

# 2SJ319(L), 2SJ319(S)

R07DS0396EJ0300  
(Previous: REJ03G0858-0200)

## Silicon P Channel MOS FET

Rev.3.00

May 16, 2011

### Description

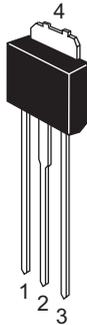
High speed power switching

### Features

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

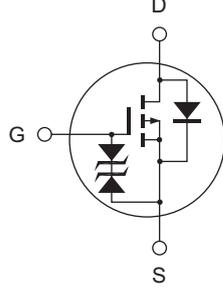
### Outline

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 <sub>DSS</sub>	-200	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	-3	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note 1</sup>	-12	A
Body to drain diode reverse drain current	I <sub>DR</sub>	-3	A
Channel dissipation	P <sub>ch</sub> <sup>Note 2</sup>	20	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. Value at Tc = 25°C

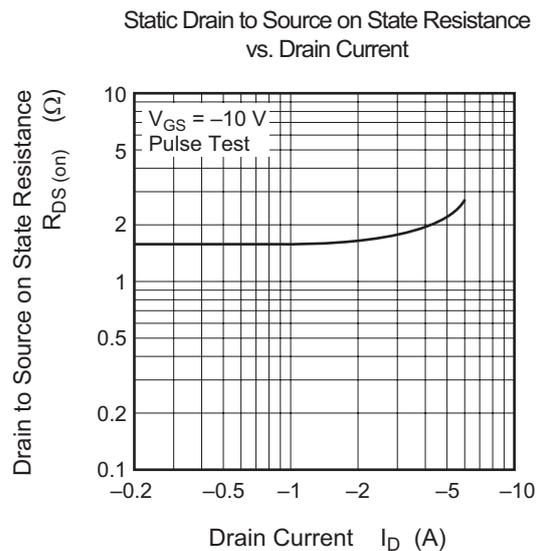
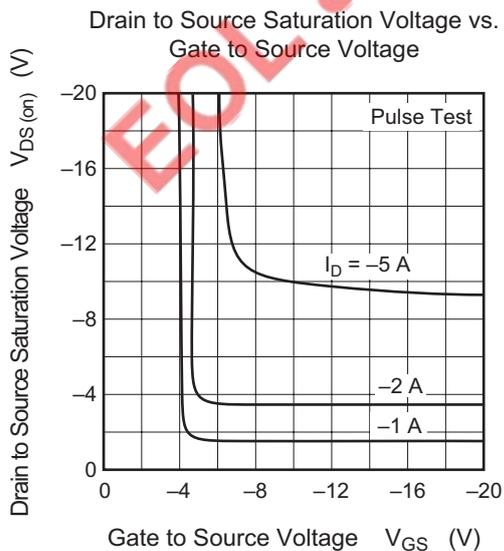
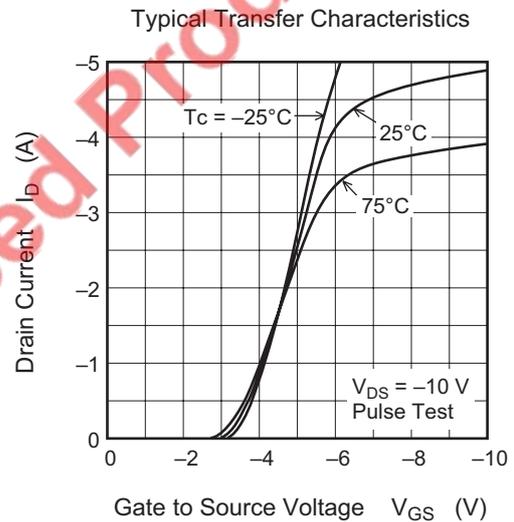
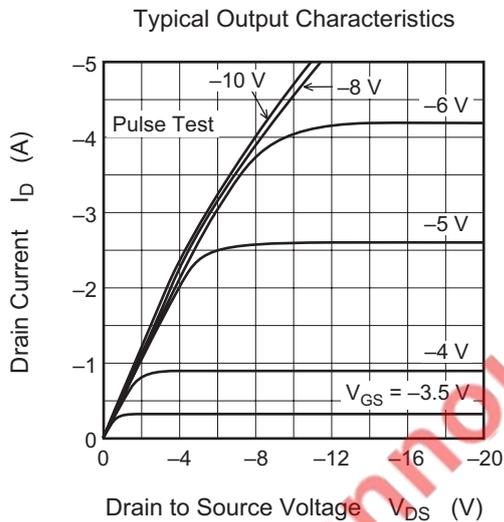
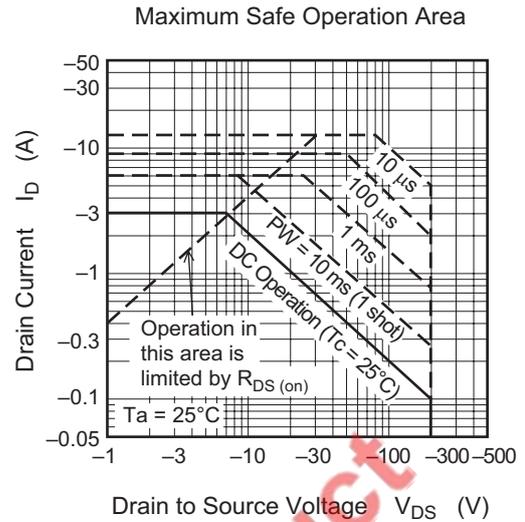
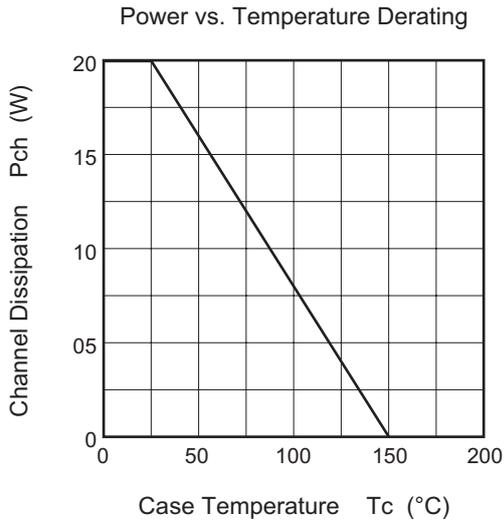
## Electrical Characteristics

