

2SK2684(L), 2SK2684(S)

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1022-0200
(Previous: ADE-208-542)
Rev.2.00
Sep 07, 2005

Application

High speed power switching

Features

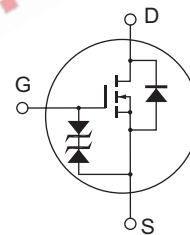
- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter

Outline

RENESAS Package code: PRSS0004AE-A
(Package name: LDKPAK(L))



RENESAS Package code: PRSS0004AE-B
(Package name: LDKPAK(S)-(1))



1. Gate
2. Drain
3. Source
4. Drain

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	30	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	30	A
Drain peak current	I _{D(pulse)} *1	120	A
Body to drain diode reverse drain current	I _{DR}	30	A
Channel dissipation	P _{ch} *2	50	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 T_c = 25°C

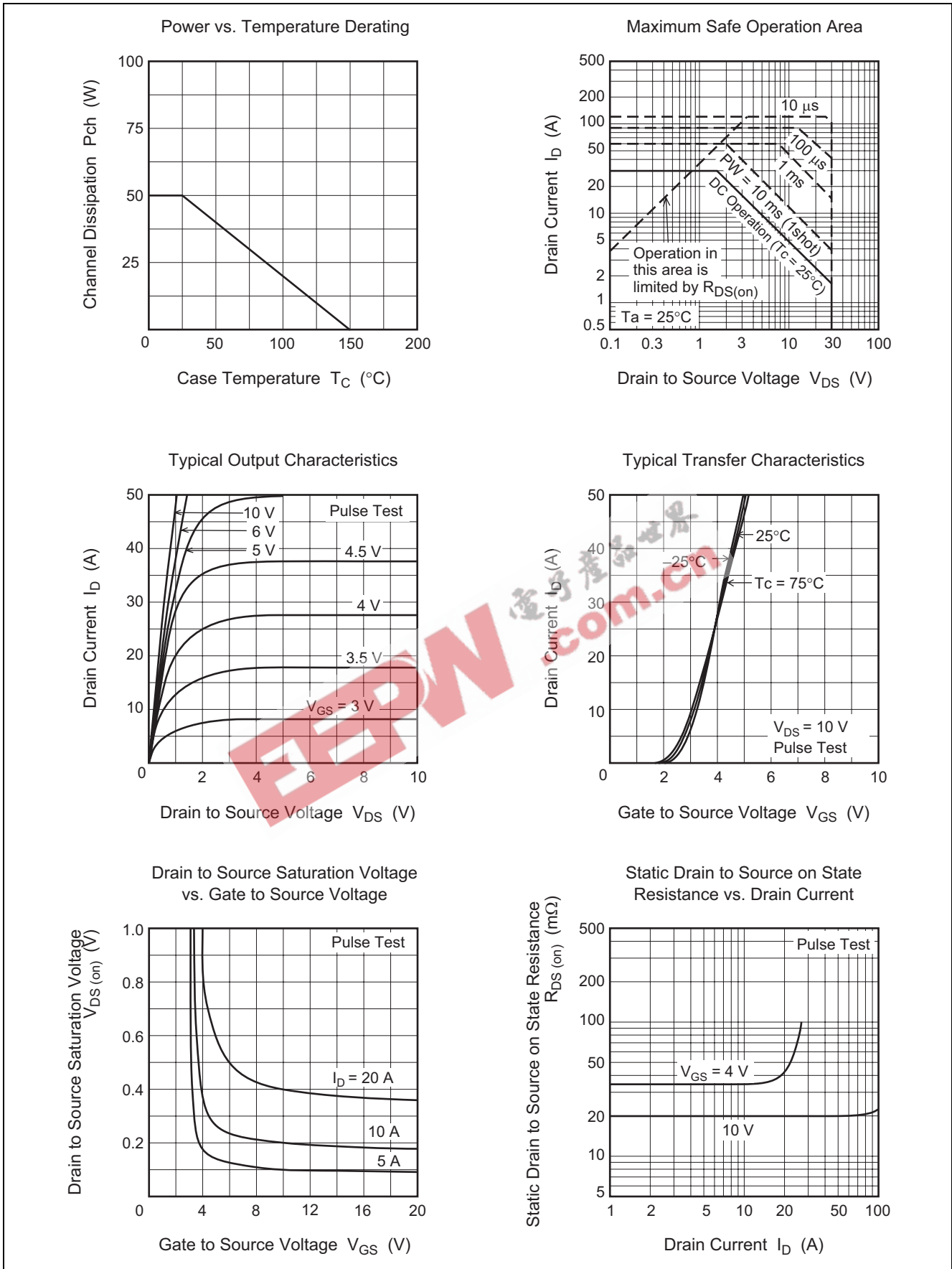
Electrical Characteristics

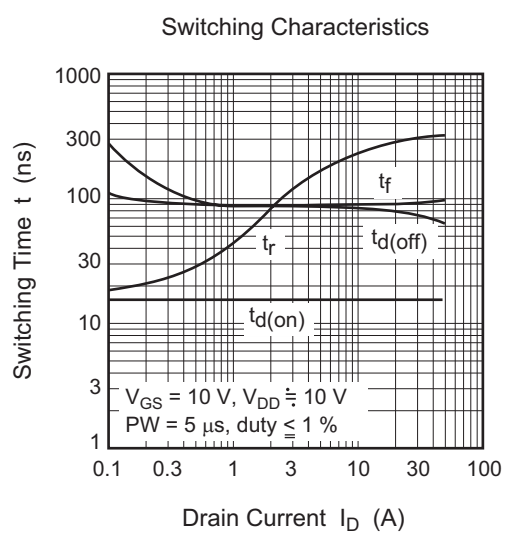
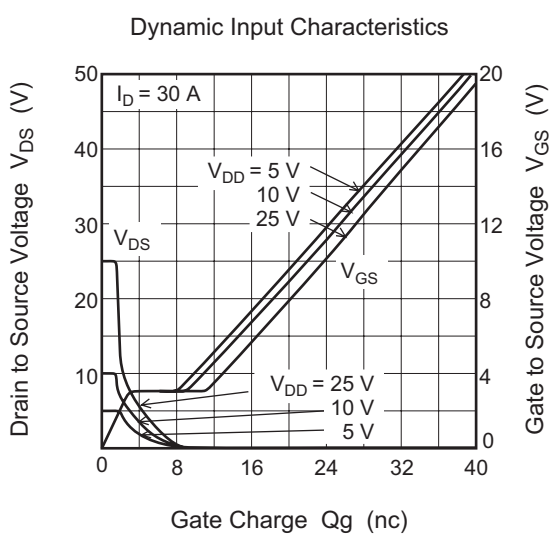
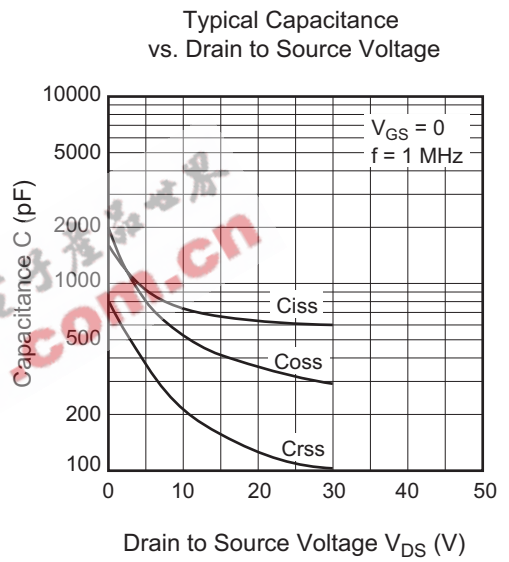
