

To our customers,

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## Old Company Name in Catalogs and Other Documents

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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The Renesas logo, featuring a stylized 'R' followed by the word 'RENESAS' in a bold, sans-serif font.

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## 2SJ555

### Silicon P Channel MOS FET

REJ03G0902-0300  
(Previous: ADE-208-634A)  
Rev.3.00  
Sep 07, 2005

#### Description

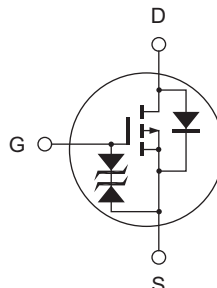
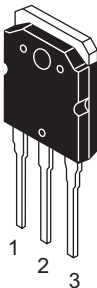
High speed power switching

#### Features

- Low on-resistance  
 $R_{DS(on)} = 0.017 \Omega$  typ.
- Low drive current.
- 4 V gate drive devices.
- High speed switching.

#### Outline

RENESAS Package code: PRSS0004ZE-A  
(Package name: TO-3P)



1. Gate
2. Drain (Flange)
3. Source

## Absolute Maximum Ratings

(Ta = 25°C)

| Item                                      | Symbol                                   | Value       | Unit |
|---|--|-------------|------|
| Drain to source voltage                   | V <sub>DSS</sub>                         | -60         | V    |
| Gate to source voltage                    | V <sub>GSS</sub>                         | ±20         | V    |
| Drain current                             | I <sub>D</sub>                           | -60         | A    |
| Drain peak current                        | I <sub>D (pulse)</sub> <sup>Note 1</sup> | -240        | A    |
| Body to drain diode reverse drain current | I <sub>DR</sub>                          | -60         | A    |
| Avalanche current                         | I <sub>AP</sub> <sup>Note 3</sup>        | -60         | A    |
| Avalanche energy                          | E <sub>AR</sub> <sup>Note 3</sup>        | 308         | mJ   |
| Channel dissipation                       | P <sub>ch</sub> <sup>Note 2</sup>        | 125         | 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  
 3. Value at Tch = 25°C, Rg ≥ 50 Ω

