

2SK2735(L), 2SK2735(S)

Silicon N Channel MOS FET
High Speed Power Switching

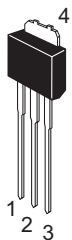
REJ03G1029-0200
(Previous: ADE-208-543)
Rev.2.00
Sep 07, 2005

Features

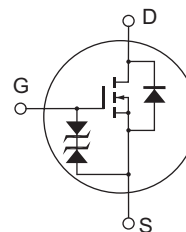
- Low on-resistance
 $R_{DS} = 20 \text{ m}\Omega$ typ.
- High speed switching
- 4 V gate drive device can be driven from 5 V source

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_{DS}	30	V
Gate to source voltage	V_{GS}	± 20	V
Drain current	I_D	20	A
Drain peak current	$I_{D(pulse)}^{*1}$	80	A
Body to drain diode reverse drain current	I_{DR}	20	A
Channel dissipation	P_{ch}^{*2}	20	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1 \%$ 2. Value at $T_c = 25^\circ C$

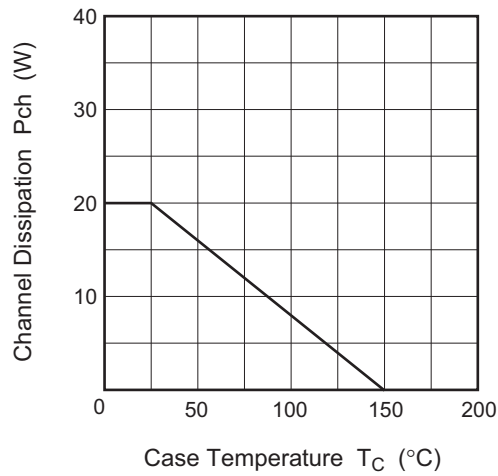
Electrical Characteristics

(Ta = 25°C)

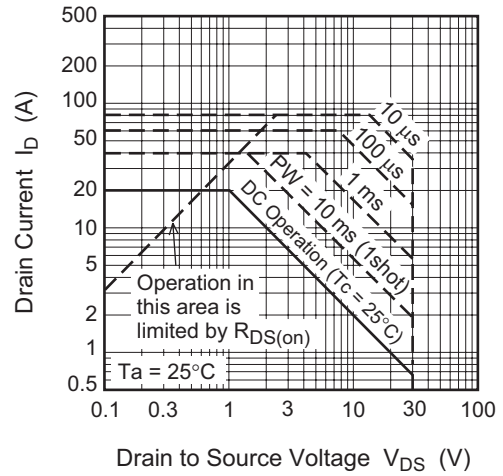
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 30 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	20	28	$m\Omega$	$I_D = 10 \text{ A}$, $V_{GS} = 10 \text{ V}^{*3}$
	$R_{DS(on)}$	—	35	50	$m\Omega$	$I_D = 10 \text{ A}$, $V_{GS} = 4 \text{ V}^{*3}$
Forward transfer admittance	$ y_{fs} $	8	16	—	S	$I_D = 10 \text{ A}$, $V_{DS} = 10 \text{ V}^{*3}$
Input capacitance	C_{iss}	—	750	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	520	—	pF	
Reverse transfer capacitance	C_{rss}	—	210	—	pF	
Turn-on delay time	$t_{d(on)}$	—	16	—	ns	$I_D = 10 \text{ A}$, $V_{GS} = 10 \text{ V}$, $R_L = 1 \Omega$
Rise time	t_r	—	225	—	ns	
Turn-off delay time	$t_{d(off)}$	—	85	—	ns	
Fall time	t_f	—	90	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.0	—	V	$I_F = 20 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu s$
Body to drain diode reverse recovery time	t_{rr}	—	40	—	V	$I_F = 20 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu s$