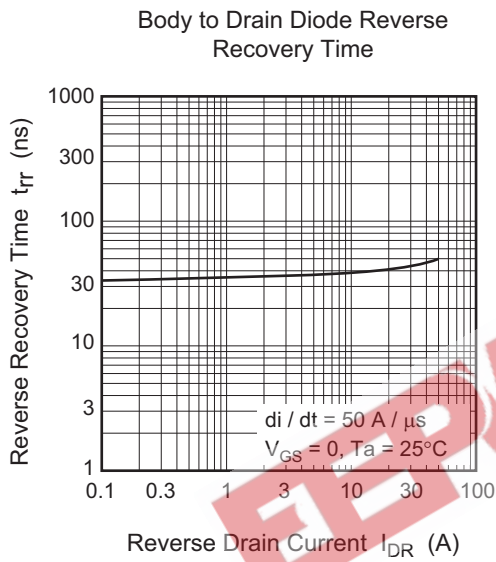
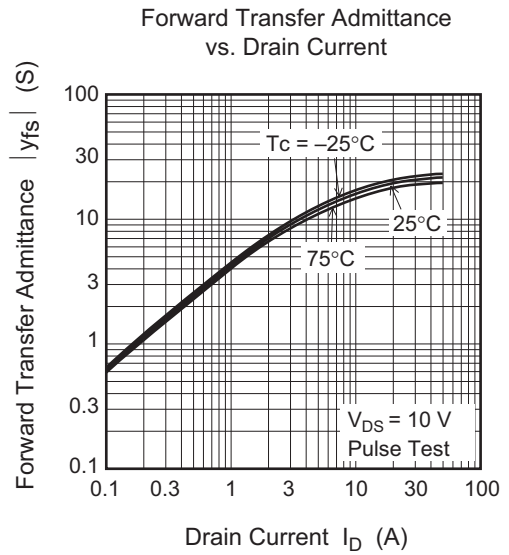
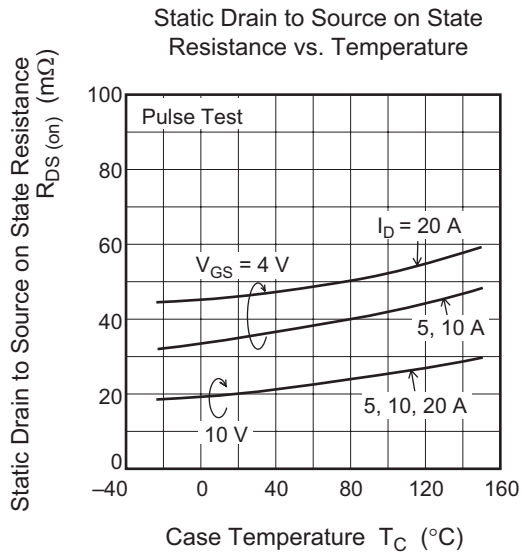
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	30	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 30 V, V _{GS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.0	—	2.0	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance	R _{DS(on)}	—	20	28	mΩ	I _D = 15 A, V _{GS} = 10 V*3
	R _{DS(on)}	—	35	50	mΩ	I _D = 15 A, V _{GS} = 4 V*3
Forward transfer admittance	y _{fs}	12	18	—	S	I _D = 15 A, V _{DS} = 10 V*3
Input capacitance	C _{iss}	—	750	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	C _{oss}	—	520	—	pF	
Reverse transfer capacitance	C _{rss}	—	210	—	pF	
Turn-on delay time	t _{d(on)}	—	16	—	ns	V _{GS} = 10 V, I _D = 15 A, R _L = 0.67 Ω
Rise time	t _r	—	260	—	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 = 30 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	45	—	ns	I _F = 30 A, V _{GS} = 0 di _F / dt = 50 A/ μs