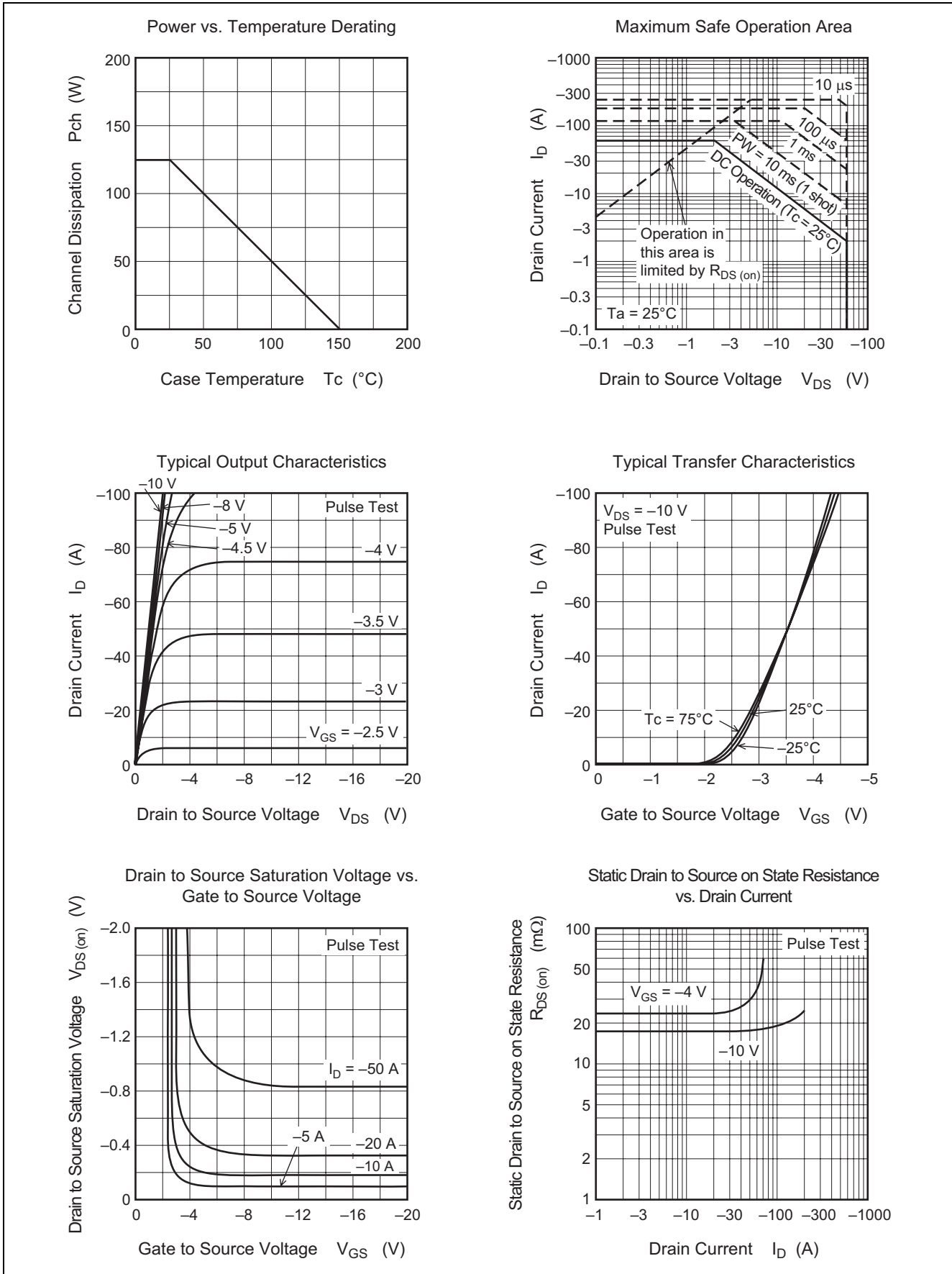
## Electrical Characteristics

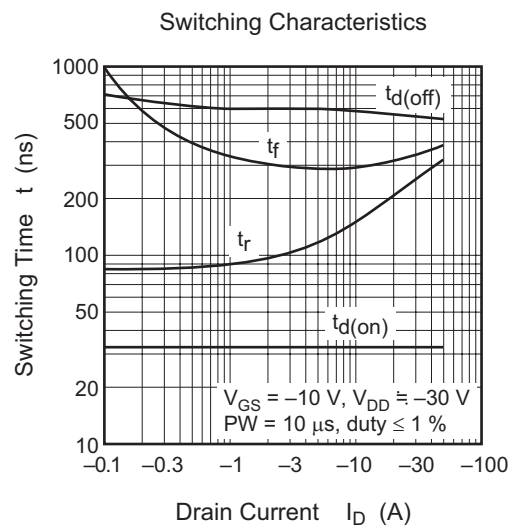
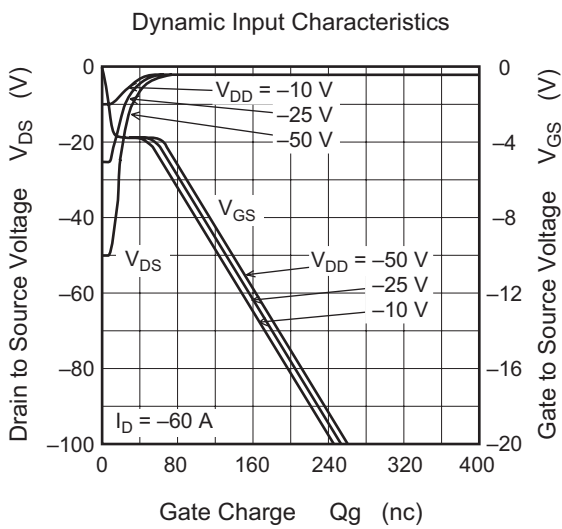
