

RJK1525DPJ, RJK1525DPE, RJK1525DPF

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0623-0100

Rev.1.00

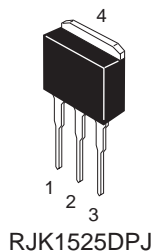
Apr.22,2005

Features

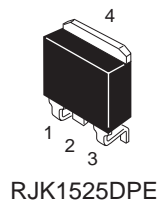
- Low on-resistance
- Low leakage current
- High speed switching

Outline

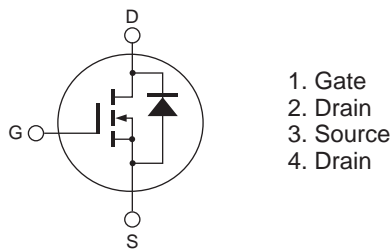
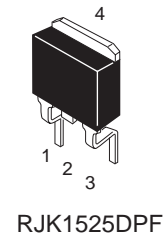
RENESAS Package code: PRSS0004AE-A
(Package name LPAK(L))



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



RENESAS Package code: PRSS0004AE-C
(Package name LPAK(S)-(2))



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source voltage	V_{DSS}	150	V
Gate to Source voltage	V_{GSS}	±30	V
Drain current	I_D	25	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	50	A
Body-Drain diode reverse Drain current	I_{DR}	25	A
Body-Drain diode reverse Drain peak current	$I_{DR(pulse)}$ ^{Note1}	50	A
Avalanche current	I_{AP} ^{Note3}	17	A
Avalanche energy	E_{AR} ^{Note3}	21.6	mJ
Channel dissipation	P_{ch} ^{Note2}	75	W
Channel to case thermal impedance	θ_{ch-c}	1.67	°C/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 $T_c = 25^\circ C$
 3. $ST_{ch} = 25^\circ C$, $T_{ch} \leq 150^\circ C$

