

## 2SJ387(L), 2SJ387(S)

Silicon P Channel MOS FET

REJ03G0862-0200  
(Previous: ADE-208-1196)  
Rev.2.00  
Sep 07, 2005

### Description

High speed power switching

### Features

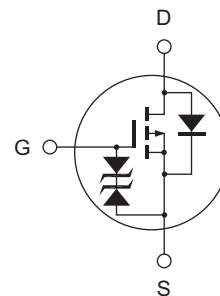
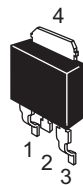
- Low on-resistance
- Low drive current
- 2.5 V Gate drive device can be driven from 3 V Source
- Suitable for Switching regulator, DC-DC converter

### Outline

RENESAS Package code: PRSS0004ZD-B  
(Package name: DPAK (L)-(2) )



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>	-20	V
Gate to source voltage	V <sub>GSS</sub>	±10	V
Drain current	I <sub>D</sub>	-10	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note 1</sup>	-40	A
Body to drain diode reverse drain current	I <sub>DR</sub>	-10	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

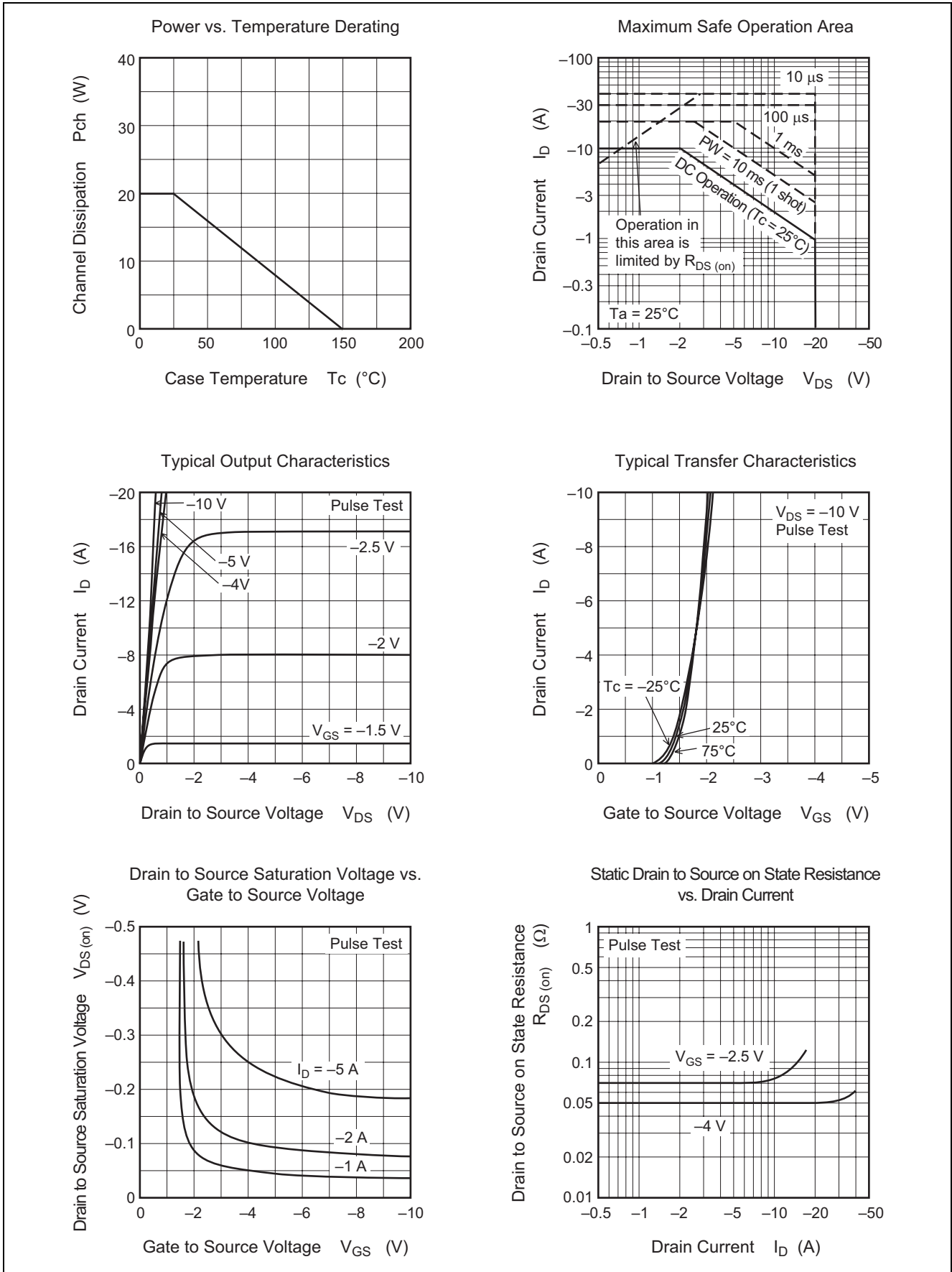