Note: 3. Pulse test

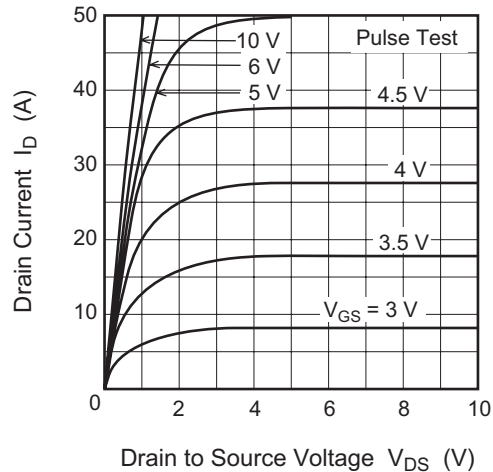
Power vs. Temperature Derating



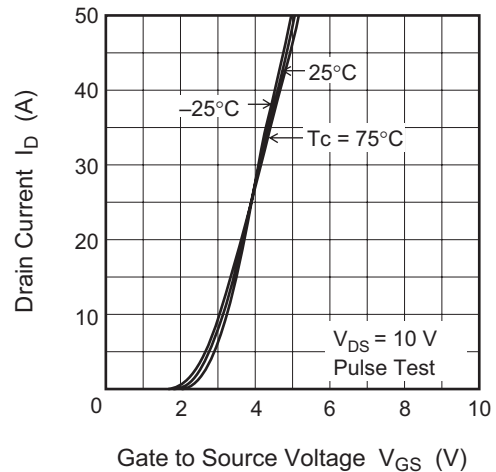
Maximum Safe Operation Area



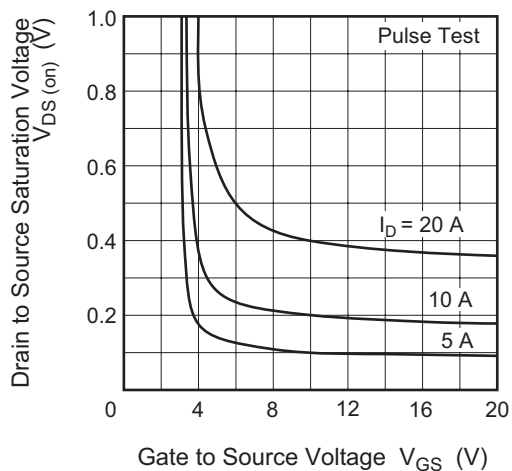
Typical Output Characteristics



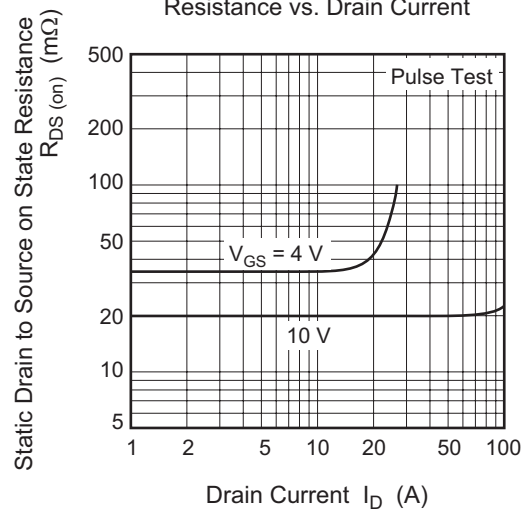
