

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

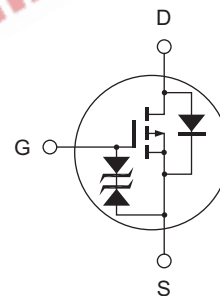
Features

- 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 _{DSS} | -20 | V |
| Gate to source voltage | V _{GSS} | ±10 | V |
| Drain current | I _D | -10 | A |
| Drain peak current | I _{D (pulse)} ^{Note 1} | -40 | A |
| Body to drain diode reverse drain current | I _{DR} | -10 | A |
| Channel dissipation | P _{ch} ^{Note 2} | 20 | W |
| Channel temperature | T _{ch} | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%
 2. Value at Tc = 25°C

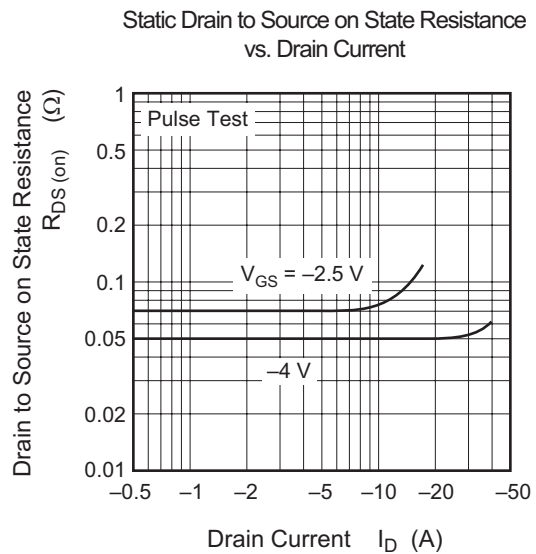
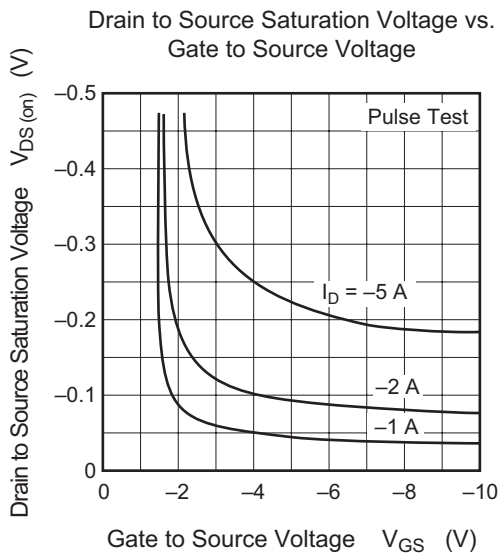
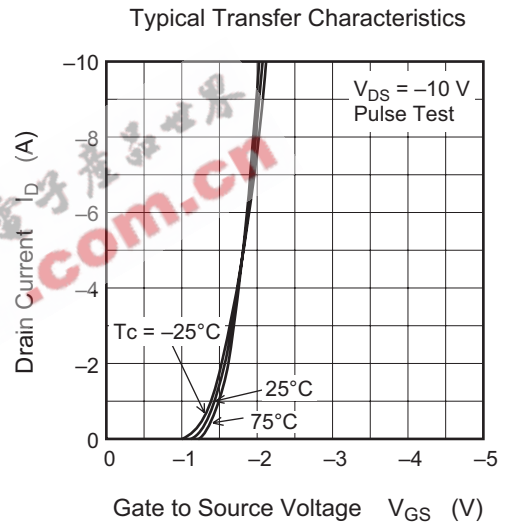
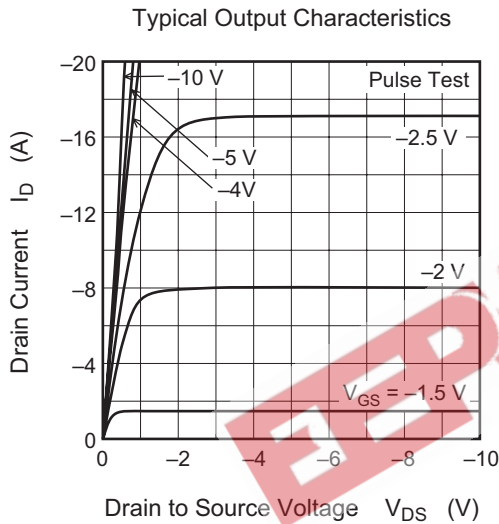
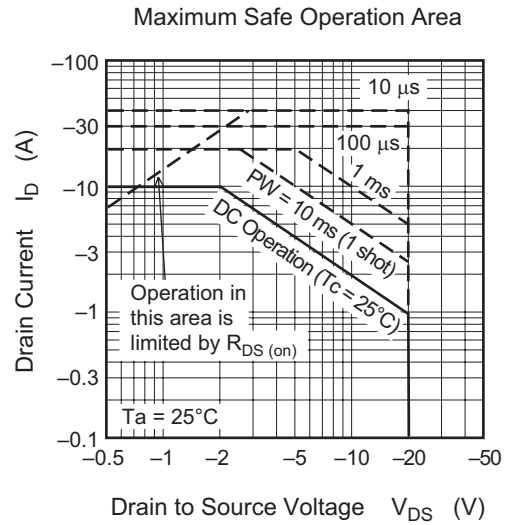
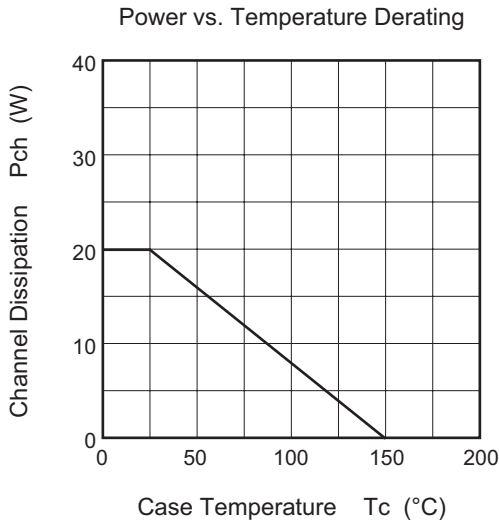
Electrical Characteristics