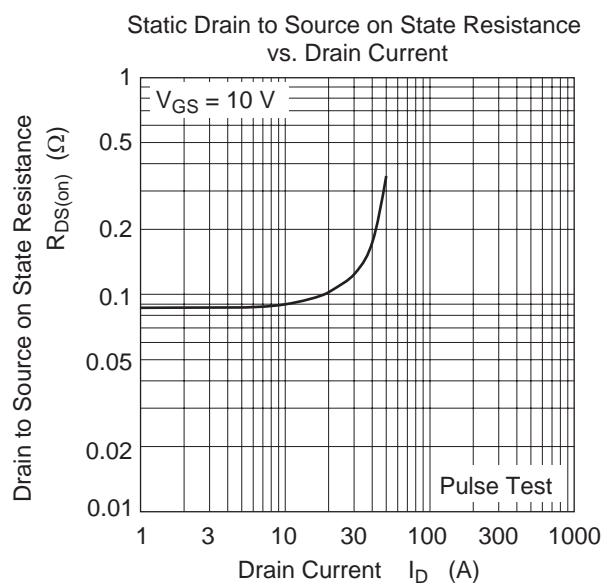
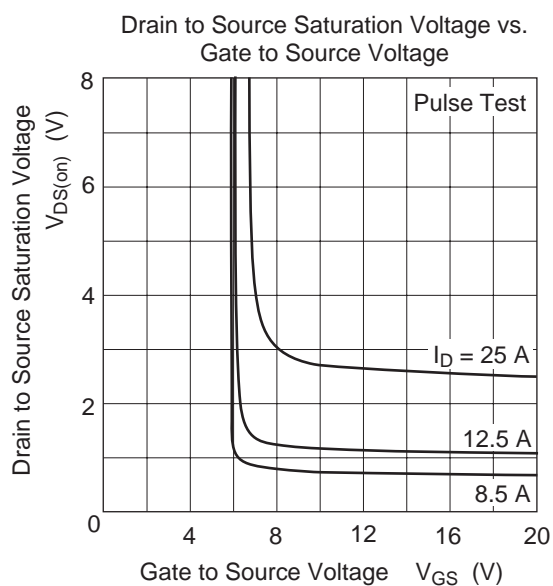
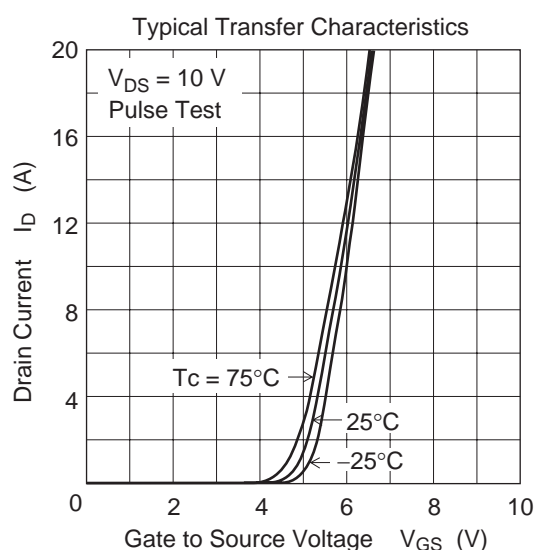
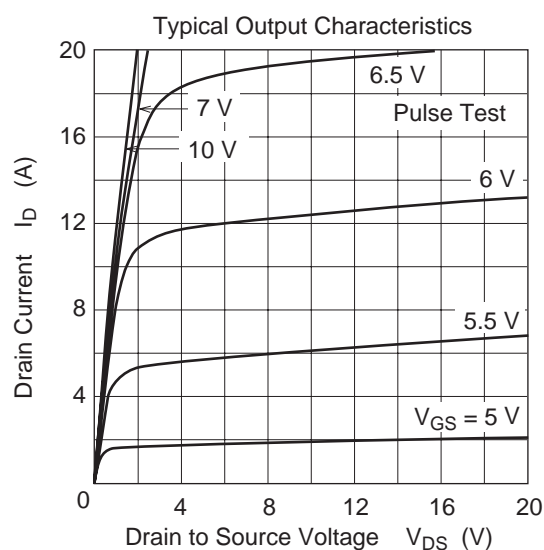
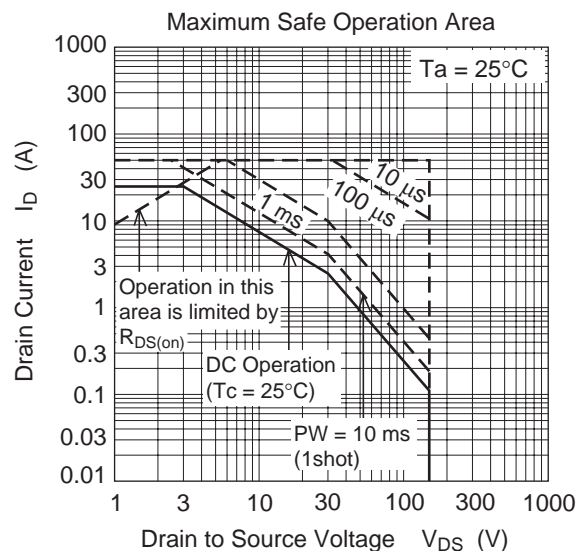
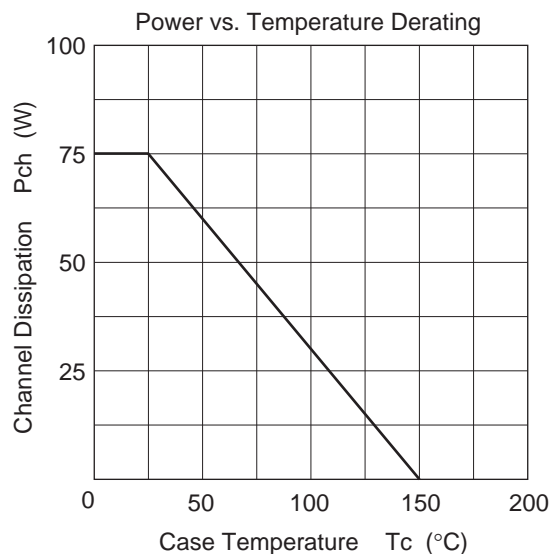
Electrical Characteristics