Typical Transfer Characteristics

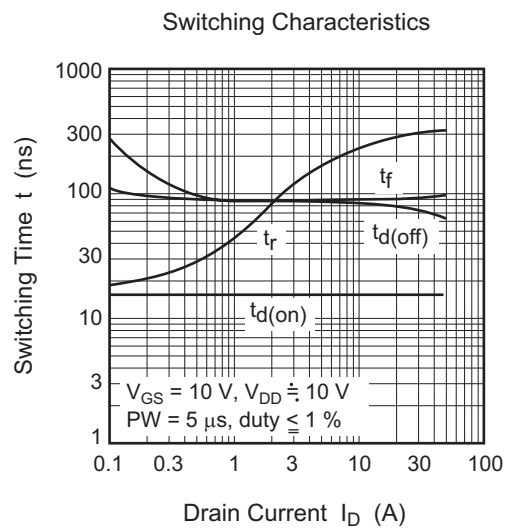
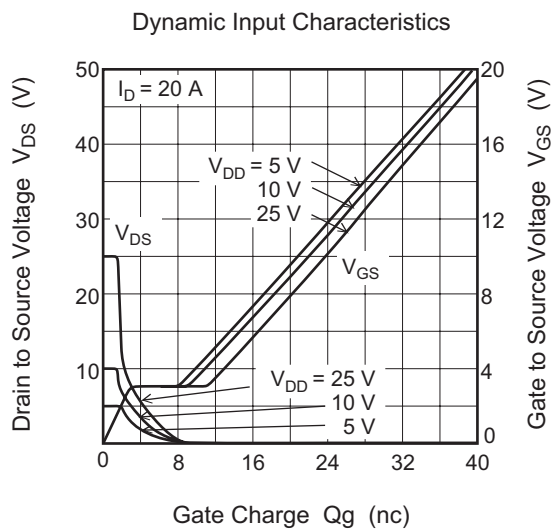
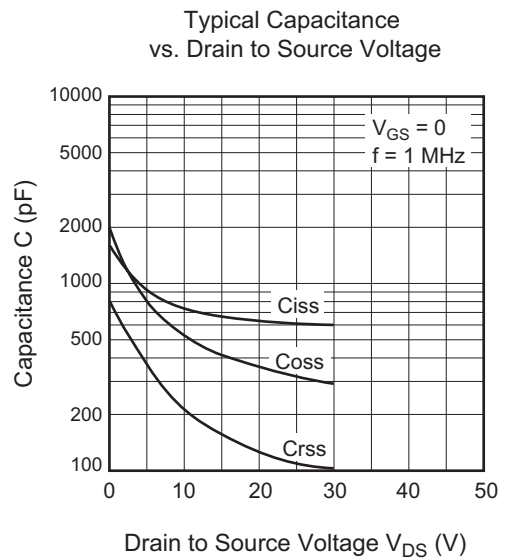
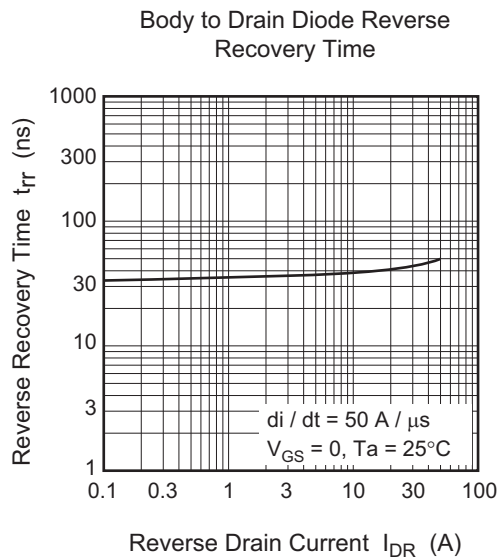
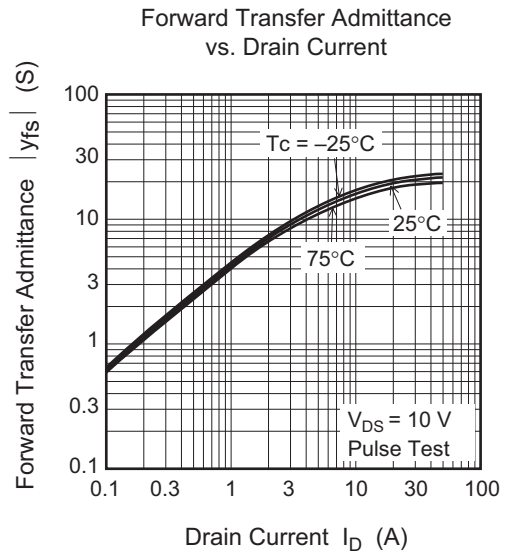
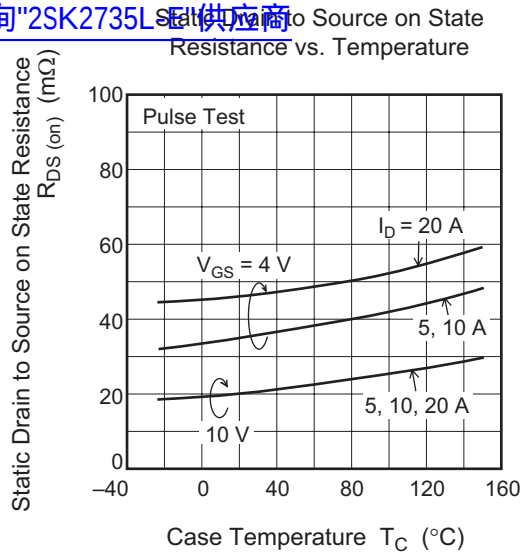


