

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

Silicon P Channel MOS FET

REJ03G0858-0200  
(Previous: ADE-208-1192)  
Rev.2.00  
Sep 07, 2005

### Description

High speed power switching

### Features

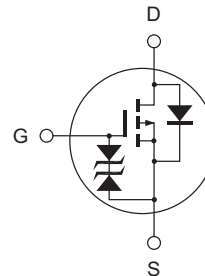
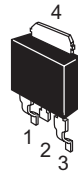
- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter

### 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	$V_{DSS}$	-200	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	$I_D$	-3	A
Drain peak current	$I_{D(pulse)}$ <sup>Note 1</sup>	-12	A
Body to drain diode reverse drain current	$I_{DR}$	-3	A
Channel dissipation	$P_{ch}$ <sup>Note 2</sup>	20	W
Channel temperature	$T_{ch}$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

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

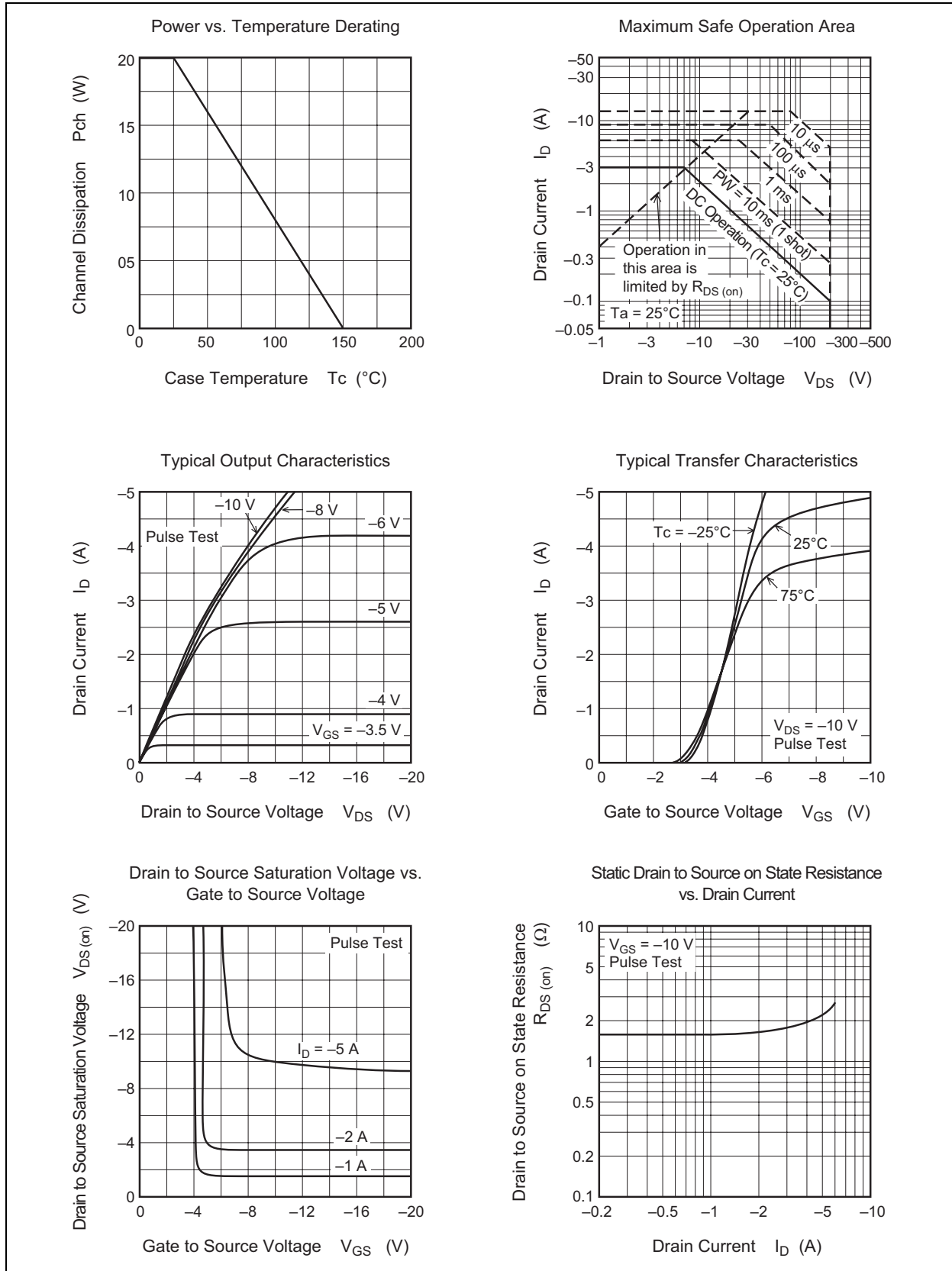