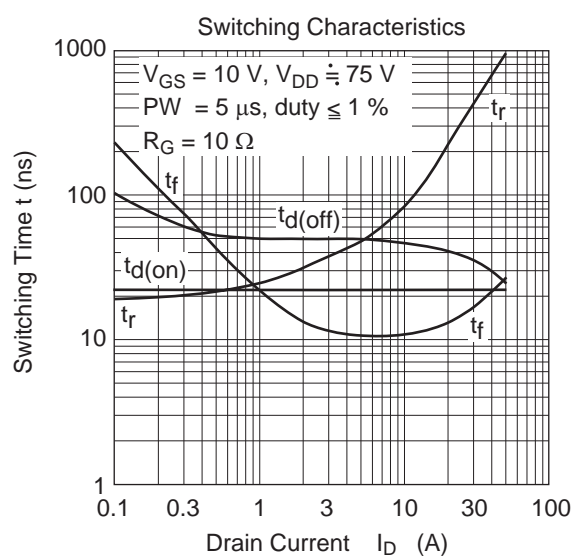
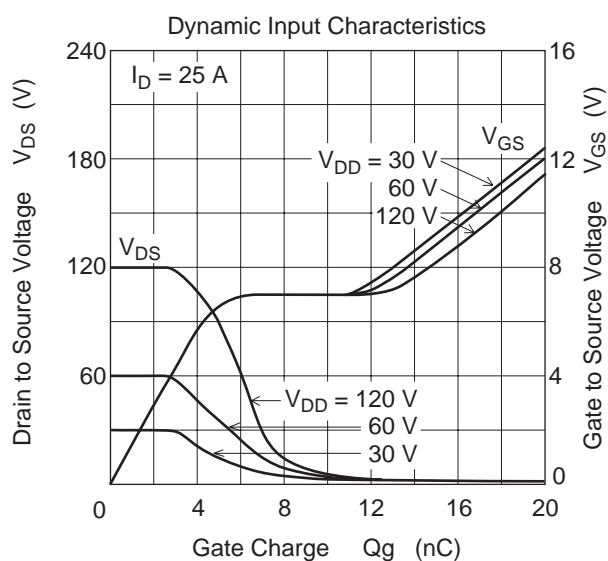
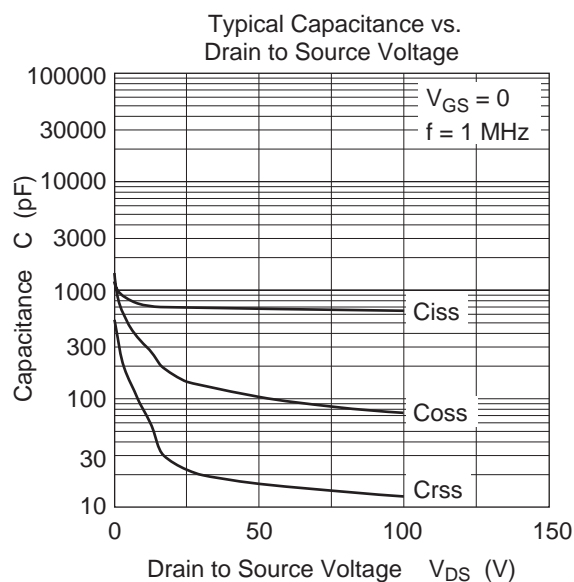