## Electrical Characteristics

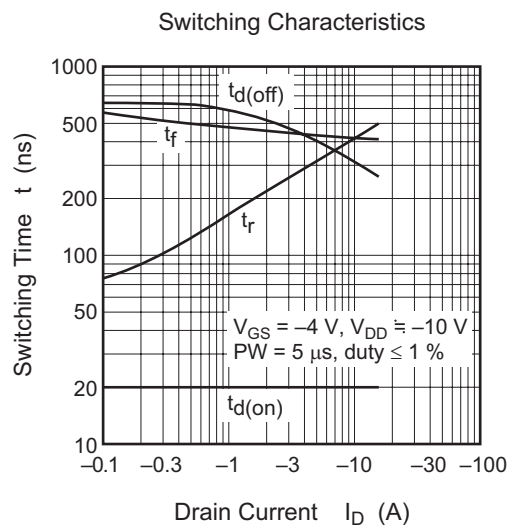
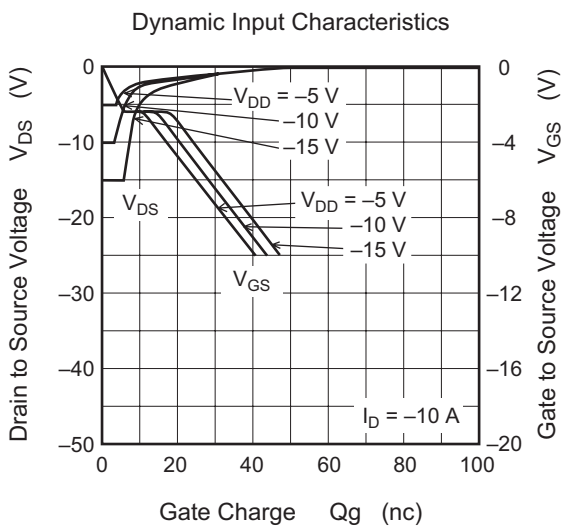
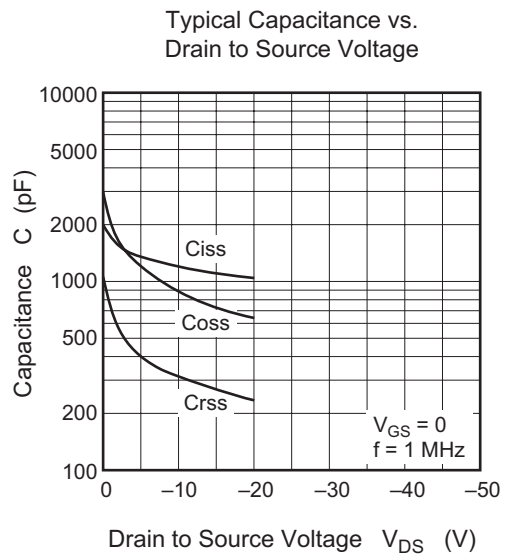
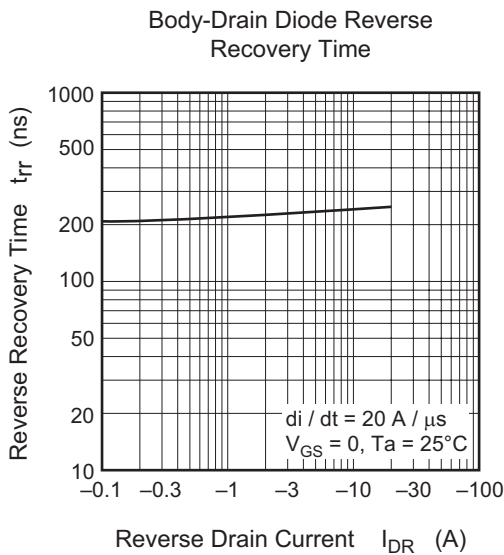
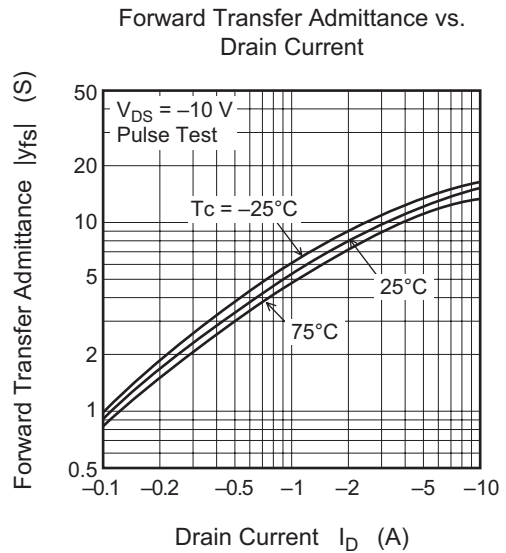
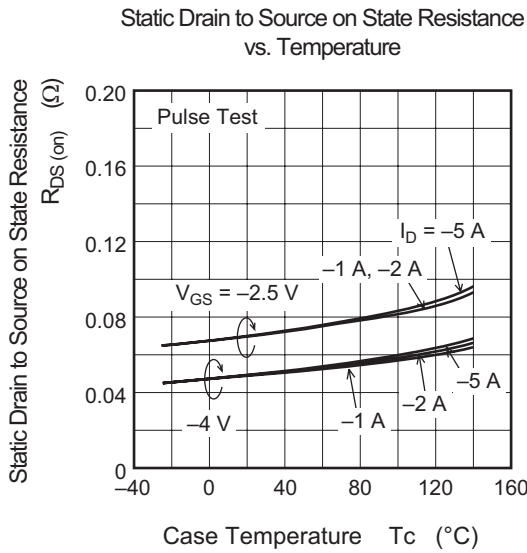
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR) DSS</sub>	-20	—	—	V	I <sub>D</sub> = -10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR) GSS</sub>	±10	—	—	V	I <sub>G</sub> = ±200 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±6.5 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	-100	μA	V <sub>DS</sub> = -16 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS (off)</sub>	-0.5	—	-1.5	V	I <sub>D</sub> = -1 mA, V <sub>DS</sub> = -10 V
Static drain to source on state resistance	R <sub>DS (on)</sub>	—	0.05	0.07	Ω	I <sub>D</sub> = -5 A, V <sub>GS</sub> = -4 V <sup>Note 3</sup>