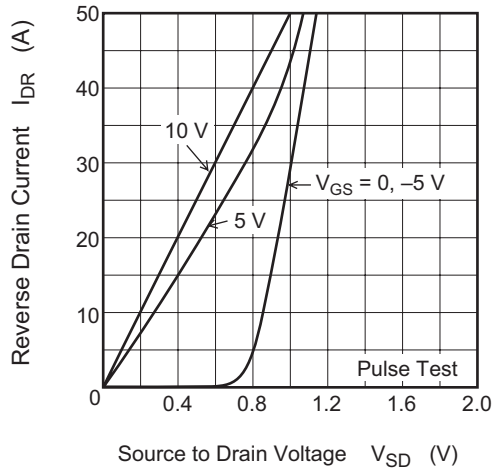
Note: 3. Pulse test

Main Characteristics

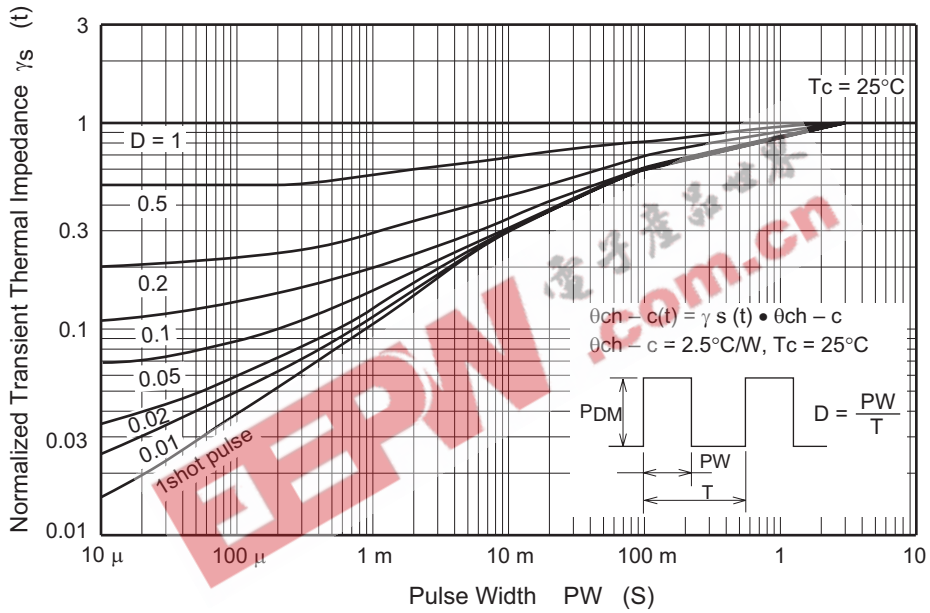




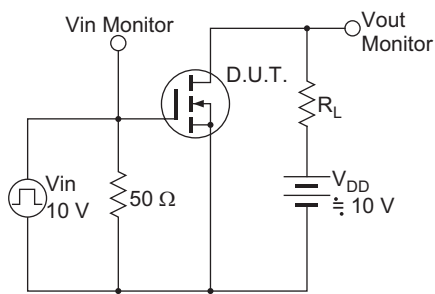
Reverse Drain Current vs. Source to Drain Voltage



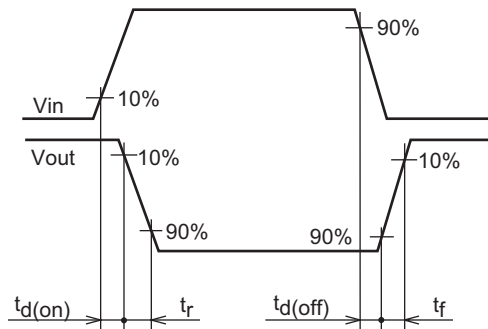
Normalized Transient Thermal Impedance vs. Pulse Width



