

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

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

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## 2SK2084(L), 2SK2084(S)

Silicon N Channel MOS FET

REJ03G0995-0200  
(Previous: ADE-208-1342)

Rev.2.00

Sep 07, 2005

### Application

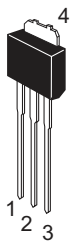
High speed power switching

### Features

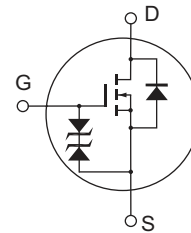
- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device can be driven from 5 V source
- Suitable for switching regulator, DC - DC converter

### 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	Ratings	Unit
Drain to source voltage	V <sub>DS</sub>	20	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	7	A
Drain peak current	I <sub>D(pulse)</sub> * <sup>1</sup>	28	A
Body to drain diode reverse drain current	I <sub>DR</sub>	7	A
Channel dissipation	P <sub>ch</sub> * <sup>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 ∞s, duty cycle ≤ 1 %  
 2. Value at Tc = 25°C

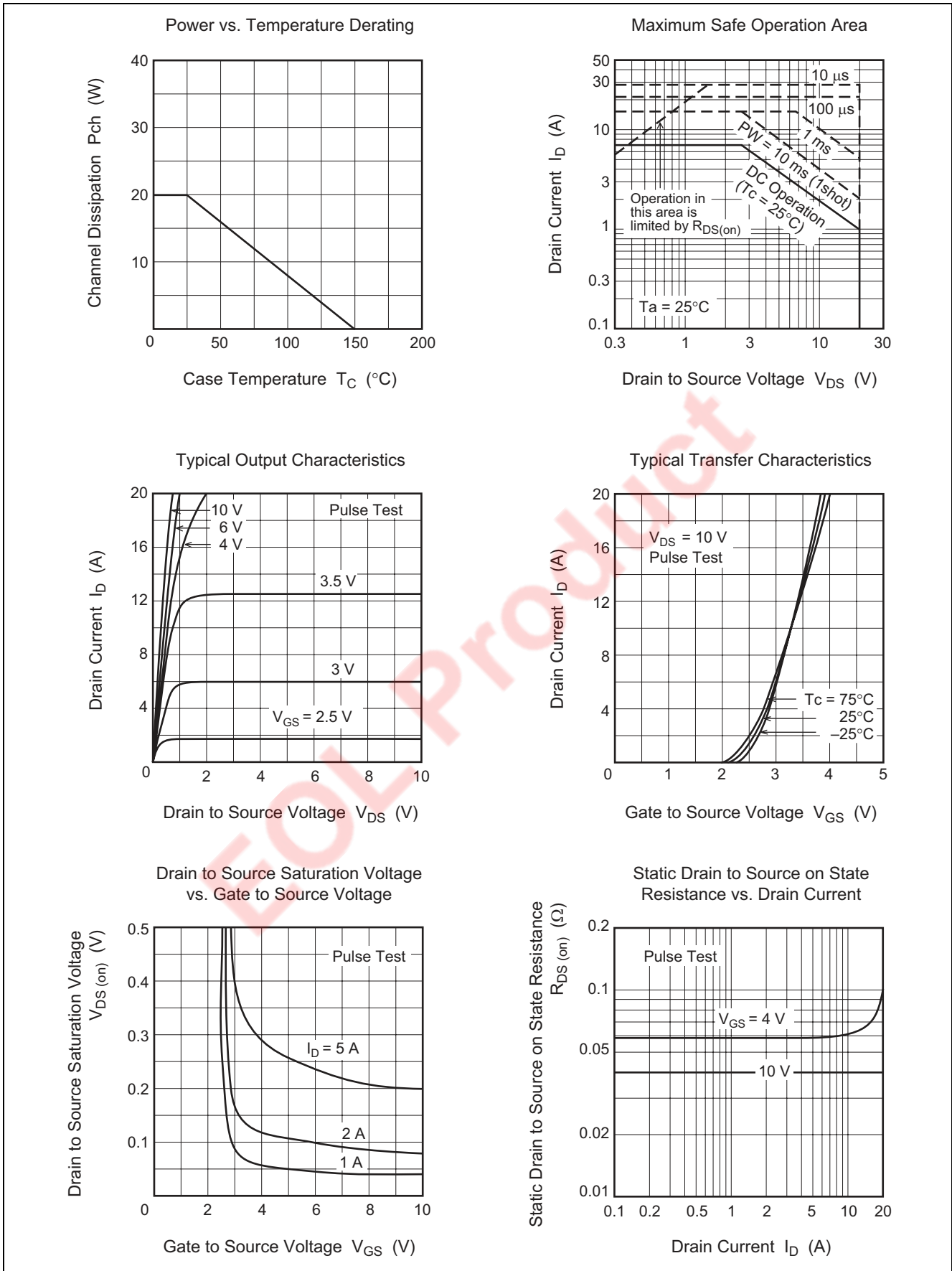
## Electrical Characteristics

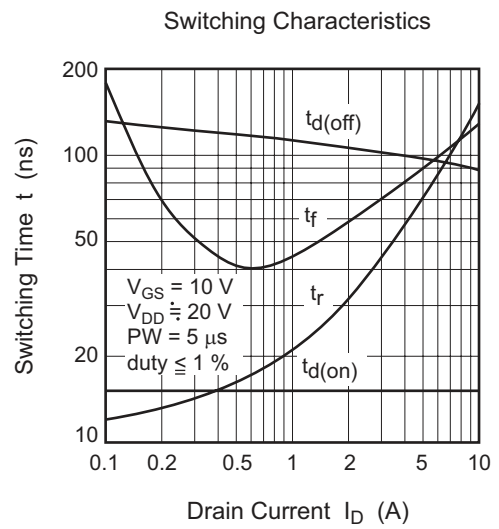
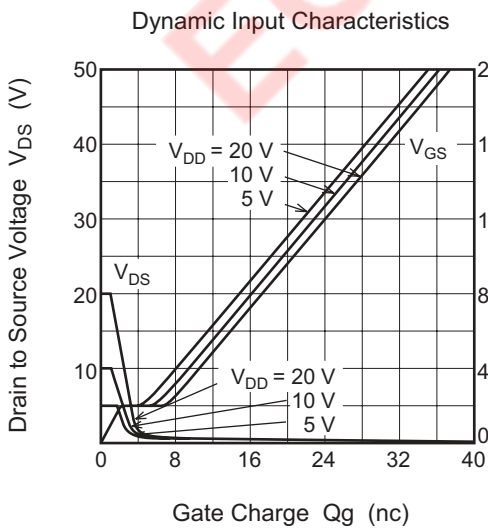
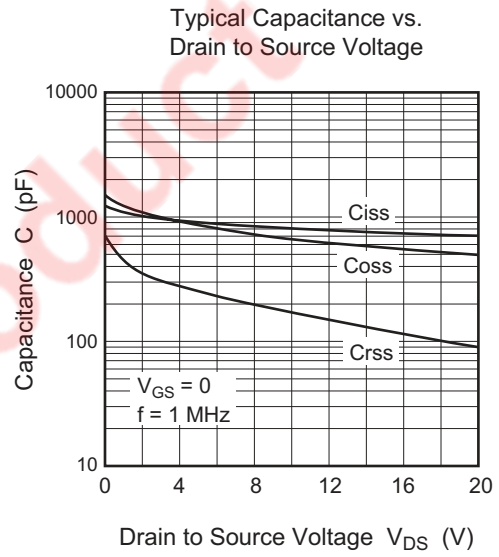
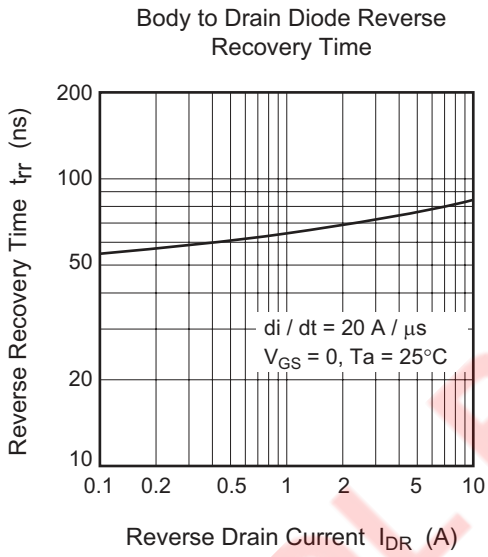
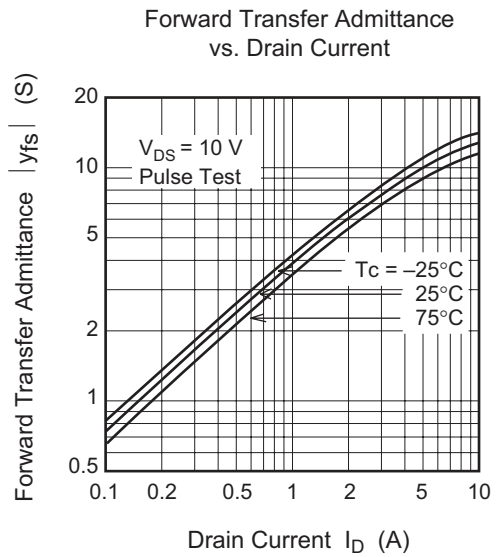
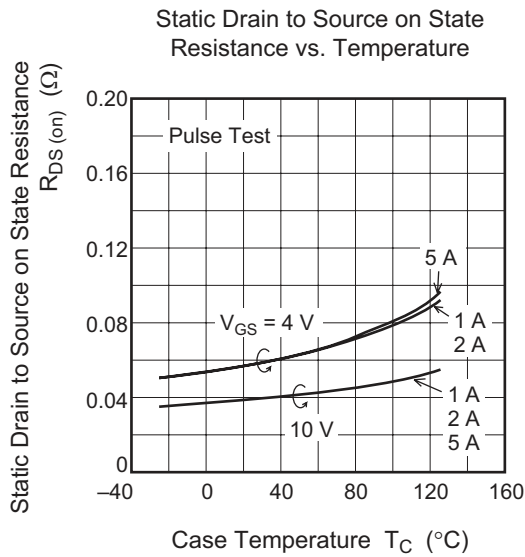
(Ta = 25°C)