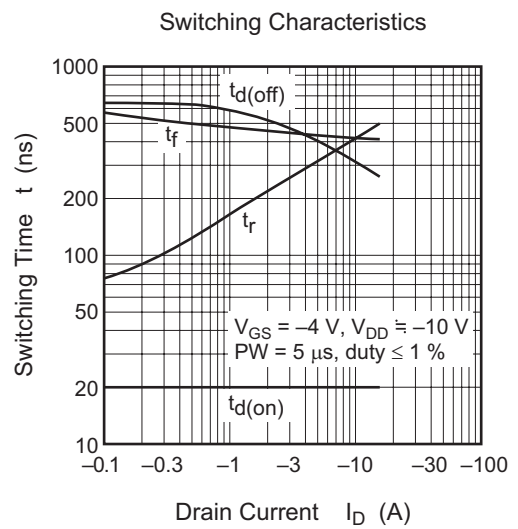
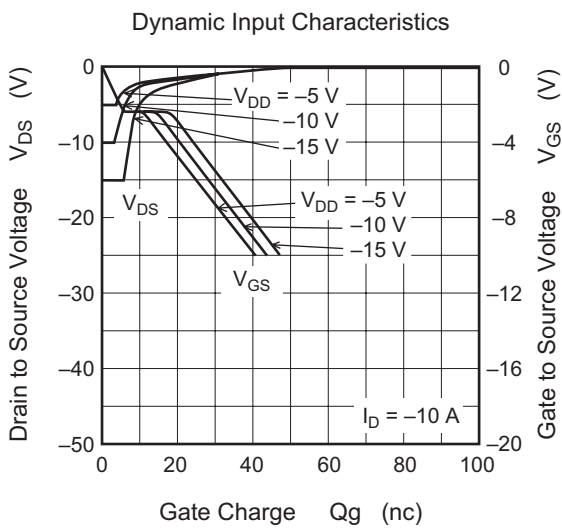
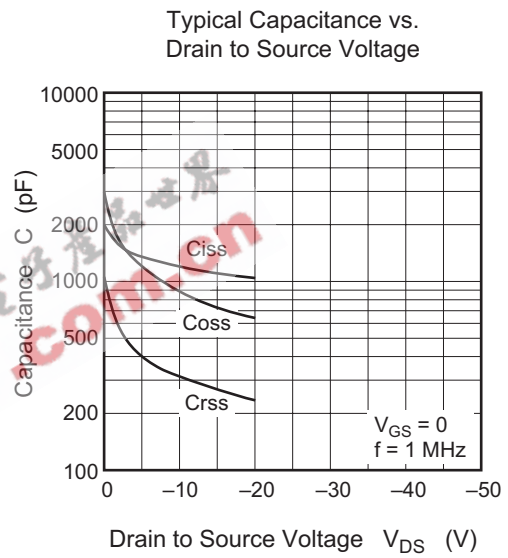
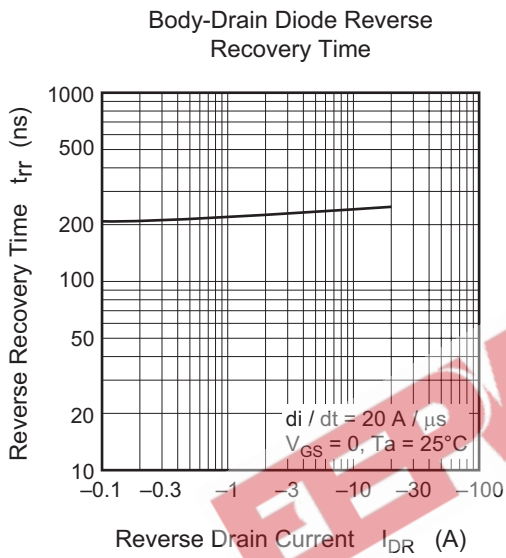
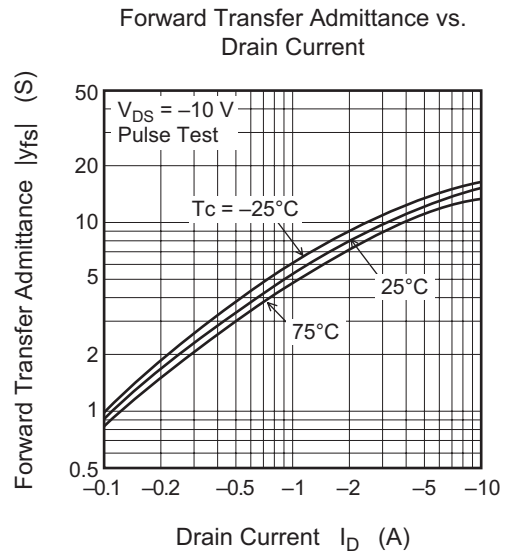
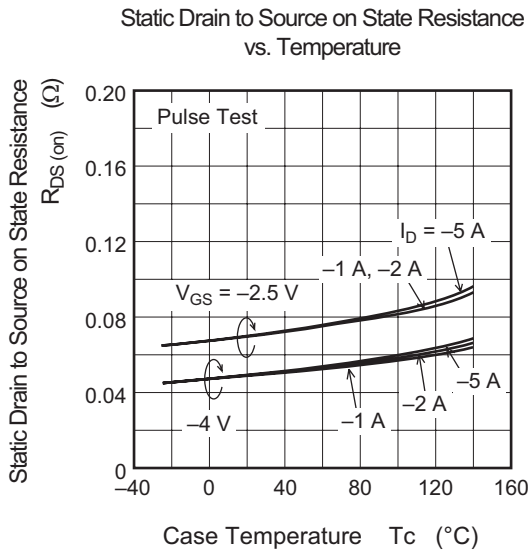
(Ta = 25°C)

