

# 2SJ130(L), 2SJ130(S)

Silicon P Channel MOS FET

REJ03G0846-0200  
(Previous: ADE-208-1181)

Rev.2.00

Sep 07, 2005

## Description

High speed power switching

## Features

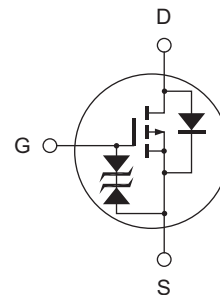
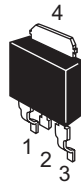
- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter and ultrasonic power oscillators

## 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	$V_{DS}$	-300	V
Gate to source voltage	$V_{GS}$	±20	V
Drain current	$I_D$	-1	A
Drain peak current	$I_{D(pulse)}$	-2	A
Body to drain diode reverse drain current	$I_{DR}$	-1	A
Channel dissipation	$P_{ch}$ <sup>Note 1</sup>	20	W
Channel temperature	$T_{ch}$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

Note: 1. Value at  $T_c = 25^\circ\text{C}$ 

## Electrical Characteristics

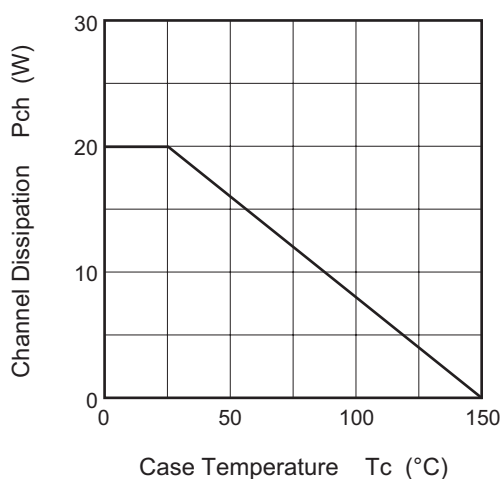
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DS}$	-300	—	—	V	$I_D = -10\text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GS}$	±20	—	—	V	$I_G = \pm 100\text{ }\mu\text{A}$ , $V_{DS} = 0$
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	$V_{DS} = -240\text{ V}$ , $V_{GS} = 0$
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	$R_{DS(on)}$	—	6.0	8.5	Ω	$I_D = -0.5\text{ A}$ , $V_{GS} = -10\text{ V}$ <sup>Note 2</sup>
Forward transfer admittance	$ y_{fs} $	0.25	0.4	—	S	$I_D = -0.5\text{ A}$ , $V_{DS} = -20\text{ V}$ <sup>Note 2</sup>
Input capacitance	$C_{iss}$	—	235	—	pF	$V_{DS} = -10\text{ V}$ $V_{GS} = 0$ $f = 1\text{ MHz}$
Output capacitance	$C_{oss}$	—	65	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	16	—	pF	
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = -0.5\text{ A}$ $V_{GS} = -10\text{ V}$ $R_L = 60\text{ }\Omega$
Rise time	$t_r$	—	25	—	ns	
Turn-off delay time	$t_{d(off)}$	—	35	—	ns	
Fall time	$t_f$	—	45	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	-0.9	—	V	$I_F = -1\text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	200	—	ns	$I_F = -1\text{ A}$ , $V_{GS} = 0$ $di_F/dt = 50\text{ A}/\mu\text{s}$