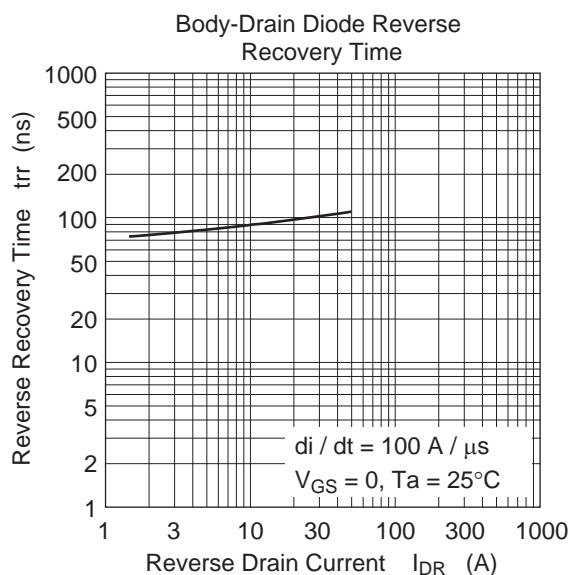
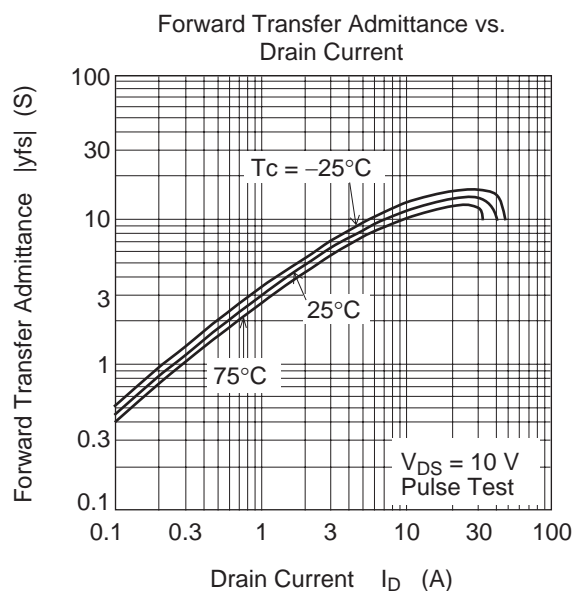
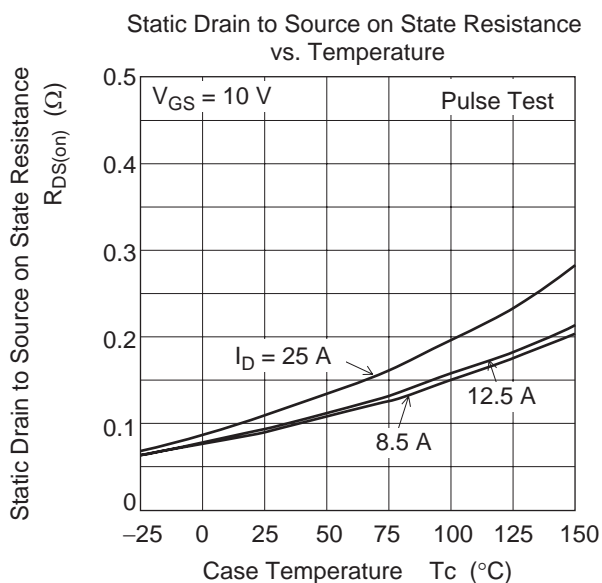
(Ta = 25°C)