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

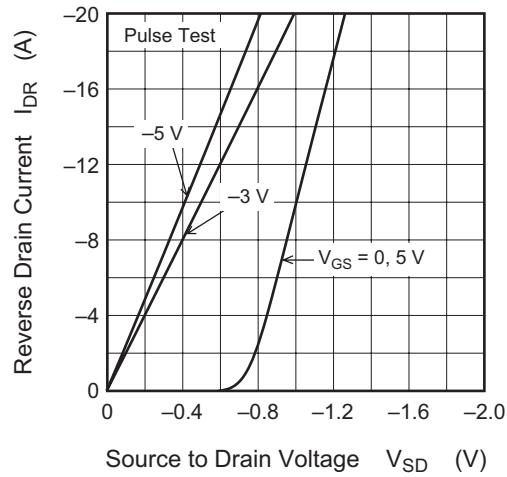
Note: 3. Pulse test

Main Characteristics

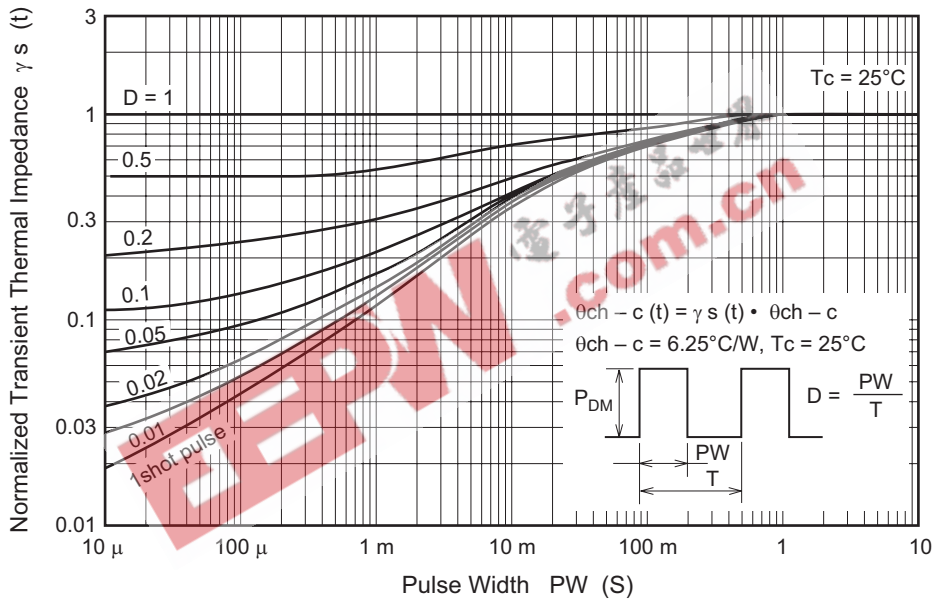




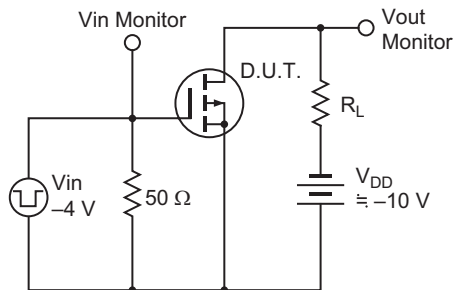
Reverse Drain Current vs. Source to Drain Voltage