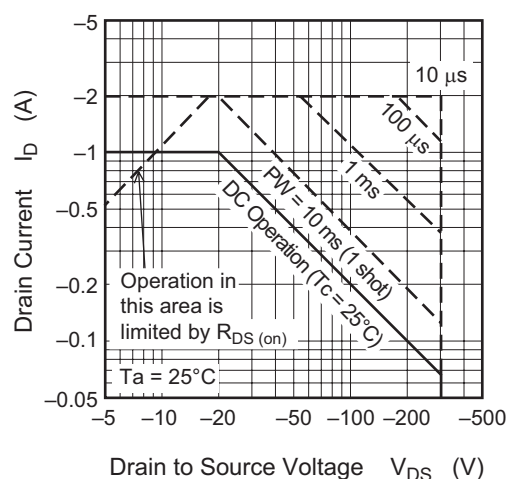
Note: 2. Pulse test

## Main Characteristics

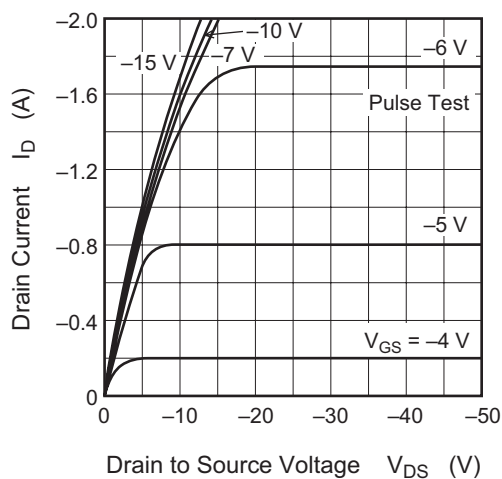
Power vs. Temperature Derating



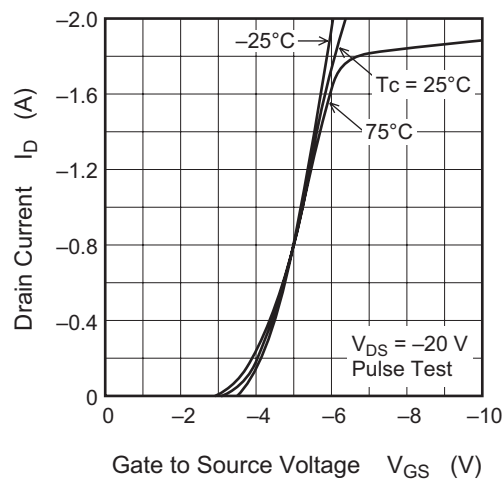
Maximum Safe Operation Area



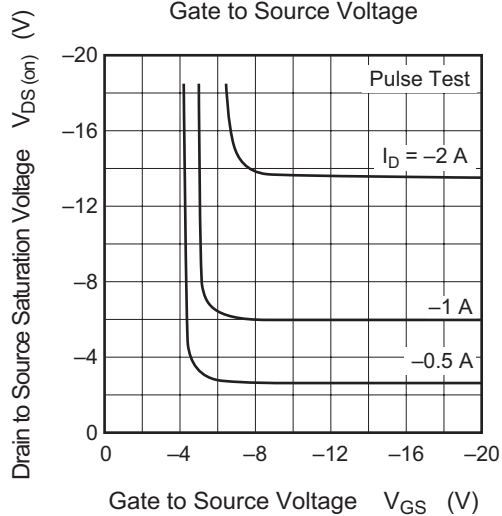
Typical Output Characteristics