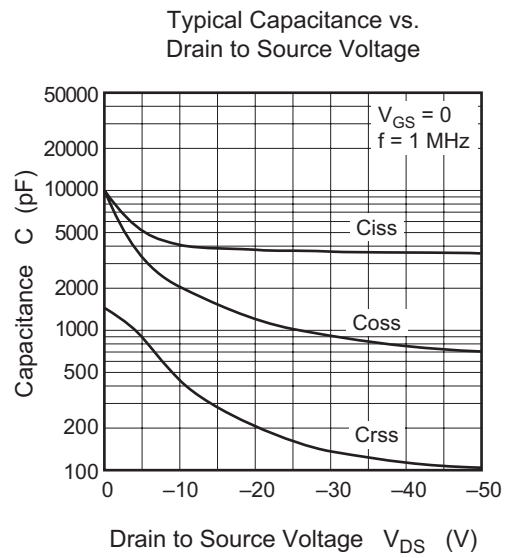
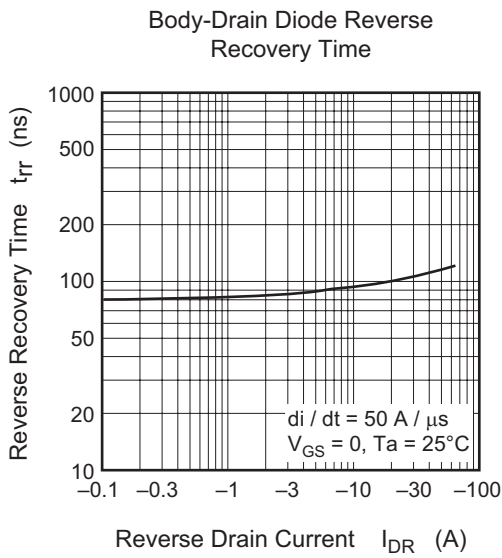
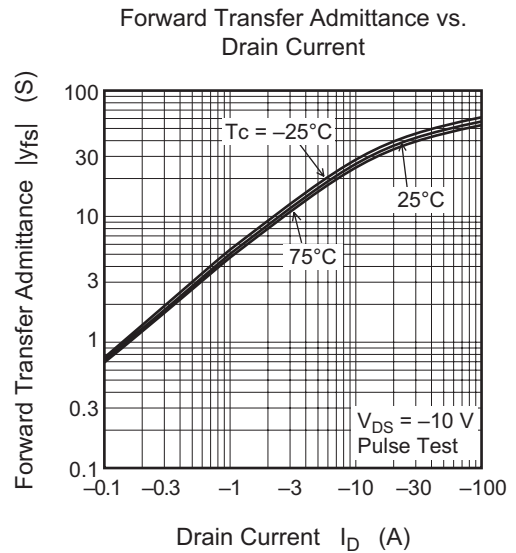
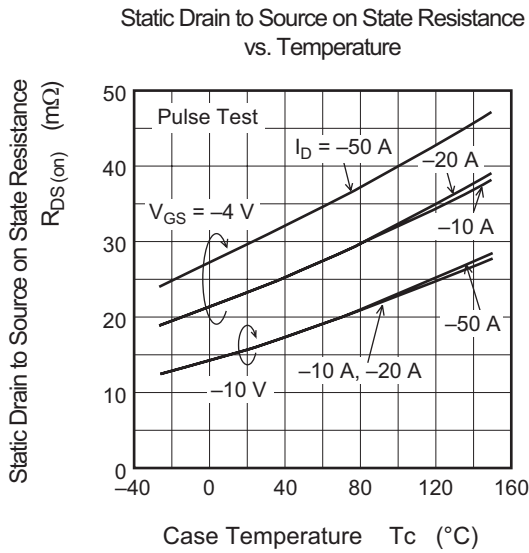
(Ta = 25°C)