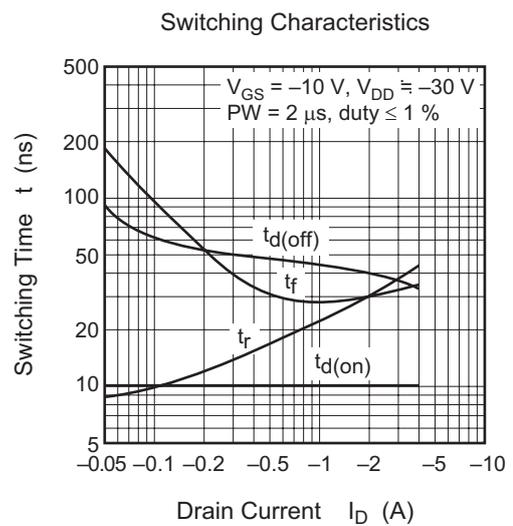
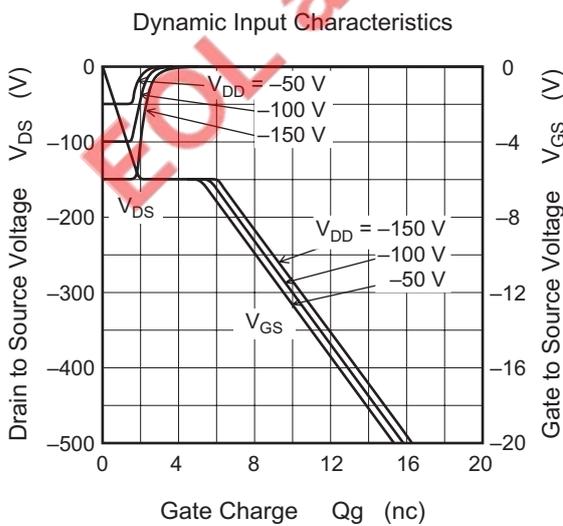
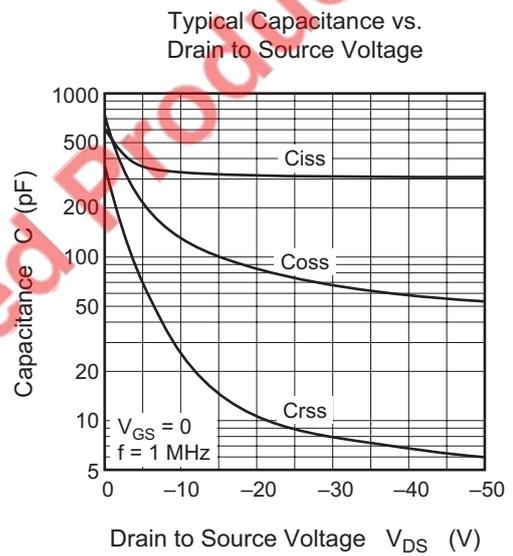
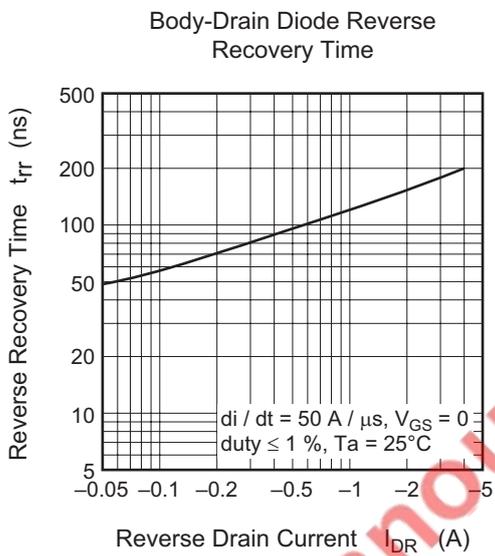
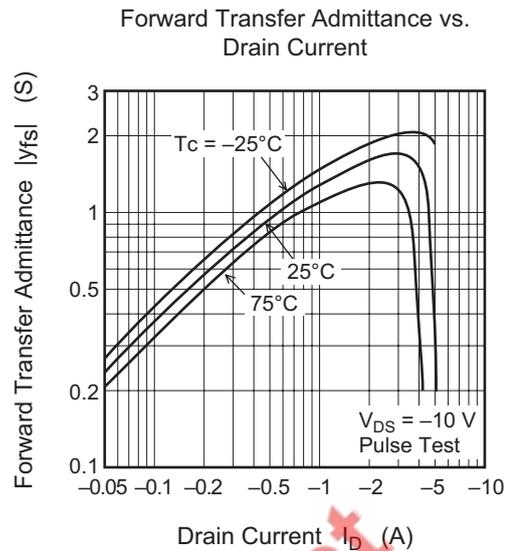
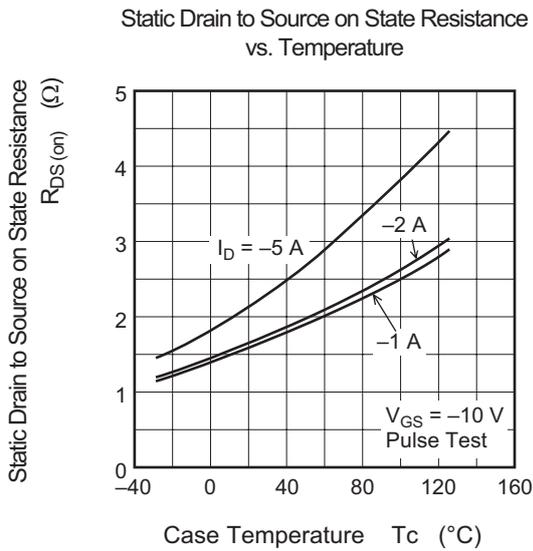
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-200	—	—	V	$I_D = -10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 16 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	-100	$\mu\text{A}$	$V_{DS} = -160 \text{ V}$ , $V_{GS} = 0$
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	$R_{DS(on)}$	—	1.7	2.3	$\Omega$	$I_D = -2 \text{ A}$ , $V_{GS} = -10 \text{ V}$ <sup>Note 3</sup>
Forward transfer admittance	$ y_{fs} $	1.0	1.7	—	S	$I_D = -2 \text{ A}$ , $V_{DS} = -10 \text{ V}$ <sup>Note 3</sup>
Input capacitance	$C_{iss}$	—	330	—	pF	$V_{DS} = -10 \text{ V}$
Output capacitance	$C_{oss}$	—	130	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	25	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = -2 \text{ A}$
Rise time	$t_r$	—	30	—	ns	$V_{GS} = -10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	40	—	ns	$R_L = 15 \text{ }\Omega$
Fall time	$t_f$	—	30	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	-1.15	—	V	$I_F = -3 \text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	180	—	ns	$I_F = -3 \text{ A}$ , $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu\text{s}$