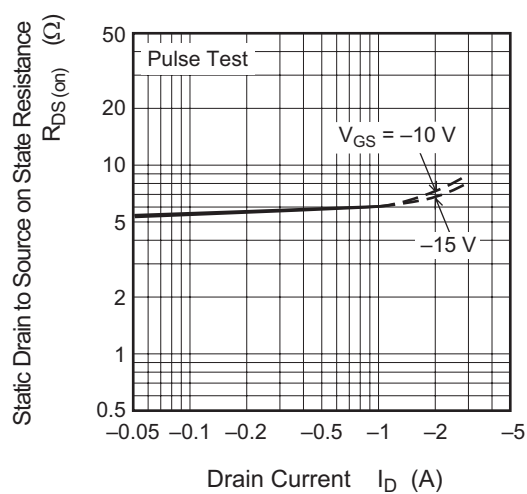
Typical Transfer Characteristics

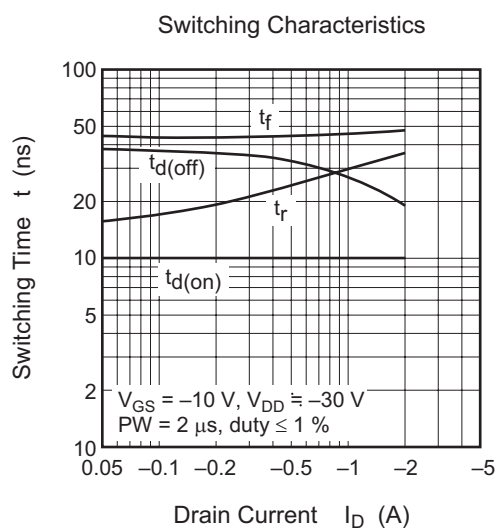
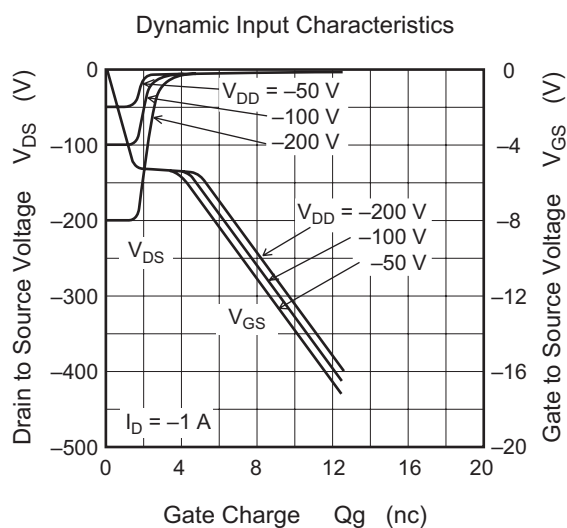
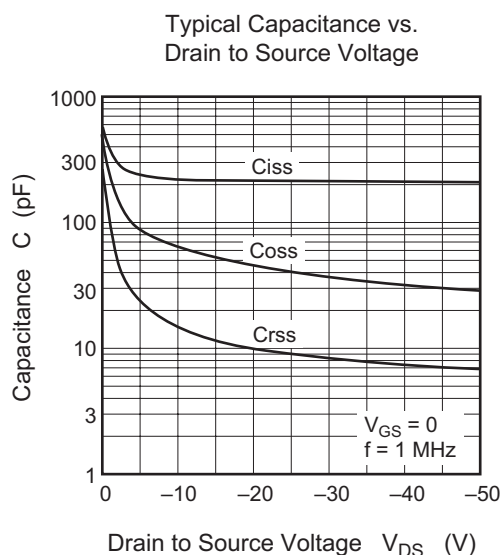
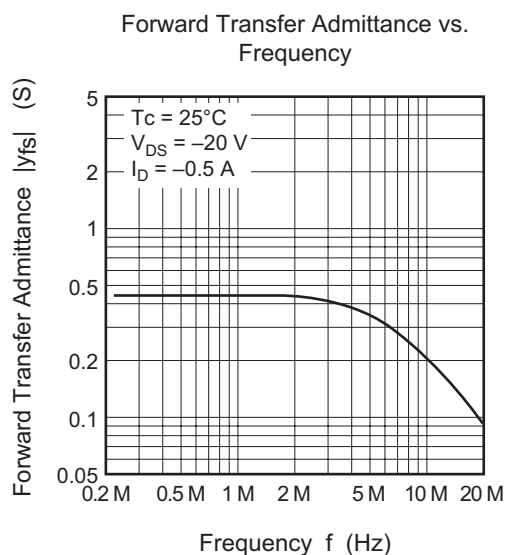
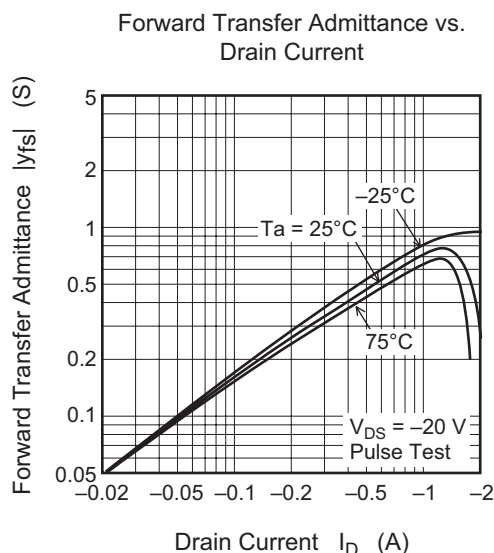
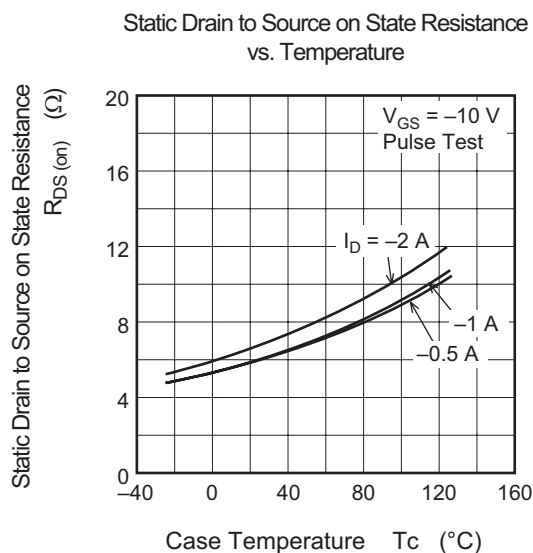