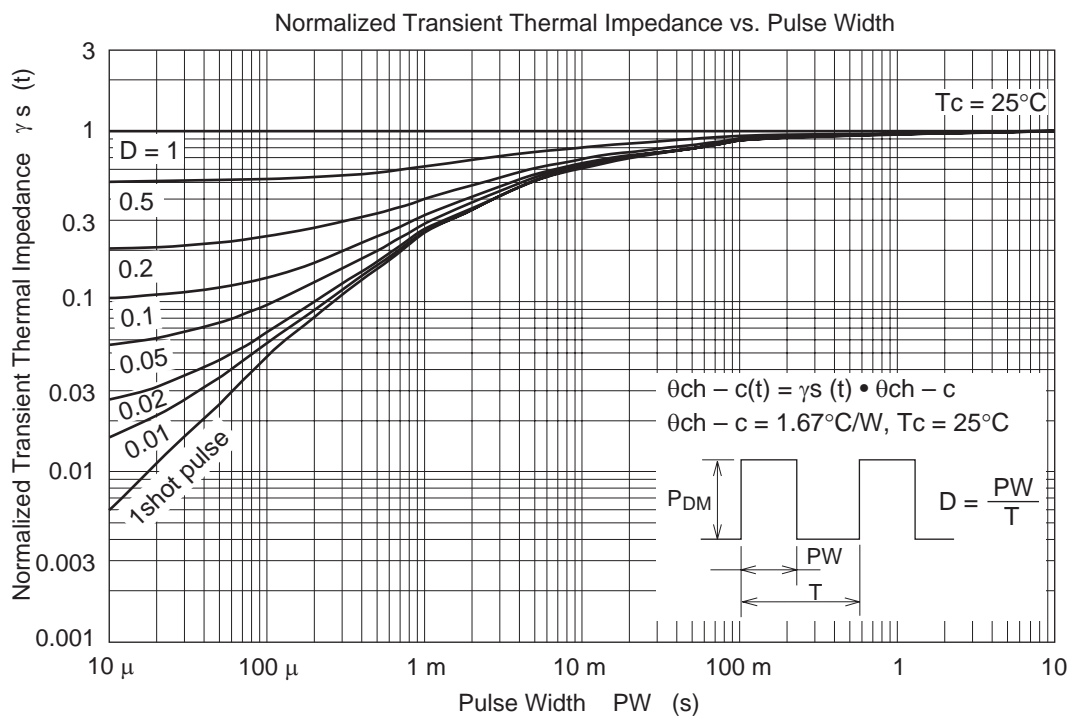
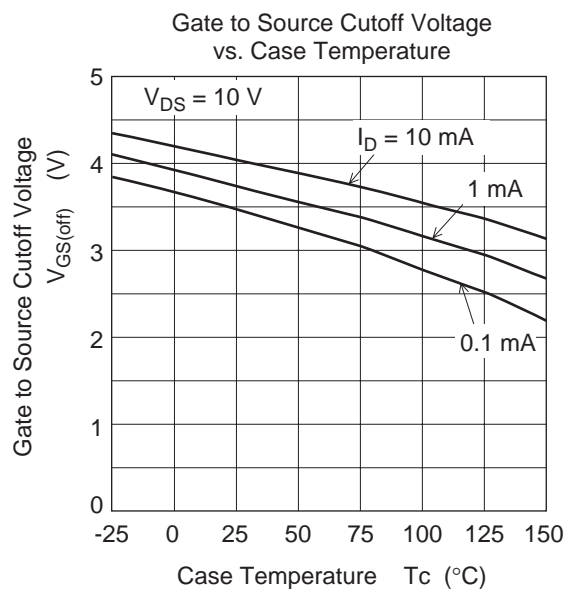
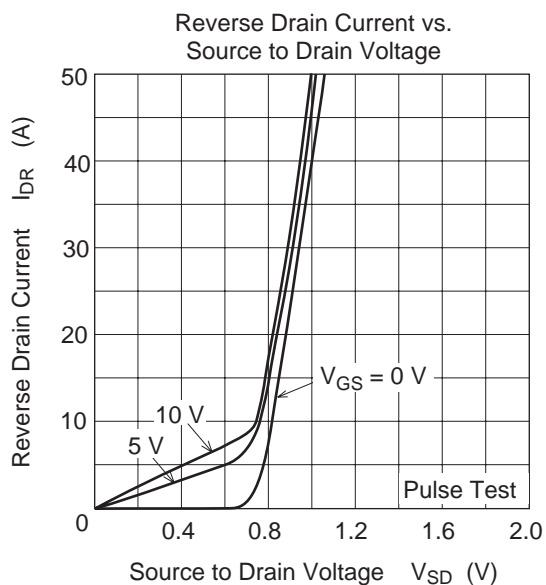
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	150	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero Gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 150 \text{ V}$, $V_{GS} = 0$
Gate to Source leak current	I_{GSS}	—	—	±0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Gate to Source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Forward transfer admittance	$ y_{fs} $	7	12	—	S	$I_D = 12.5 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note4}
Static Drain to Source on state resistance	$R_{DS(on)}$	—	0.093	0.110	Ω	$I_D = 12.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	680	—	pF	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	150	—	pF	
Reverse transfer capacitance	C_{rss}	—	22	—	pF	
Turn-on delay time	$t_{d(on)}$	—	22	—	ns	$I_D = 12.5 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_L = 6 \Omega$ $R_g = 10 \Omega$
Rise time	t_r	—	110	—	ns	
Turn-off delay time	$t_{d(off)}$	—	45	—	ns	
Fall time	t_f	—	12	—	ns	
Total Gate charge	Q_g	—	18	—	nC	$V_{DD} = 120 \text{ V}$ $V_{GS} = 10 \text{ V}$ $I_D = 25 \text{ A}$
Gate to Source charge	Q_{gs}	—	4.5	—	nC	
Gate to Drain charge	Q_{gd}	—	9	—	nC	
Body-Drain diode forward voltage	V_{DF}	—	0.95	1.50	V	$I_F = 25 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-Drain diode reverse recovery time	t_{rr}	—	100	—	ns	$I_F = 25 \text{ A}$, $V_{GS} = 0$ $diF/dt = 100 \text{ A}/\mu s$
Body-Drain diode reverse recovery charge	Q_{rr}	—	0.4	—	μC	