	R <sub>DS (on)</sub>	—	0.07	0.1	Ω	I <sub>D</sub> = -5 A, V <sub>GS</sub> = -2.5 V <sup>Note 3</sup>
Forward transfer admittance	y <sub>fs</sub>	7	12	—	S	I <sub>D</sub> = -5 A, V <sub>DS</sub> = -10 V <sup>Note 3</sup>
Input capacitance	C <sub>iss</sub>	—	1170	—	pF	V <sub>DS</sub> = -10 V
Output capacitance	C <sub>oss</sub>	—	860	—	pF	V <sub>GS</sub> = 0
Reverse transfer capacitance	C <sub>rss</sub>	—	310	—	pF	f = 1 MHz
Turn-on delay time	t <sub>d (on)</sub>	—	20	—	ns	I <sub>D</sub> = -5 A
Rise time	t <sub>r</sub>	—	325	—	ns	V <sub>GS</sub> = -4 V
Turn-off delay time	t <sub>d (off)</sub>	—	350	—	ns	R <sub>L</sub> = 2 Ω
Fall time	t <sub>f</sub>	—	425	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	-1.0	—	V	I <sub>F</sub> = -10 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	240	—	ns	I <sub>F</sub> = -10 A, V <sub>GS</sub> = 0 di <sub>F</sub> /dt = 20 A/μs