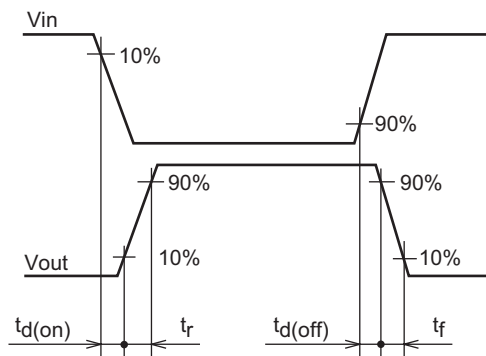
Normalized Transient Thermal Impedance vs. Pulse Width



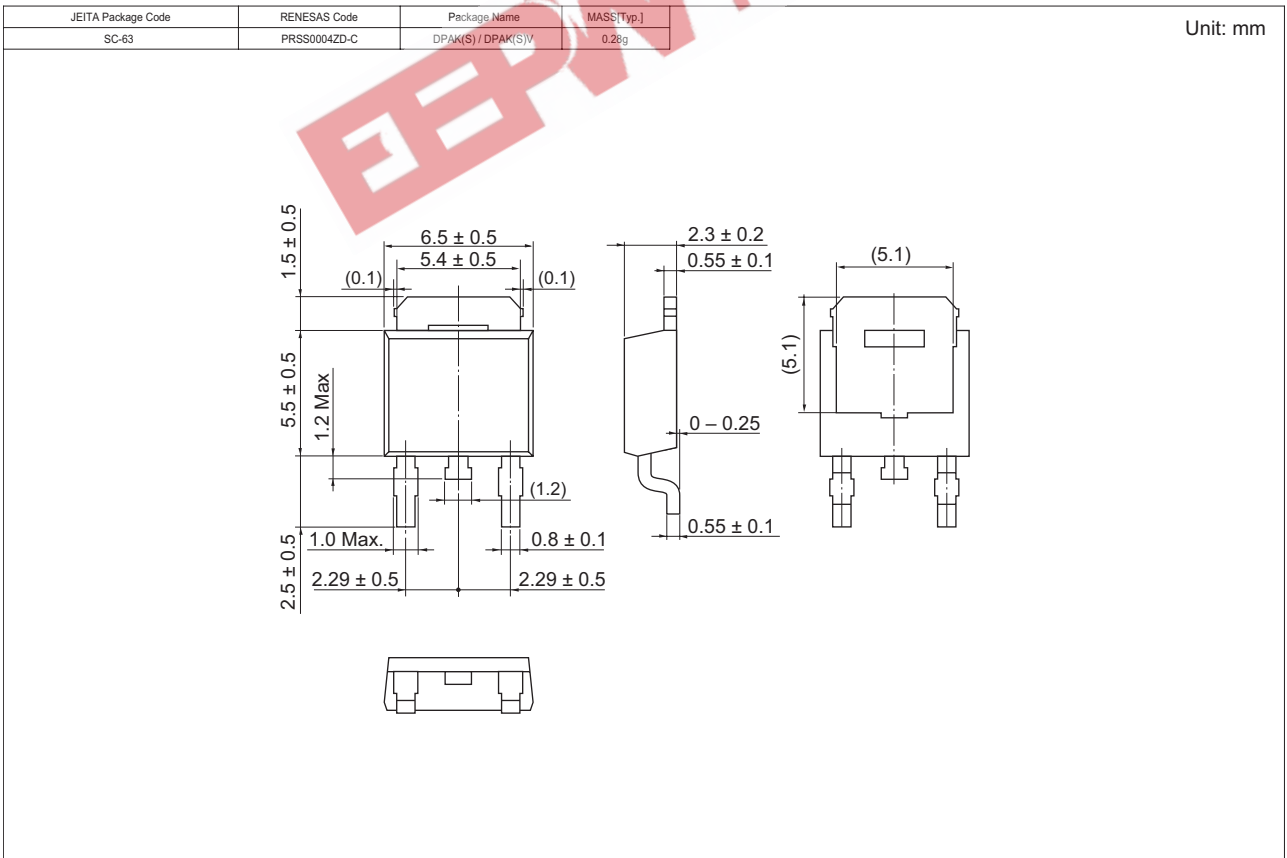