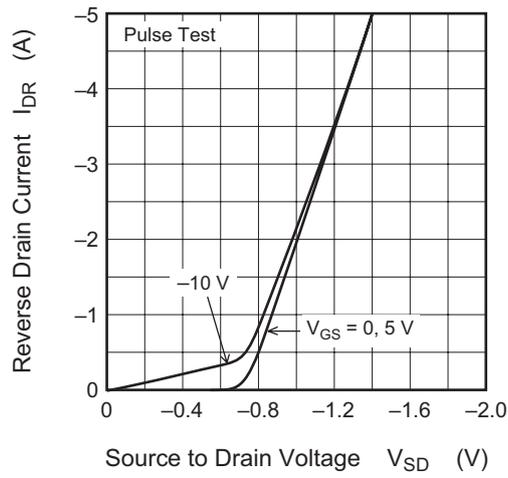
Note: 3. Pulse test

Main Characteristics

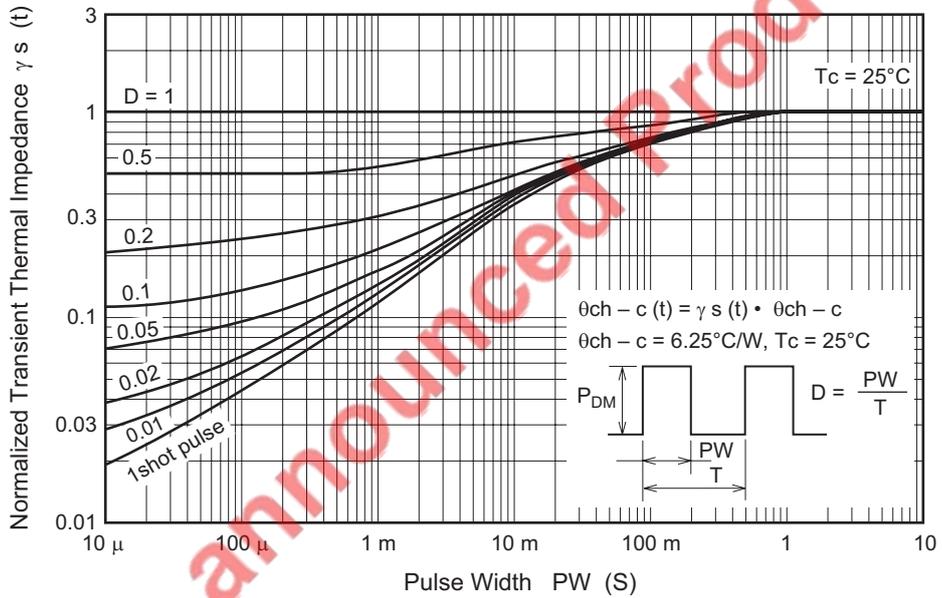




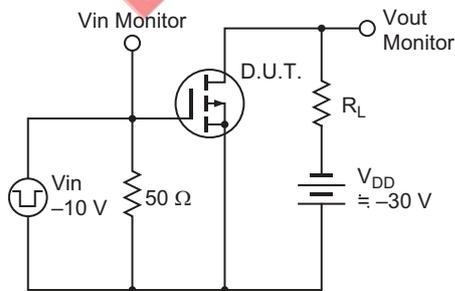
Reverse Drain Current vs. Source to Drain Voltage



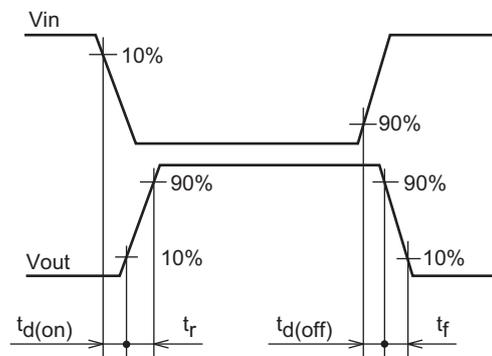
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