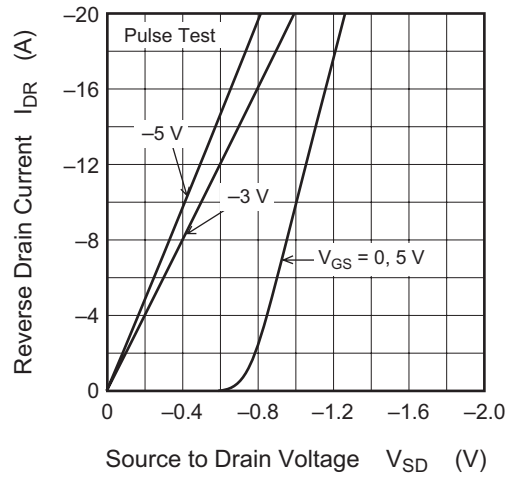
Note: 3. Pulse test

### Main Characteristics

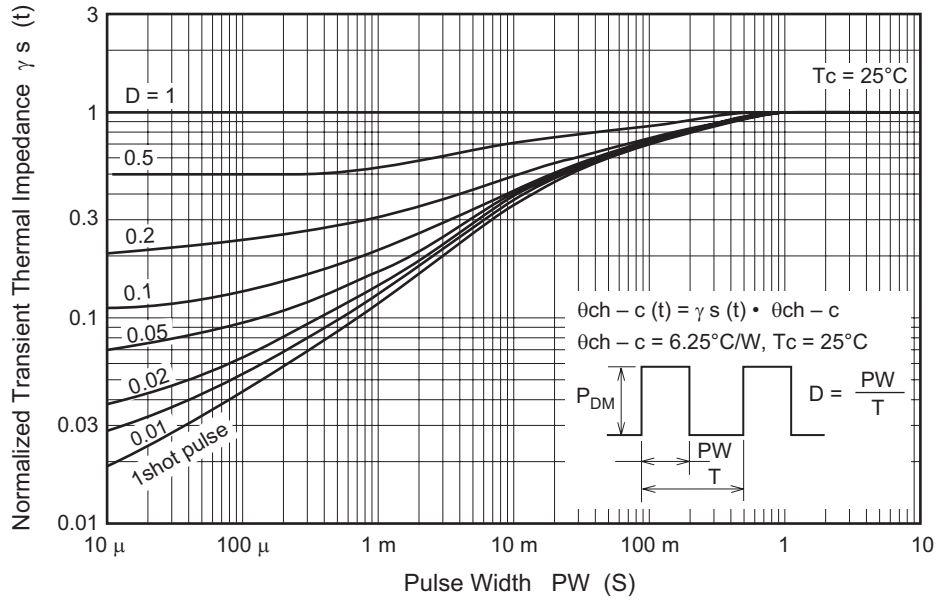




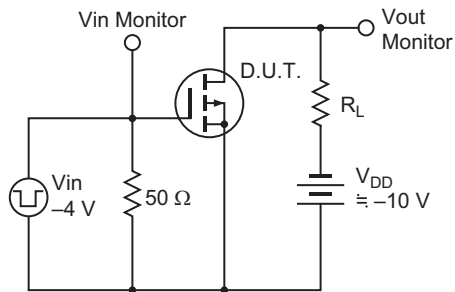
Reverse Drain Current vs. Source to Drain Voltage