Drain to Source Saturation Voltage vs. Gate to Source Voltage



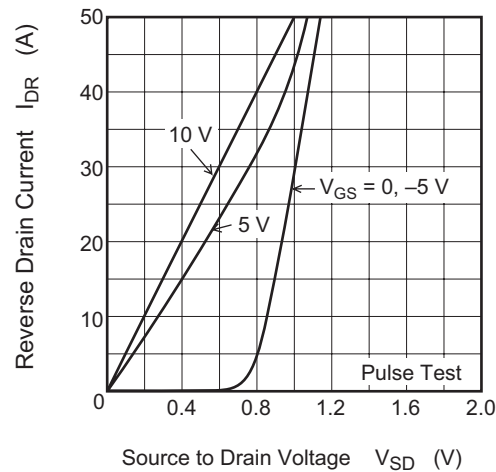
Static Drain to Source on State Resistance vs. Drain Current



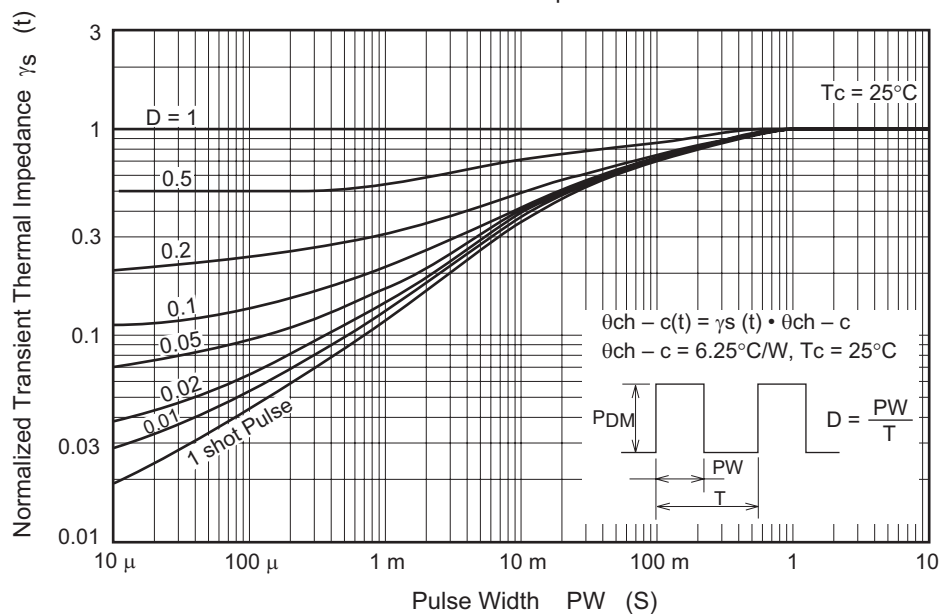
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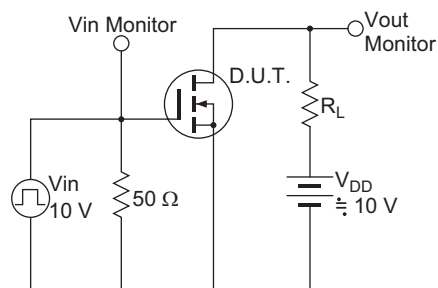
Reverse Drain Current vs. Source to Drain Voltage