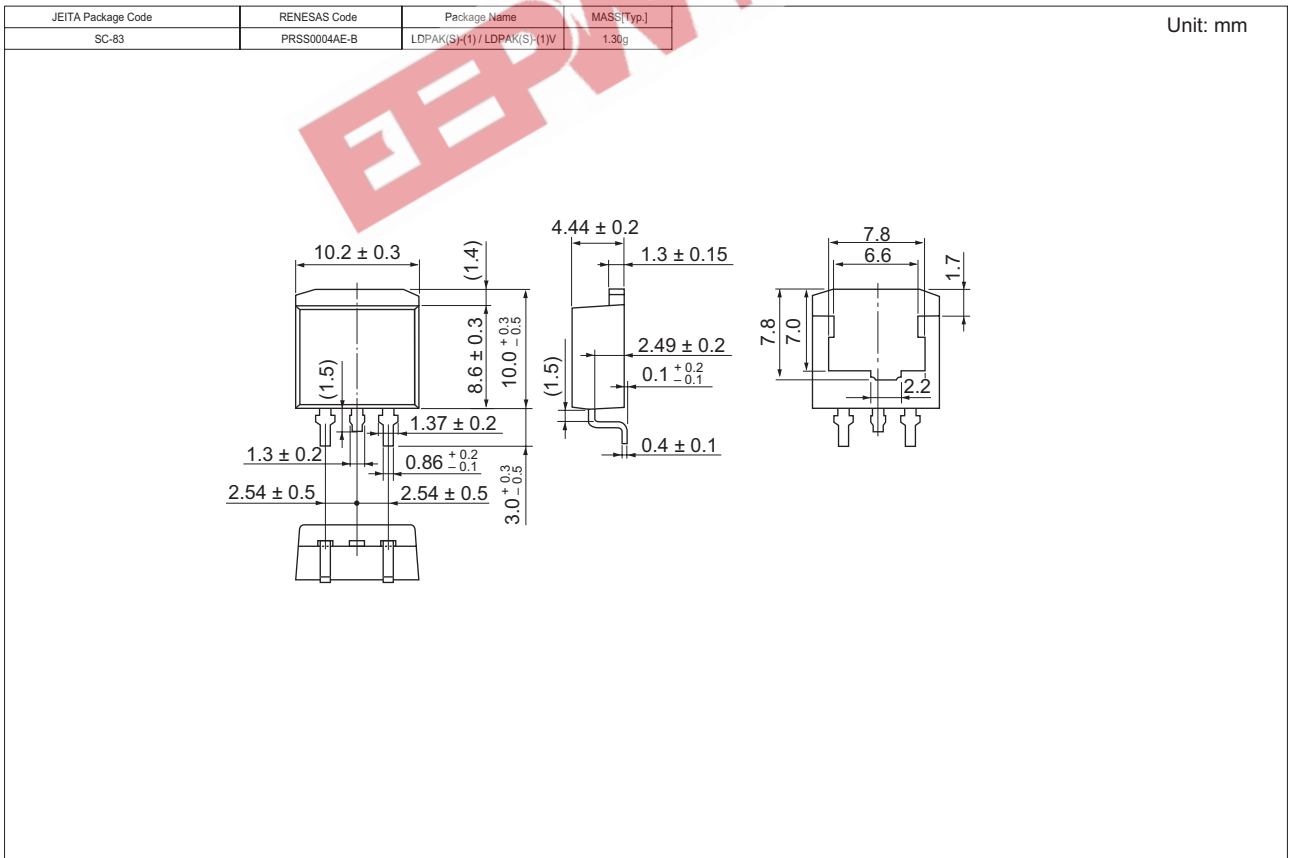
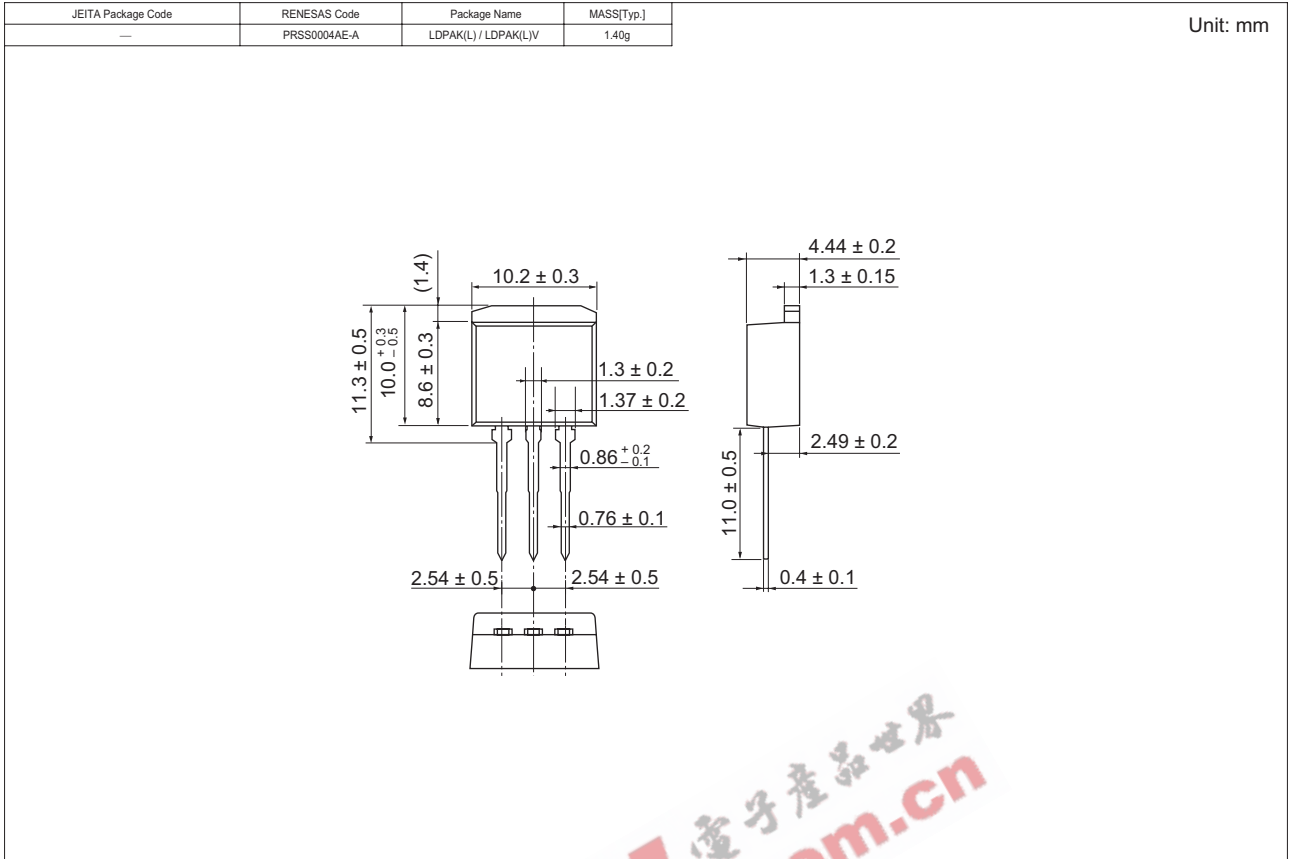
Switching Time Test Circuit



Waveform



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK2684L-E	500 pcs	Box (Sack)
2SK2684STL-E	1000 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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