| Item                                       | Symbol                | Min  | Typ   | Max   | Unit | Test Conditions  |
|--|-----------------------|------|-------|-------|------|--|
| Drain to source breakdown voltage          | V <sub>(BR) DSS</sub> | -60  | —     | —     | V    | I <sub>D</sub> = -10 mA, V <sub>GS</sub> = 0                                 |
| Gate to source breakdown voltage           | V <sub>(BR) GSS</sub> | ±20  | —     | —     | V    | I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0                                |
| Zero gate voltage drain current            | I <sub>DSS</sub>      | —    | —     | -10   | μA   | V <sub>DS</sub> = -60 V, V <sub>GS</sub> = 0                                 |
| Gate to source leak current                | I <sub>GSS</sub>      | —    | —     | ±10   | μA   | V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0                                 |
| Gate to source cutoff voltage              | V <sub>GS (off)</sub> | -1.0 | —     | -2.0  | 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>  | —    | 0.017 | 0.022 | Ω    | I <sub>D</sub> = -30 A, V <sub>GS</sub> = -10 V <sup>Note 4</sup>            |
|  | R <sub>DS (on)</sub>  | —    | 0.024 | 0.036 | Ω    | I <sub>D</sub> = -30 A, V <sub>GS</sub> = -4 V <sup>Note 4</sup>             |
| Forward transfer admittance                | y <sub>fs</sub>       | 27   | 45    | —     | S    | I <sub>D</sub> = -30 A, V <sub>DS</sub> = -10 V <sup>Note 4</sup>            |
| Input capacitance                          | C <sub>iss</sub>      | —    | 4100  | —     | pF   | V <sub>DS</sub> = -10 V  |
| Output capacitance                         | C <sub>oss</sub>      | —    | 2100  | —     | pF   | V <sub>GS</sub> = 0  |
| Reverse transfer capacitance               | C <sub>rss</sub>      | —    | 450   | —     | pF   | f = 1 MHz  |
| Turn-on delay time                         | t <sub>d (on)</sub>   | —    | 32    | —     | ns   | V <sub>GS</sub> = -10 V  |
| Rise time                                  | t <sub>r</sub>        | —    | 270   | —     | ns   | I <sub>D</sub> = -30 A   |
| Turn-off delay time                        | t <sub>d (off)</sub>  | —    | 570   | —     | ns   | R <sub>L</sub> = 1 Ω   |
| Fall time                                  | t <sub>f</sub>        | —    | 360   | —     | ns   |  |
| Body to drain diode forward voltage        | V <sub>DF</sub>       | —    | -1.1  | —     | V    | I <sub>F</sub> = -60 A, V <sub>GS</sub> = 0                                  |
| Body to drain diode reverse recovery time  | t <sub>rr</sub>       | —    | 115   | —     | ns   | I <sub>F</sub> = -60 A, V <sub>GS</sub> = 0<br>di <sub>F</sub> /dt = 50 A/μs |