## Electrical Characteristics

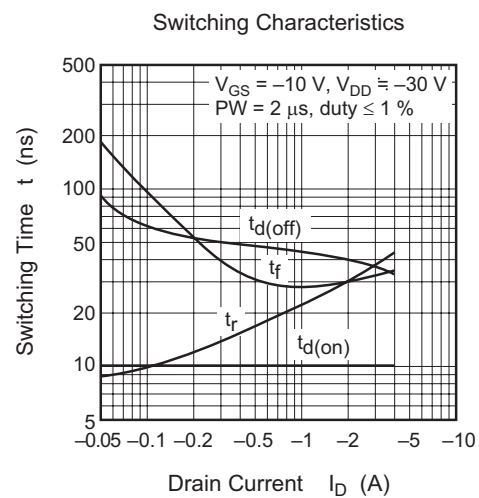
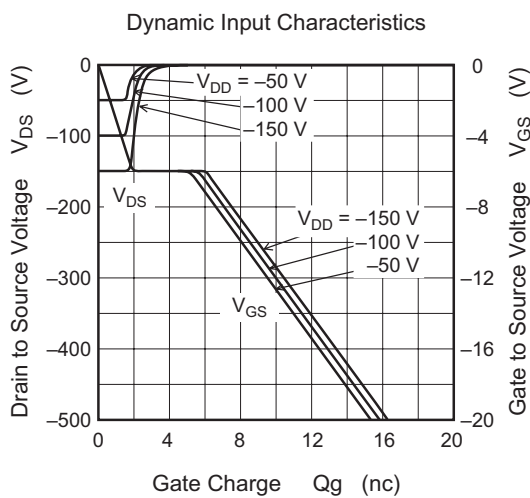
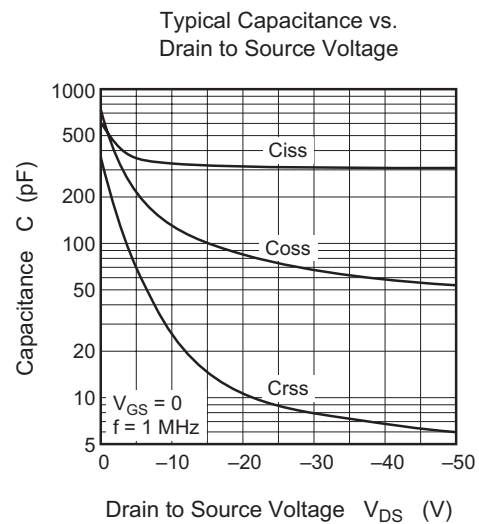
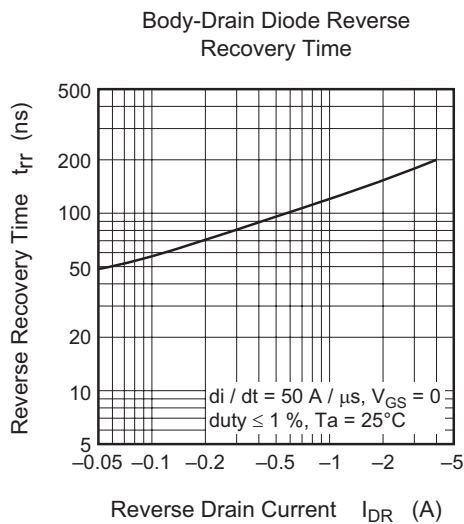
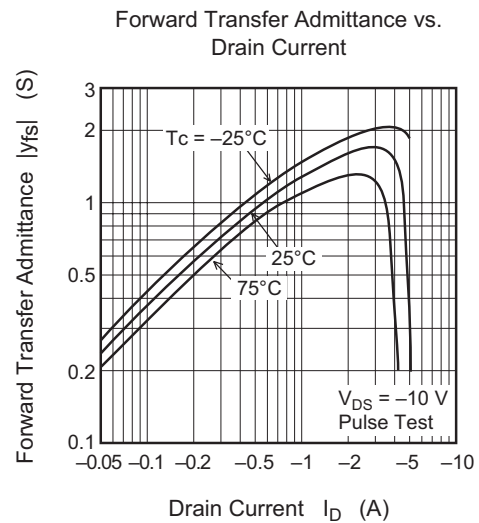
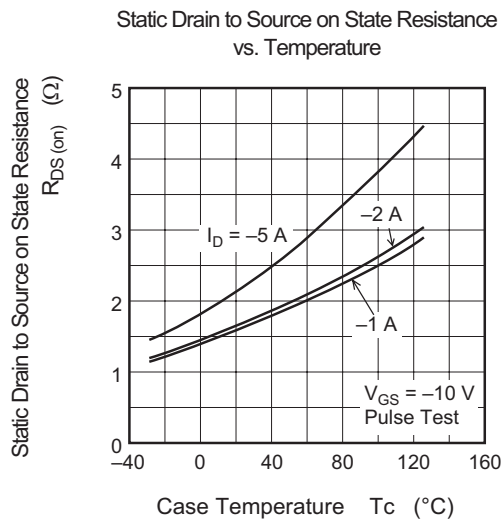
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-200	—	—	V	$I_D = -10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \mu A$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±10	μA	$V_{GS} = \pm 16 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	-100	μA	$V_{DS} = -160 \text{ V}$ , $V_{GS} = 0$
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	Ω	$I_D = -2 \text{ A}$ , $V_{GS} = -10 \text{ V}$ <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	$R_L = 15 \Omega$
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	$I_F = -3 \text{ A}$ , $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu s$