Drain to Source Saturation Voltage vs. Gate to Source Voltage

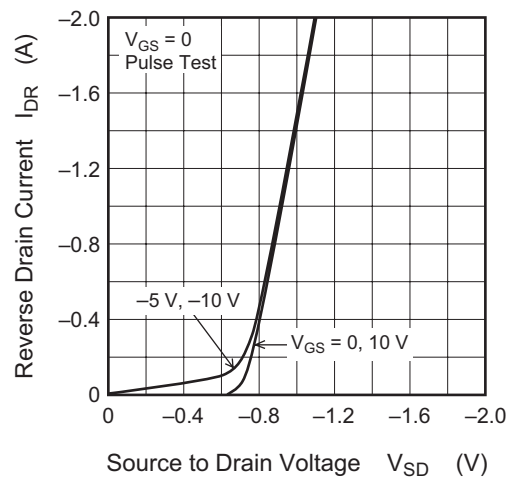


Static Drain to Source on State Resistance vs. Drain Current

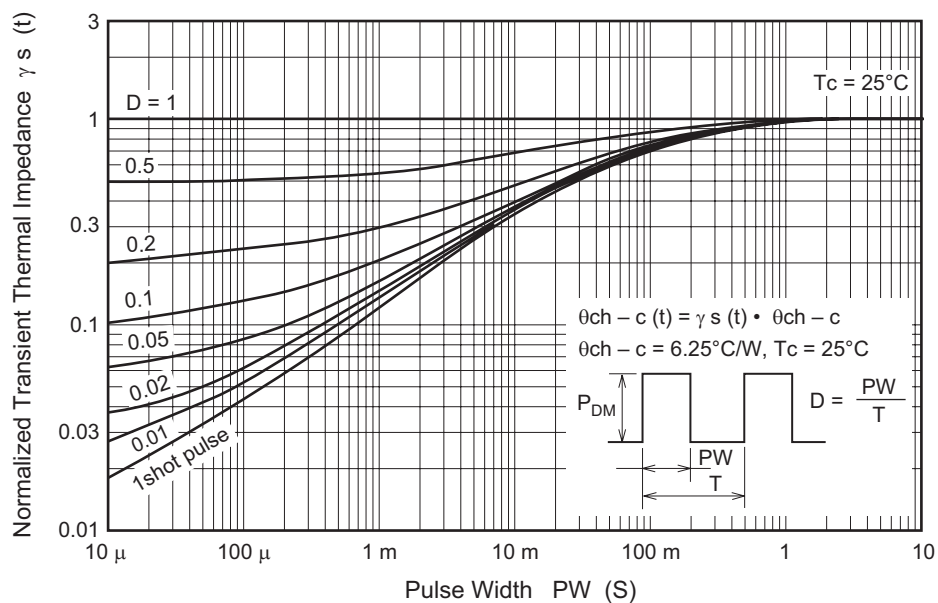




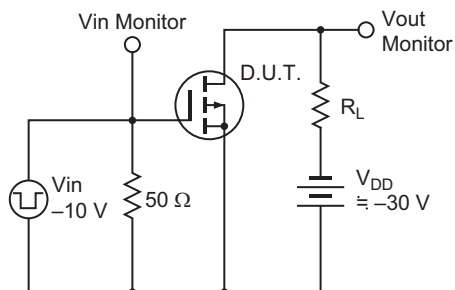
Reverse Drain Current vs.  
Source to Drain Voltage