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>	±20	—	—	V	I <sub>G</sub> = ±100 ∞A, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	∞A	V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	100	∞A	V <sub>DS</sub> = 16 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	1.0	—	2.5	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>	—	0.04	0.053	Ω	I <sub>D</sub> = 4 A, V <sub>GS</sub> = 10 V* <sup>3</sup>
		—	0.058	0.075	Ω	I <sub>D</sub> = 4 A, V <sub>GS</sub> = 4 V* <sup>3</sup>
Forward transfer admittance	y <sub>fs</sub>	5	9	—	S	I <sub>D</sub> = 4 A, V <sub>DS</sub> = 10 V* <sup>3</sup>
Input capacitance	C <sub>iss</sub>	—	800	—	pF	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0, f = 1 MHz
Output capacitance	C <sub>oss</sub>	—	680	—	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	165	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	15	—	ns	I <sub>D</sub> = 4 A, V <sub>GS</sub> = 10 V, R <sub>L</sub> = 5 Ω
Rise time	t <sub>r</sub>	—	60	—	ns	
Turn-off delay time	t <sub>d(off)</sub>	—	100	—	ns	
Fall time	t <sub>f</sub>	—	80	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	0.9	—	V	I <sub>F</sub> = 7 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	80	—	ns	I <sub>F</sub> = 7 A, V <sub>GS</sub> = 0, di <sub>F</sub> / dt = 20 A / ∞s