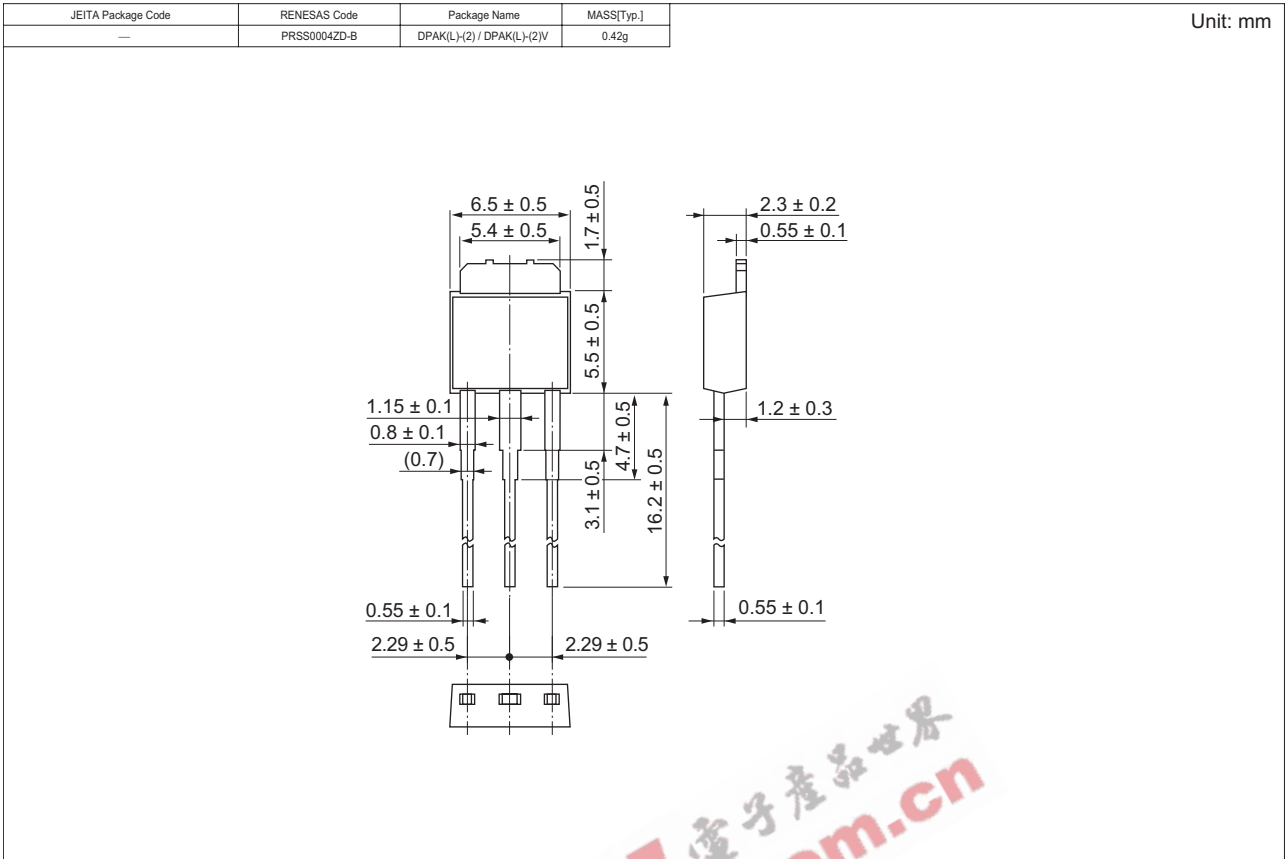
Switching Time Test Circuit



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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