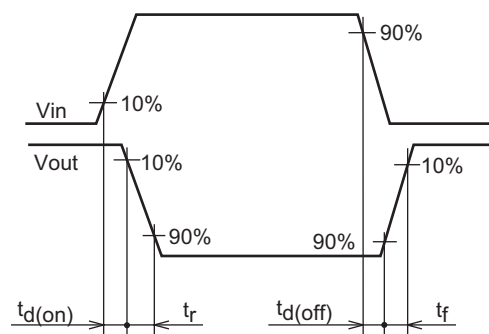
Normalized Transient Thermal Impedance vs. Pulse Width



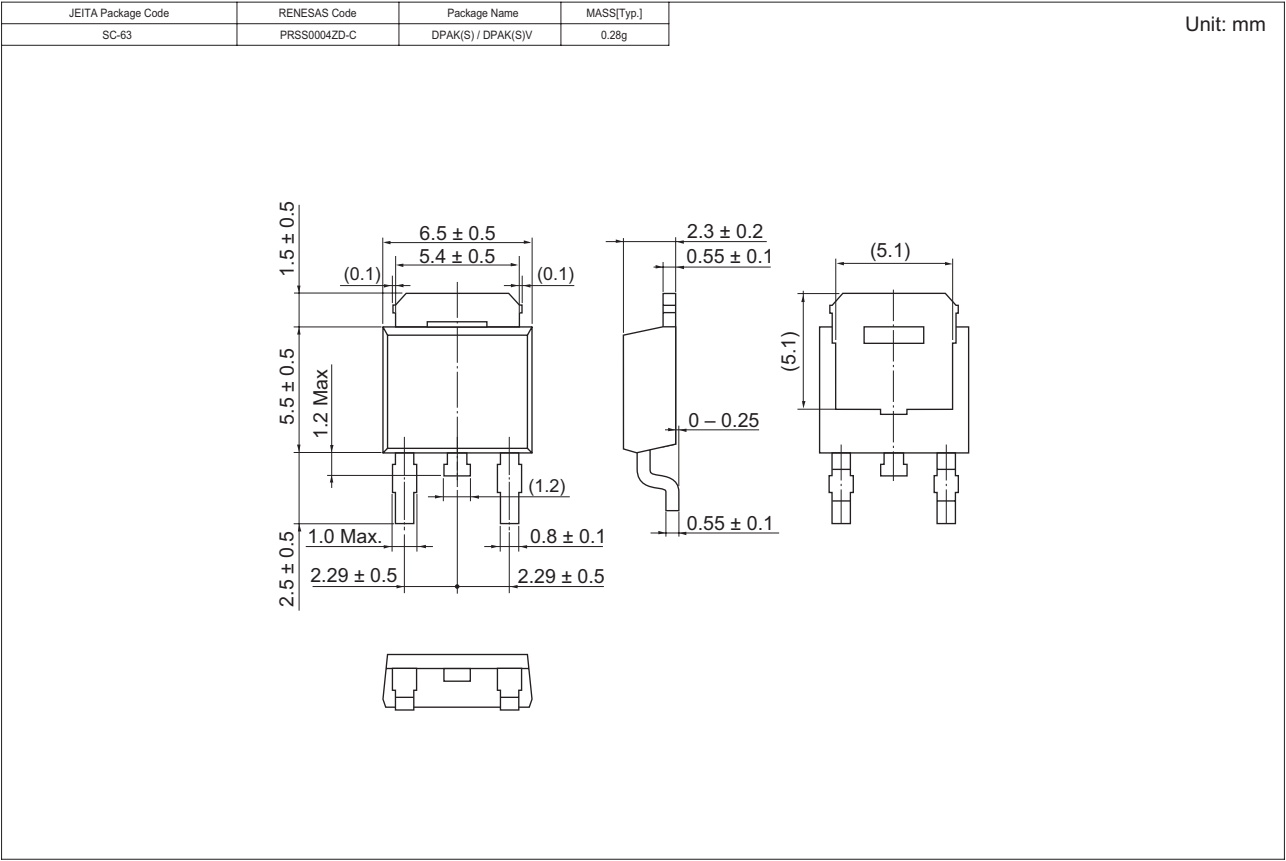
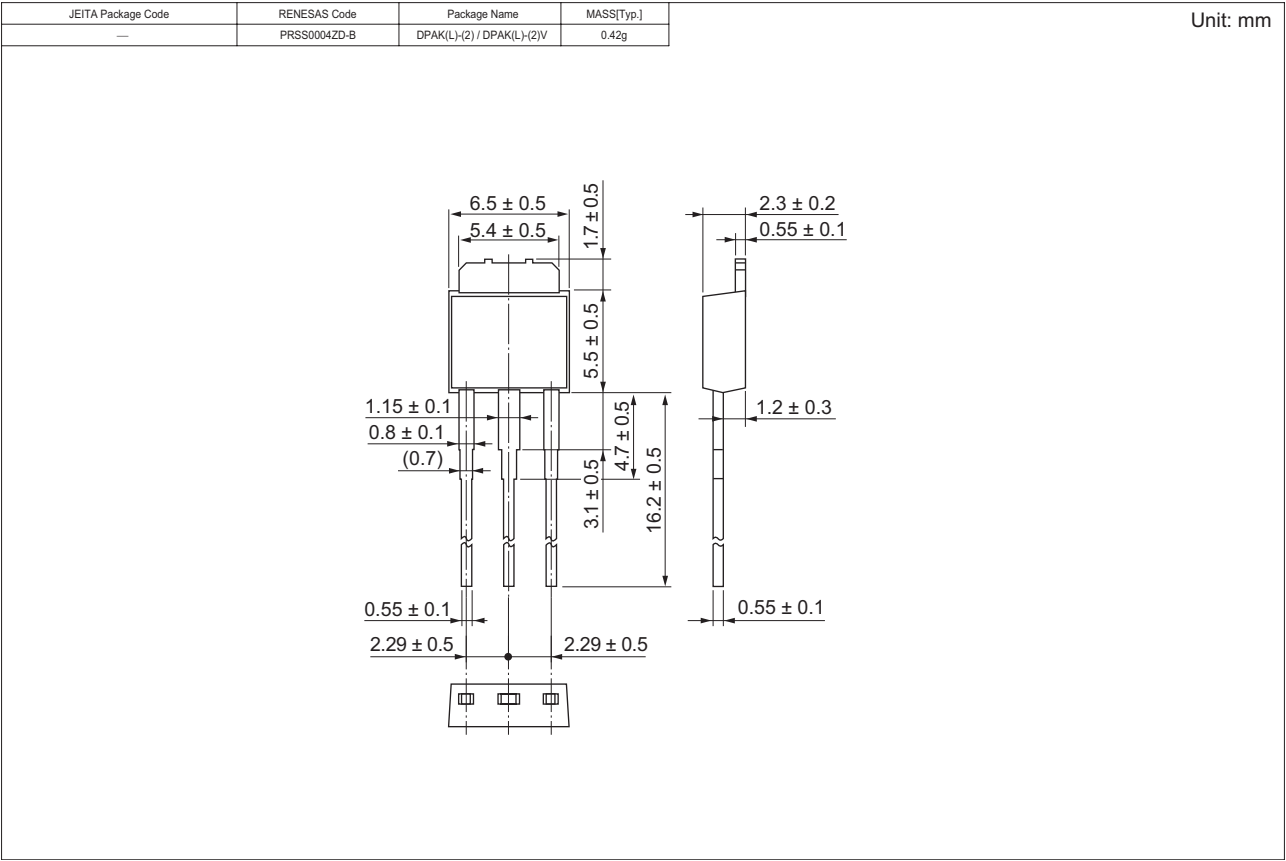
Switching Time Test Circuit



Waveform



Package Dimensions



Ordering Information
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Part Name	Quantity	Shipping Container
2SK2735L-E	3200 pcs	Box (Sack)
2SK2735STL-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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Renesas Technology Taiwan Co., Ltd.

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Tel: <82> 2-796-3115, Fax: <82> 2-796-2145

Renesas Technology Malaysia Sdn. Bhd.

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510