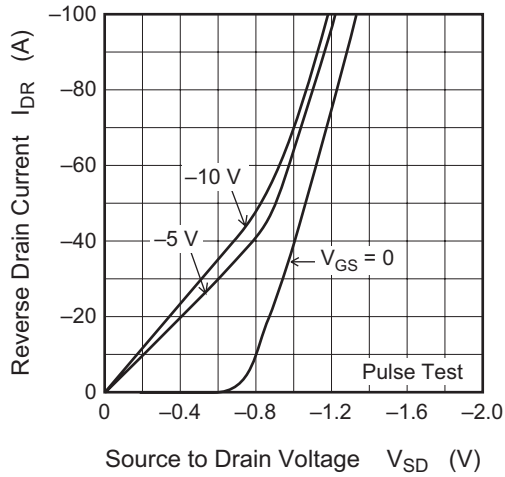
- Note: 4. Pulse test

### Main Characteristics

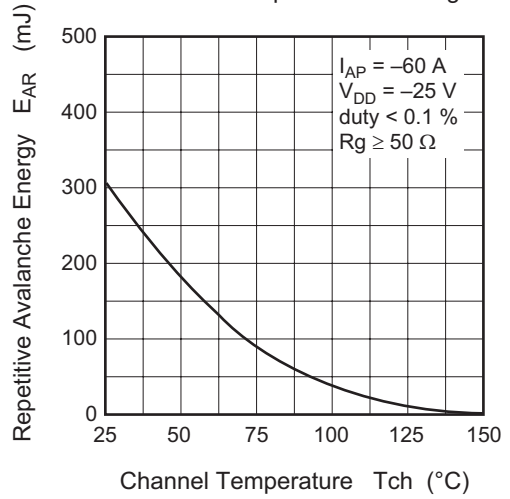




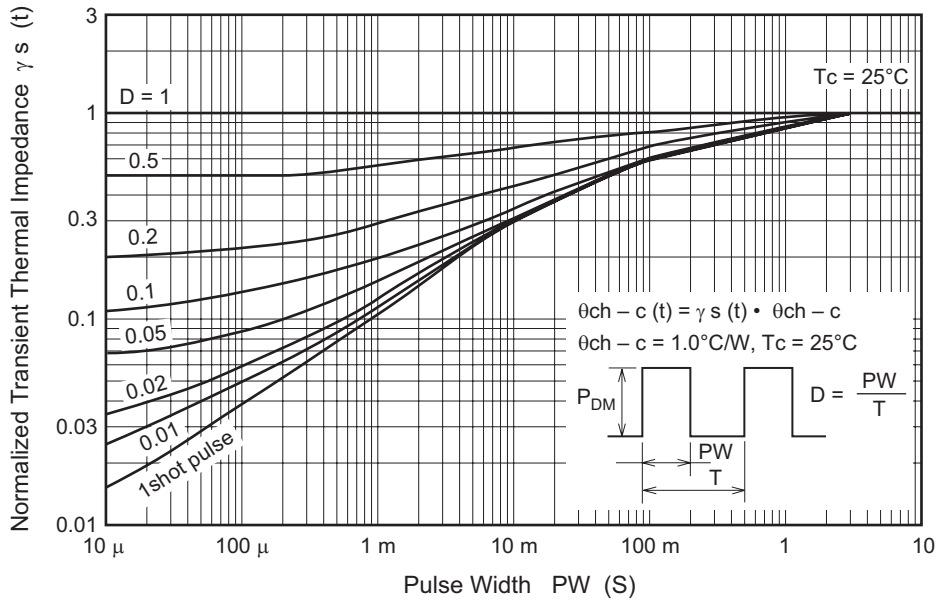
Reverse Drain Current vs. Source to Drain Voltage



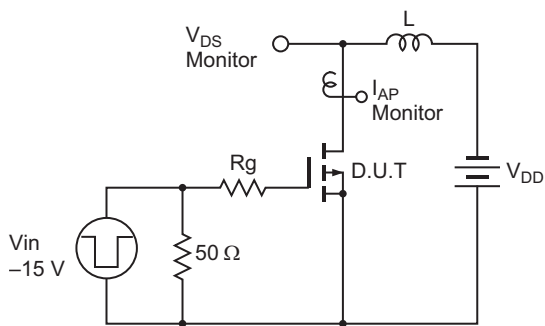
Maximum Avalanche Energy vs. Channel Temperature Derating



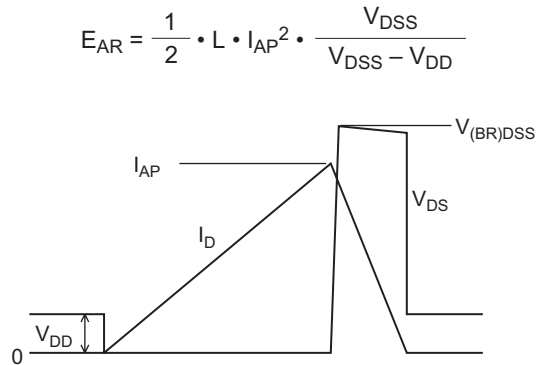
Normalized Transient Thermal Impedance vs. Pulse Width