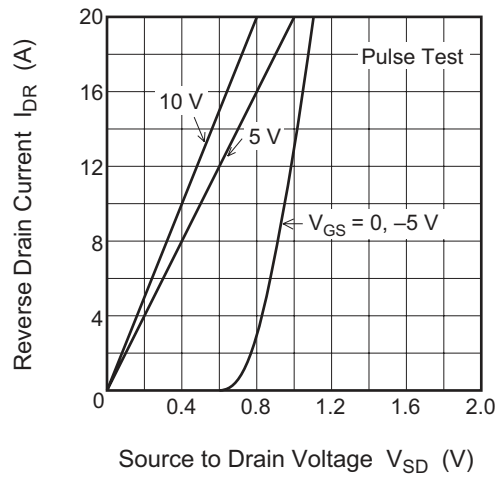
Note: 3. Pulse Test

### Main Characteristics

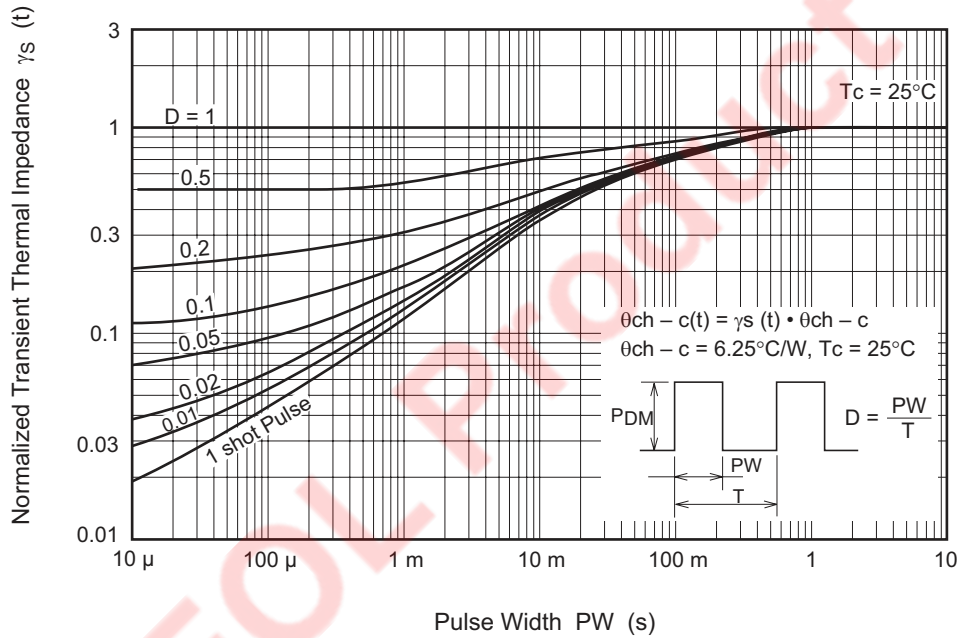




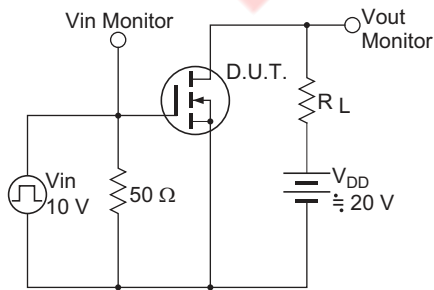
Reverse Drain Current vs. Source to Drain Voltage



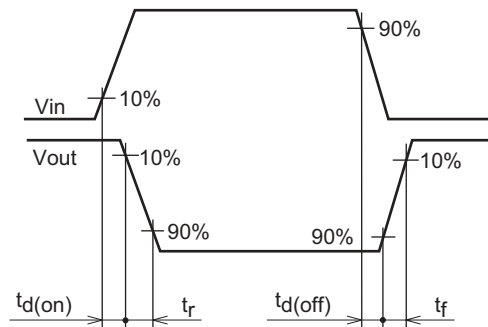
Normalized Transient Thermal Impedance vs. Pulse Width