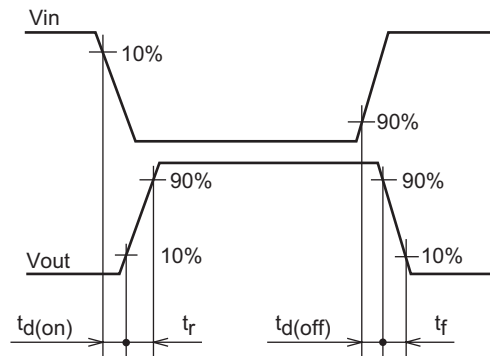
Normalized Transient Thermal Impedance vs. Pulse Width



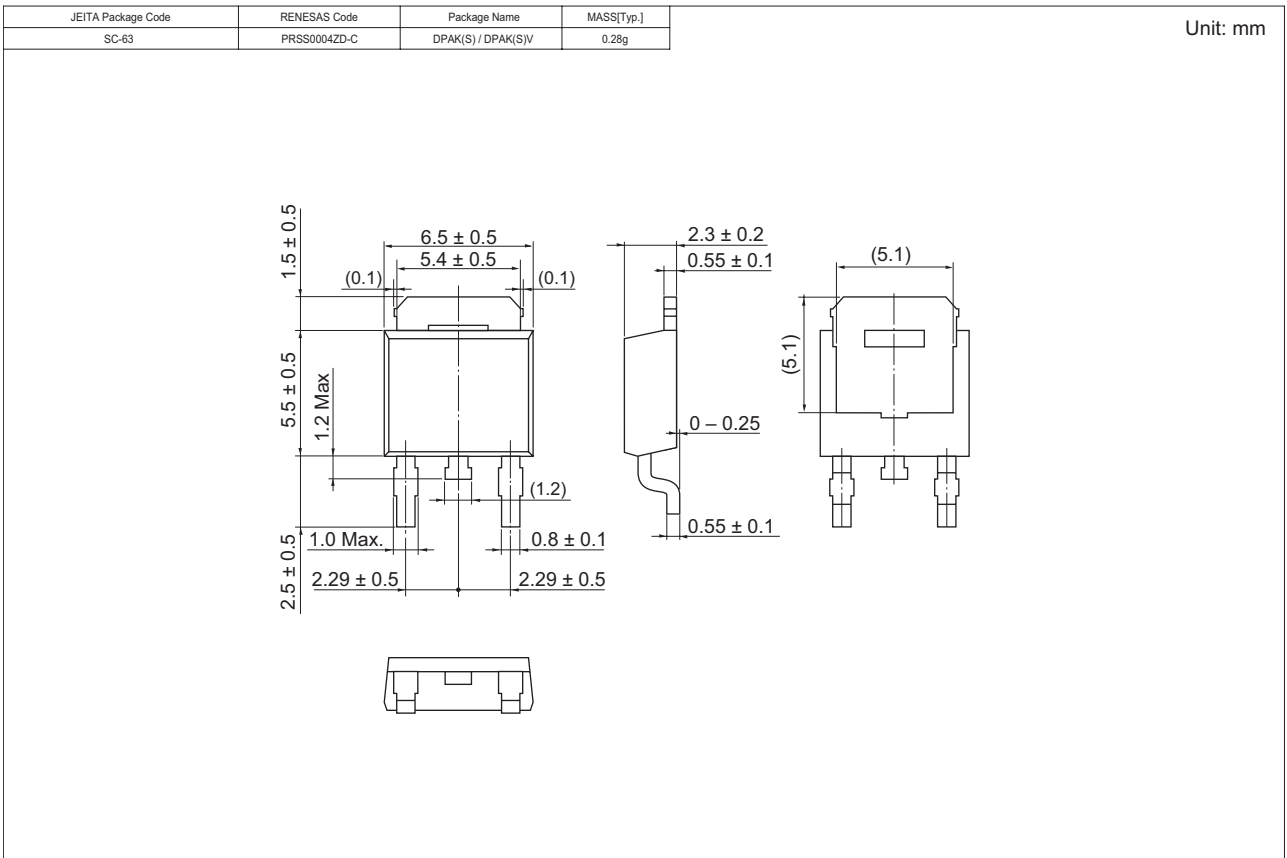
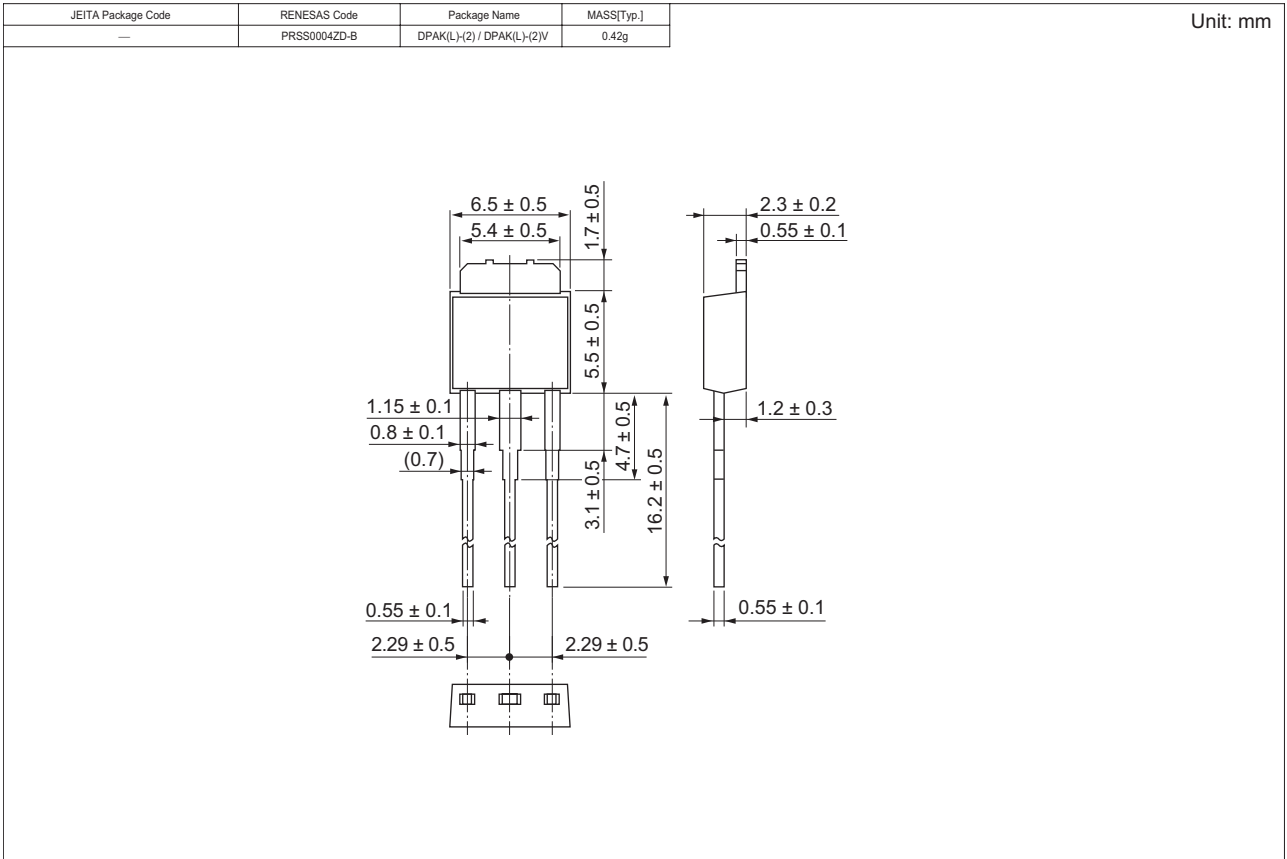
Switching Time Test Circuit



Waveform



Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SJ387L-E	3200 pcs	Box (Sack)
2SJ387STL-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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