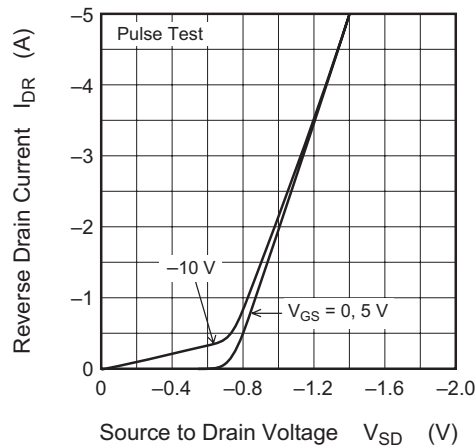
Note: 3. Pulse test

Main Characteristics

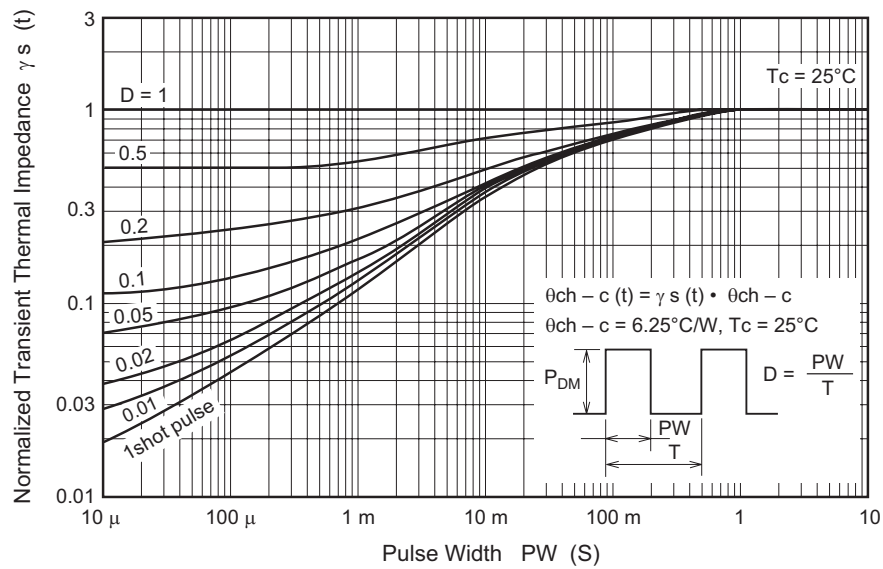




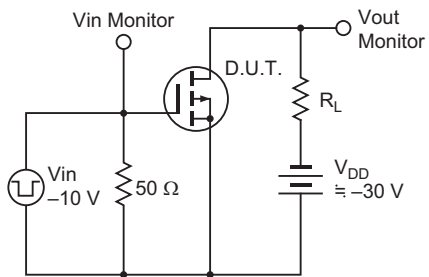
Reverse Drain Current vs. Source to Drain Voltage



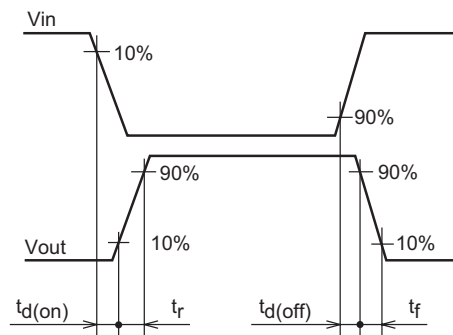
Normalized Transient Thermal Impedance vs. Pulse Width