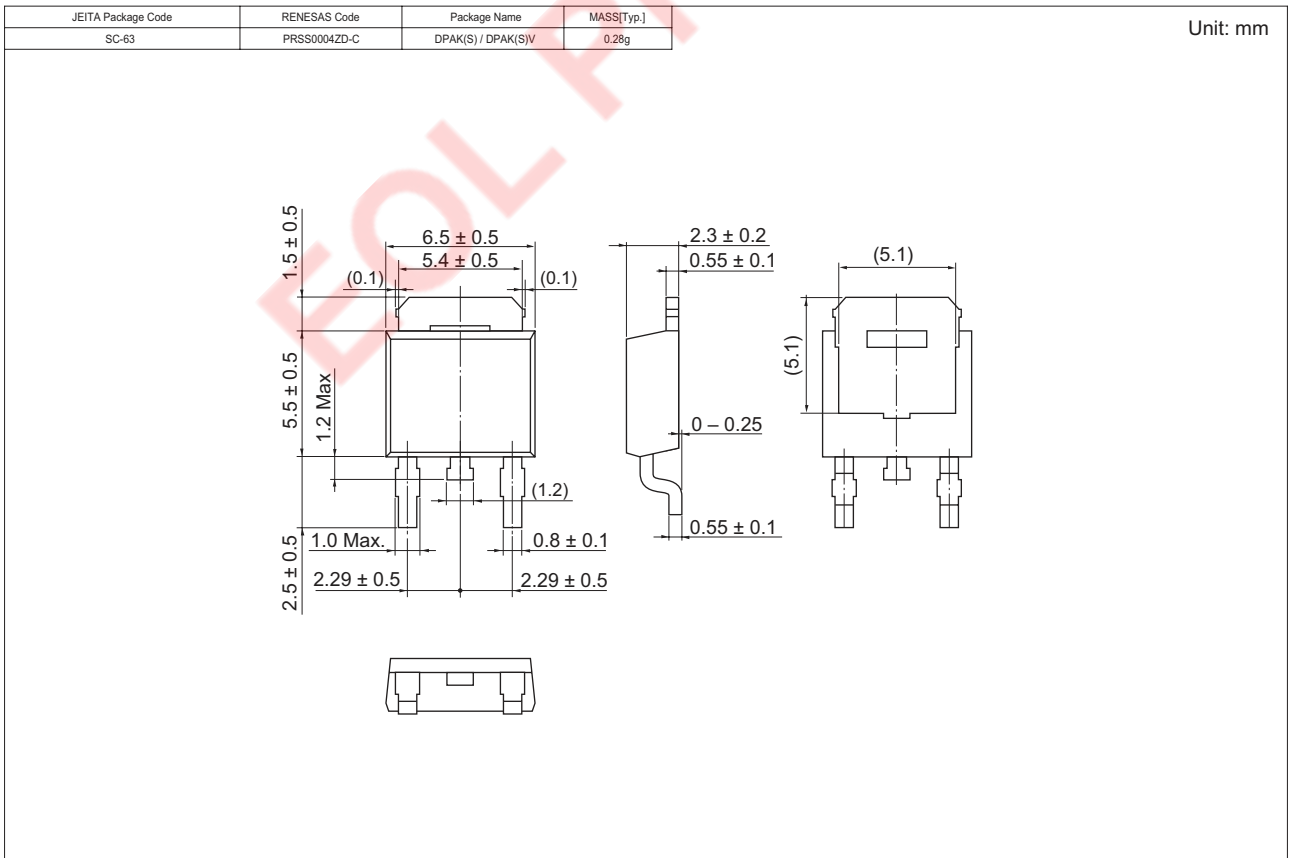
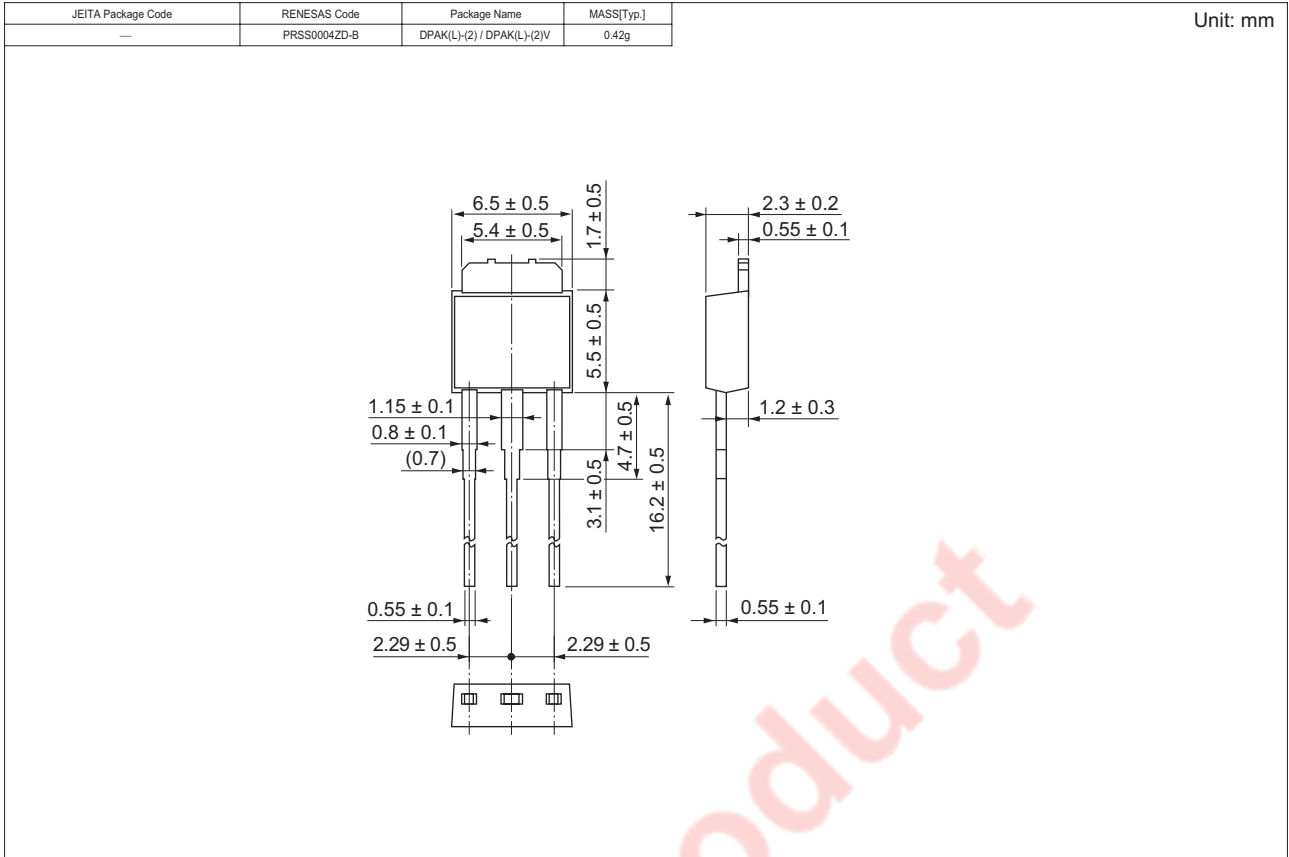
Switching Time Test Circuit



Waveforms



Package Dimensions





### Ordering Information

Part Name	Quantity	Shipping Container
2SK2084L-E	3000 pcs	Box (Sack)
2SK2084STL-E	3000 pcs	Taping

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EOL Product

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