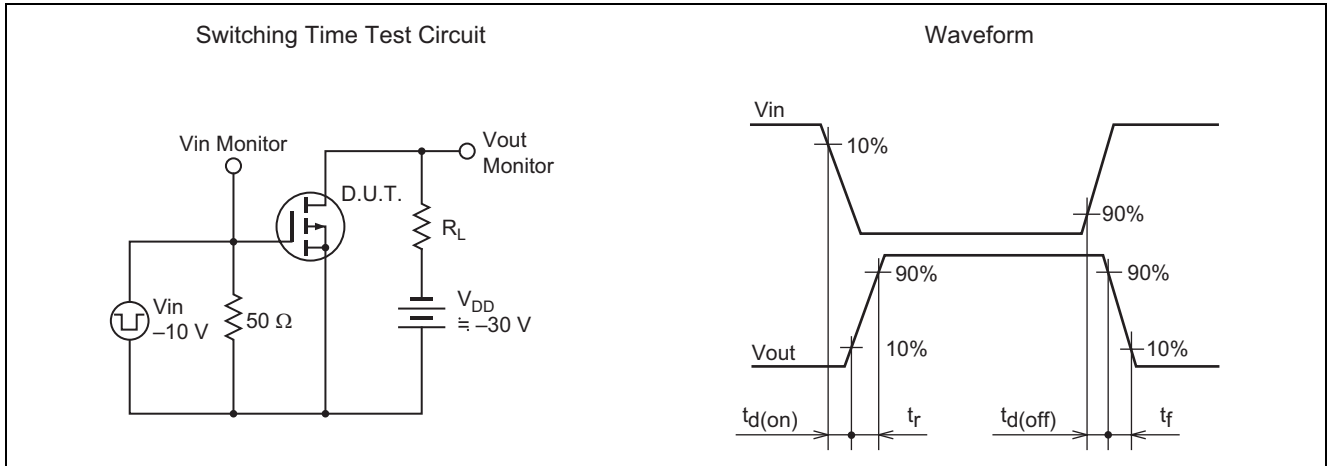


Avalanche Test Circuit



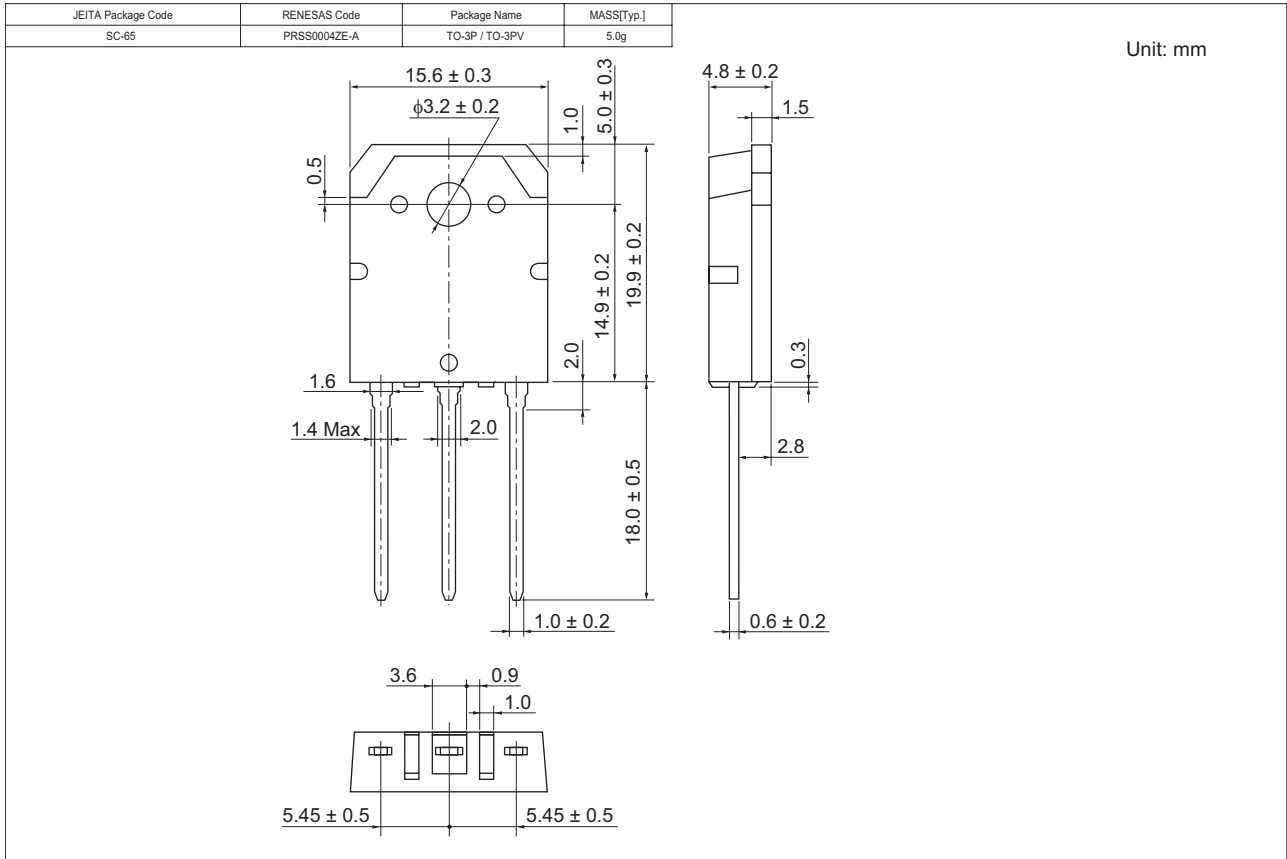
Avalanche Waveform







### Package Dimensions



### Ordering Information

| Part Name | Quantity | Shipping Container |
|-----------|----------|--------------------|
| 2SJ555-E  | 360 pcs  | Box (Tube)         |

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