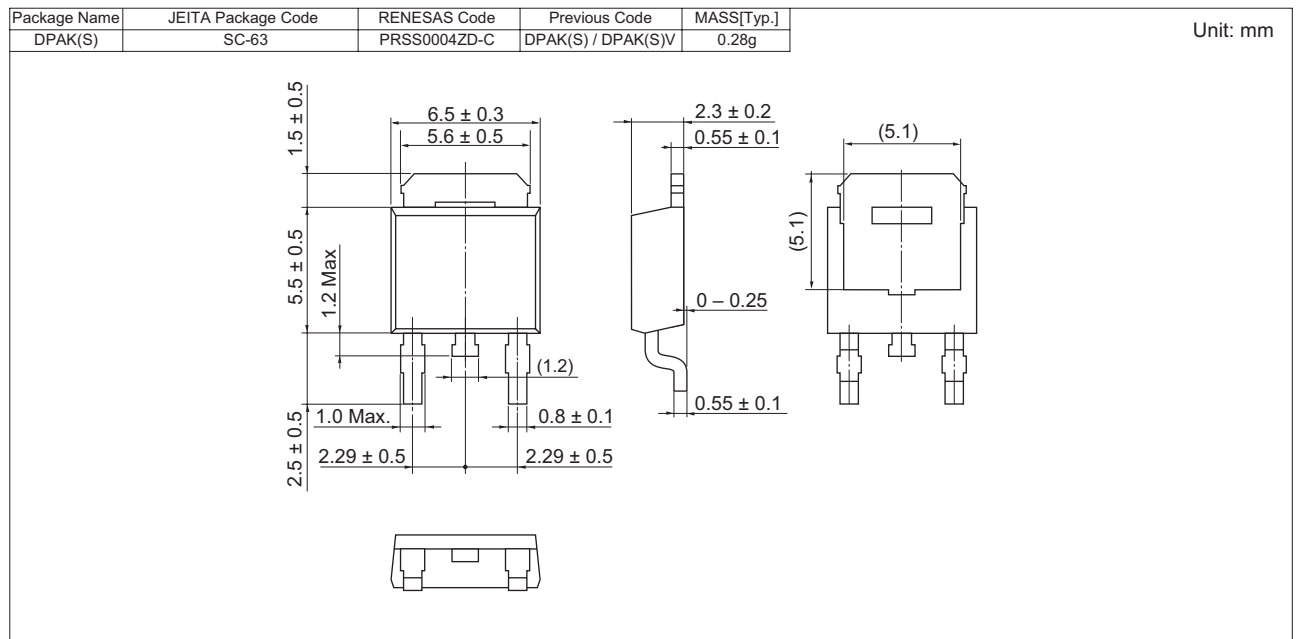


### Package Dimensions

• 2SJ181(L)



• 2SJ181(S)



### Ordering Information

Orderable Part Number	Quantity	Shipping Container
2SJ181L-E	2160 pcs	Box (Tube)
2SJ181STR-E	3000 pcs	Taping

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