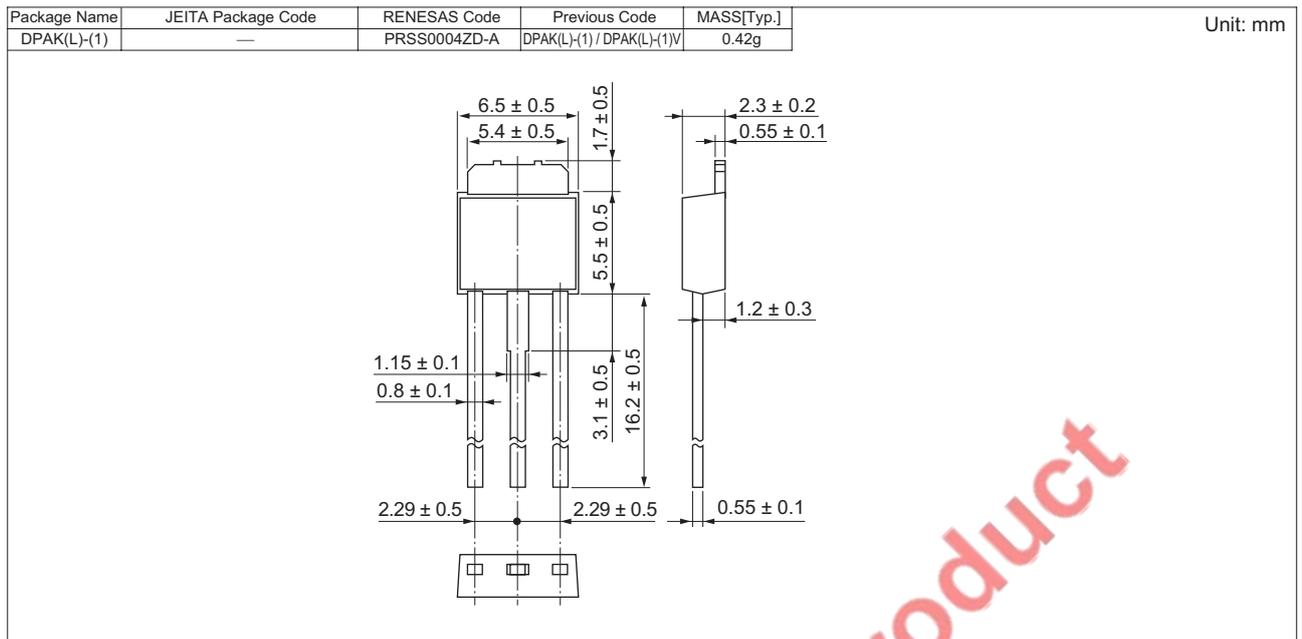


Waveform

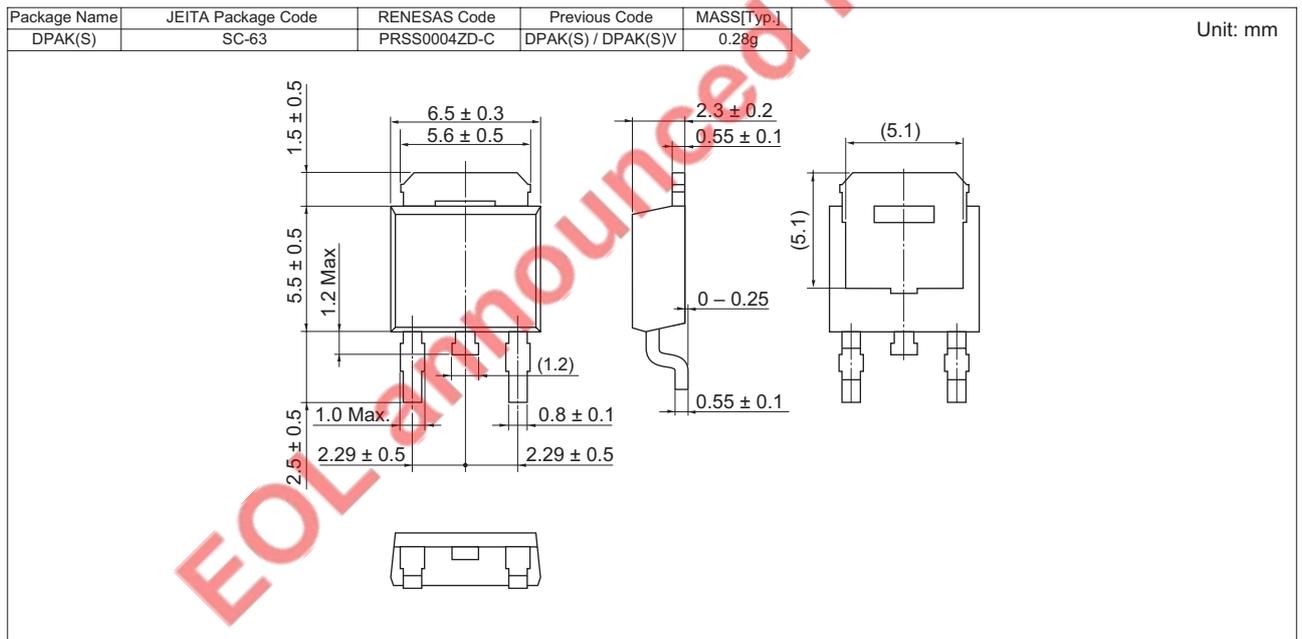


Package Dimensions

• 2SJ319(L)



• 2SJ319(S)



Ordering Information

Orderable Part Number	Quantity	Shipping Container
2SJ319L-E	2160 pcs	Box (Tube)
2SJ319STL-E	3000 pcs	Taping

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