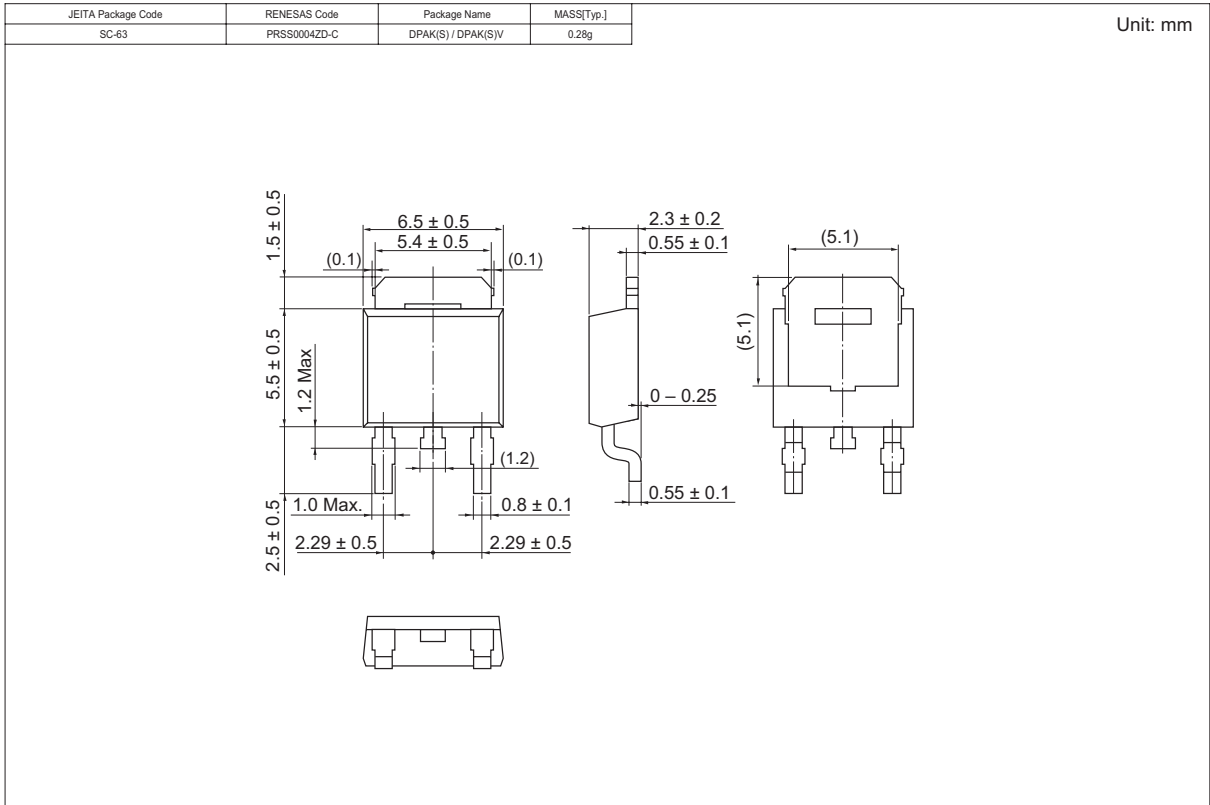
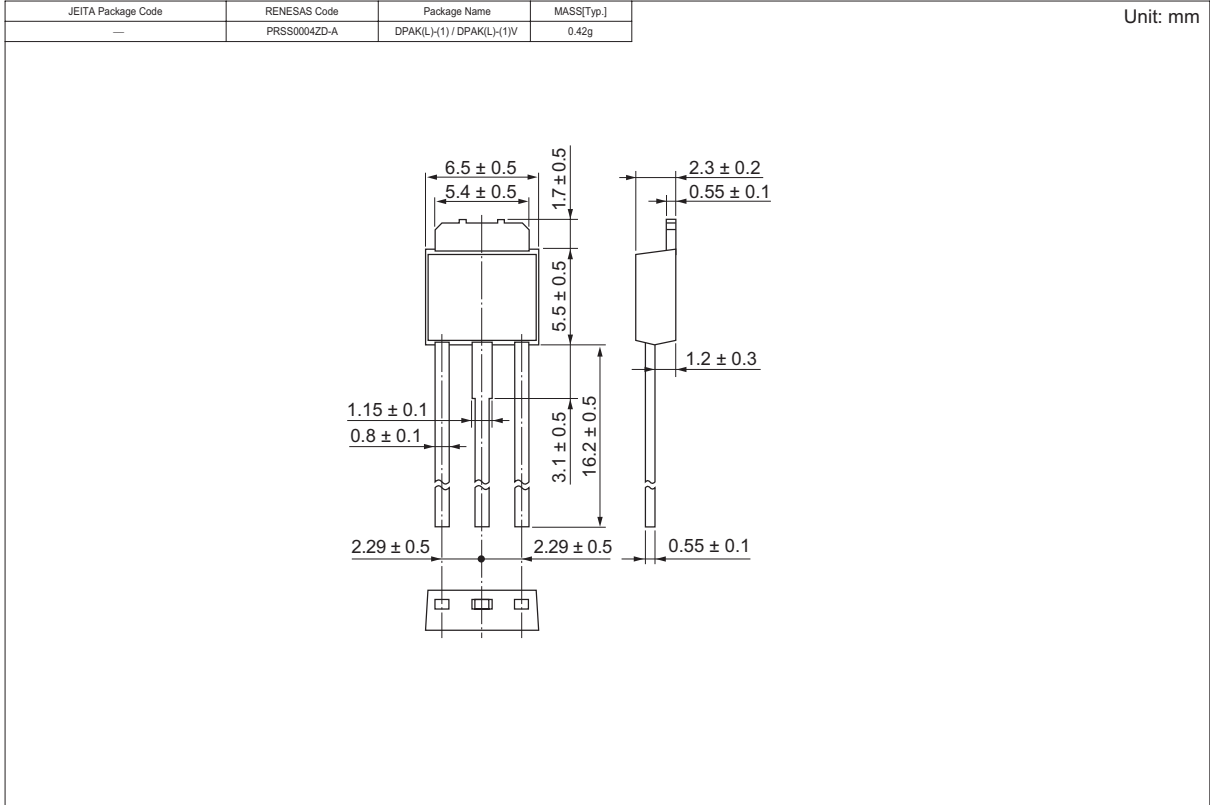
Switching Time Test Circuit



Waveform



Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SJ319L-E	3200 pcs	Box (Sack)
2SJ319STL-E	3000 pcs	Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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