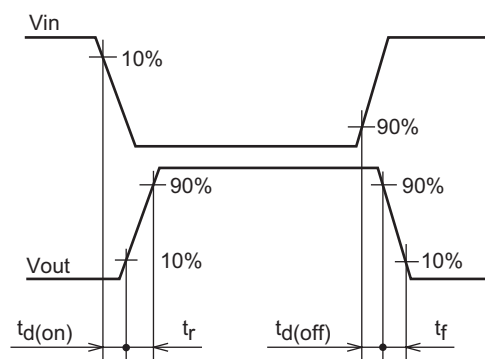
Normalized Transient Thermal Impedance vs. Pulse Width



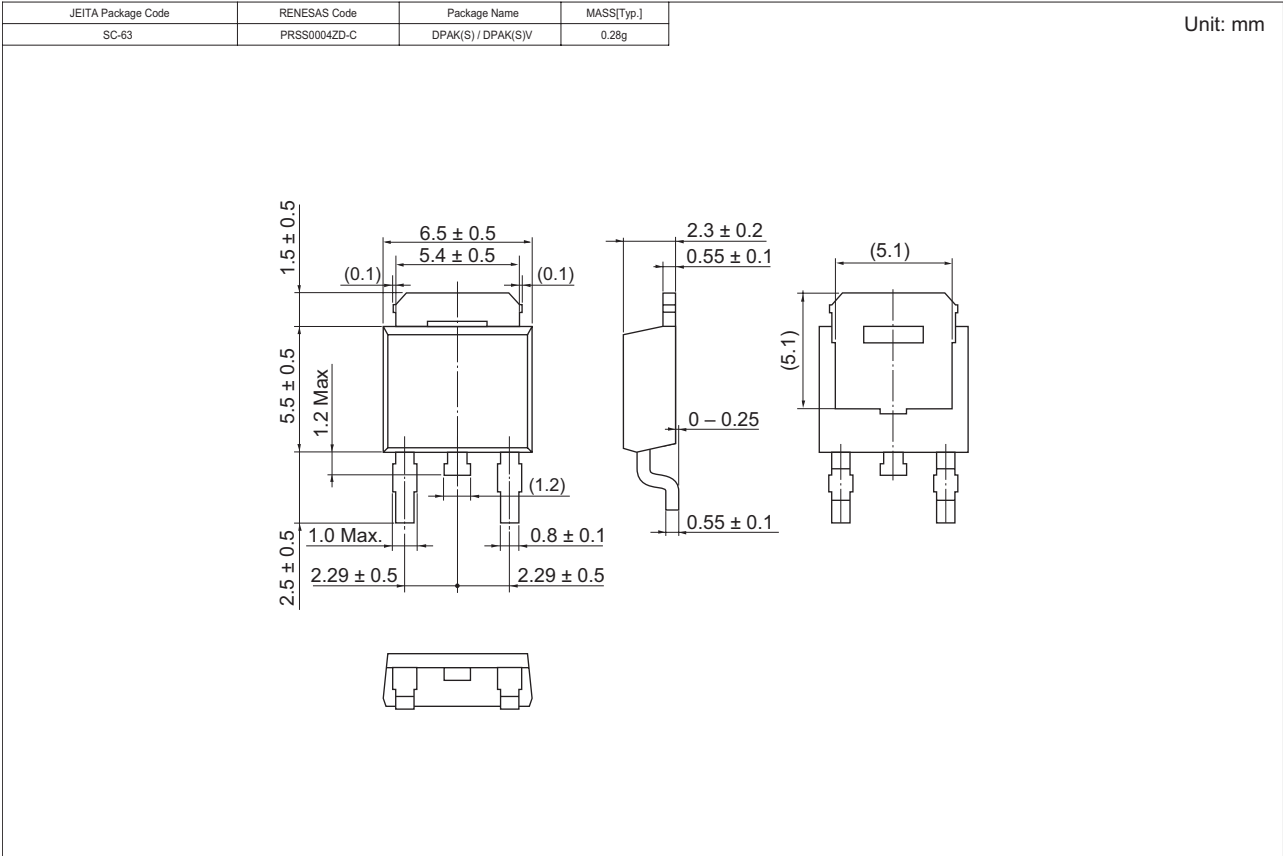
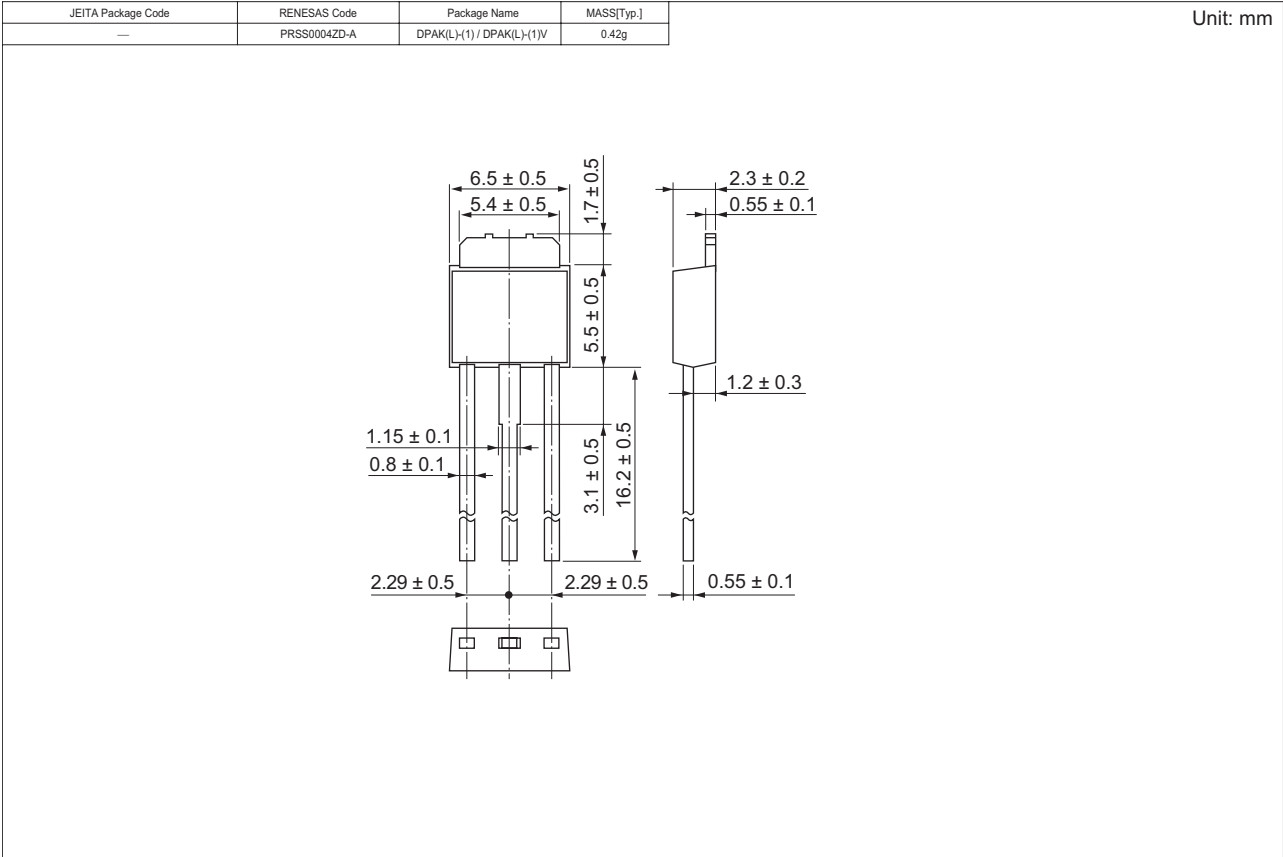
Switching Time Test Circuit



Waveform



Package Dimensions



**Ordering Information**

Part Name	Quantity	Shipping Container
2SJ130L-E	3200 pcs	Box (Sack)
2SJ130STL-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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