Notes: 4. Pulse test

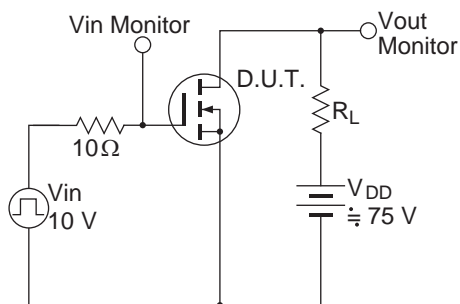
Main Characteristics



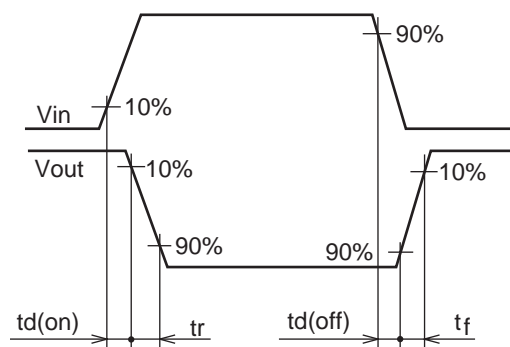




Switching Time Test Circuit

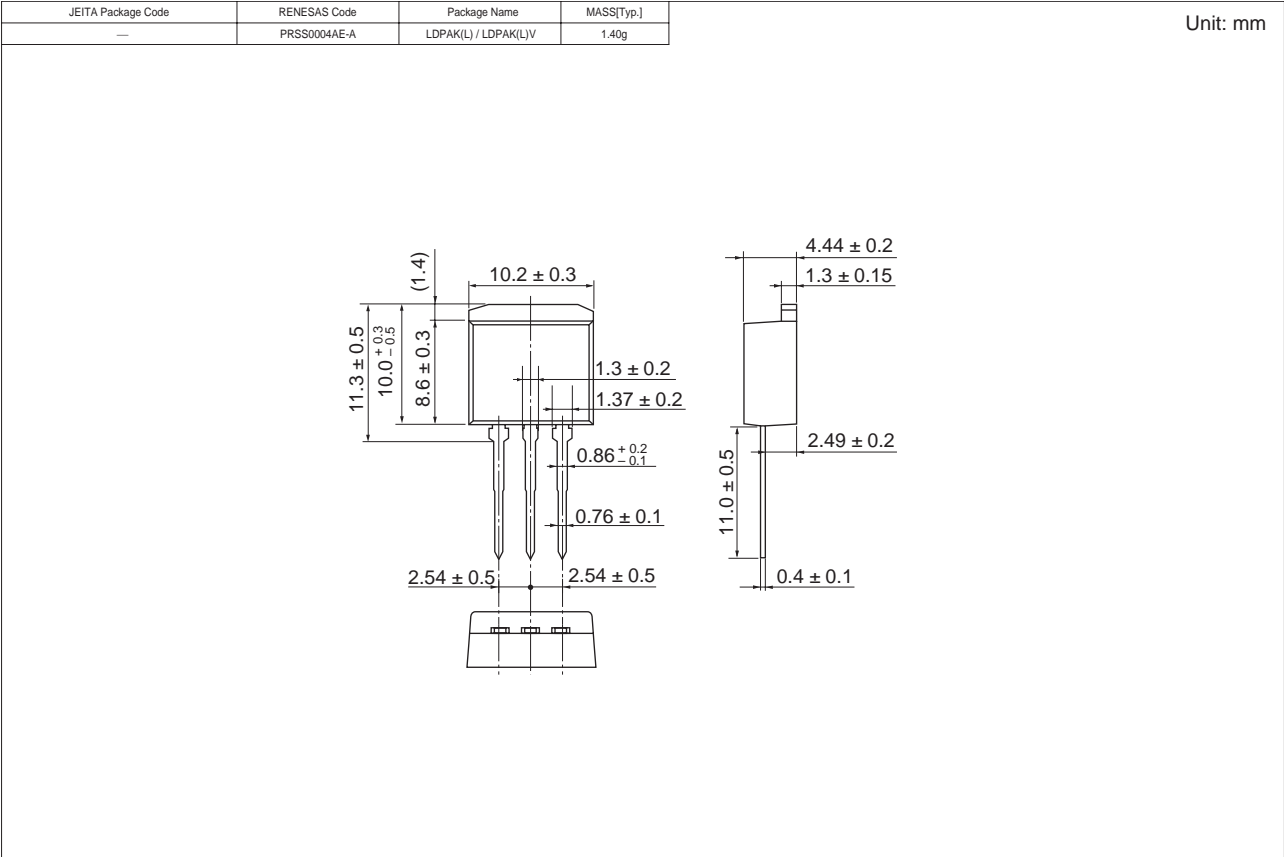


Waveform

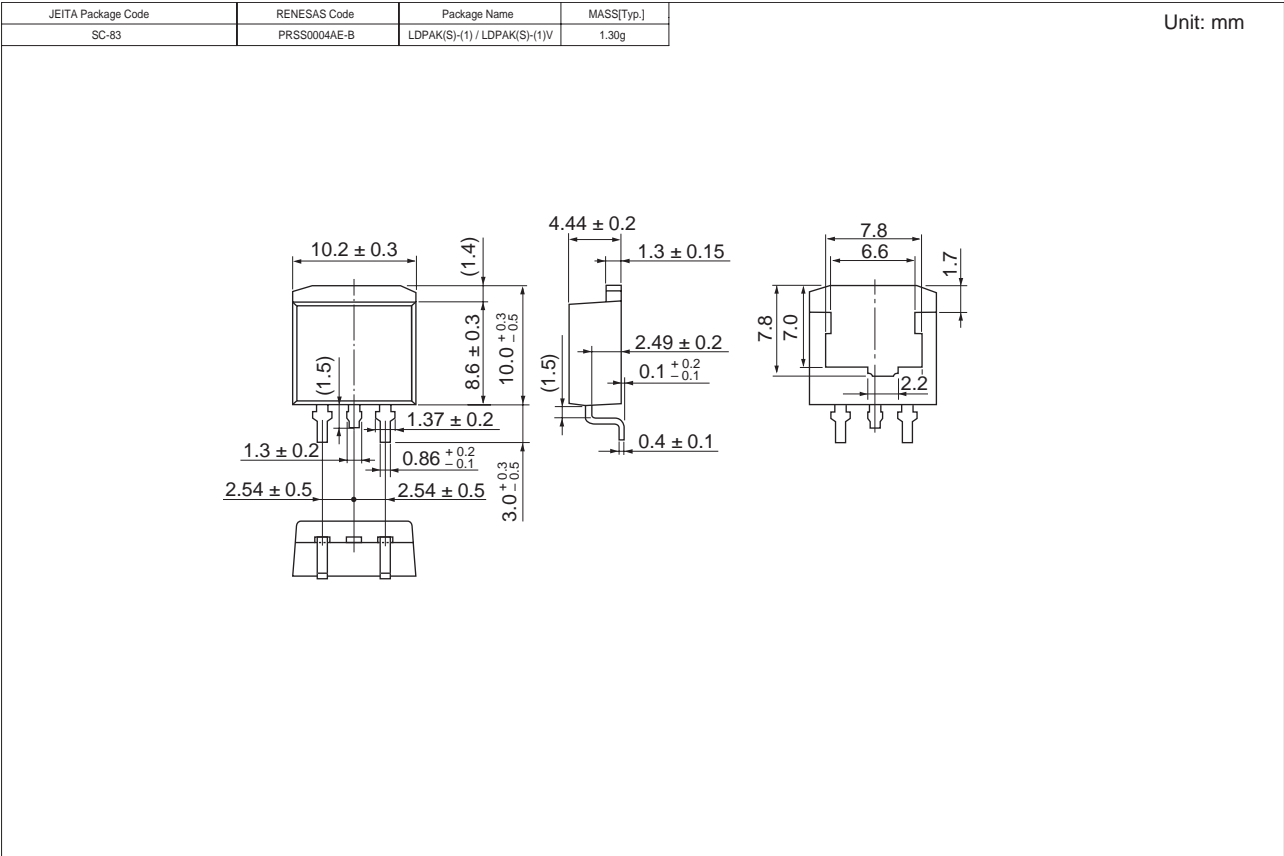


Package Dimensions

• RJK1525DPJ



• RJK1525DPE



• RJK1525DPF

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]	Unit: mm
—	PRSS0004AE-C	LDBAK(S)-(2) / LDBAK(S)-(2)V	1.35g	

The drawing shows three views of the RJK1525DPF package with the following dimensions (all in mm):

- Top View:** Overall width 10.2 ± 0.3 , overall height 10.0 ± 0.3 . Pin pitch is 1.3 ± 0.2 . Pin width is 0.86 ± 0.1 . Pin length is 2.54 ± 0.5 . A central feature has a width of 1.37 ± 0.2 and a height of 8.6 ± 0.3 . A small feature on the right has a width of 1.4 .
- Side View:** Overall height 4.44 ± 0.2 . Pin height is 1.3 ± 0.15 . Pin thickness is 0.1 ± 0.1 . Pin length is 0.4 ± 0.1 . A central feature has a height of 2.49 ± 0.2 . A small feature on the right has a width of 2.3 .
- Bottom View:** Overall width 7.8 , overall height 7.0 . Pin pitch is 6.6 . Pin width is 1.7 . A central feature has a width of 2.2 .

Ordering Information

Part Name	Quantity	Shipping Container
RJK1525DPE-LE	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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Renesas Technology Europe Limited

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Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

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Renesas Technology Taiwan Co., Ltd.

10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.

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