

## RJK1525DPJ, RJK1525DPE, RJK1525DPF

Silicon N Channel MOS FET  
High Speed Power Switching

REJ03G0623-0100

Rev.1.00

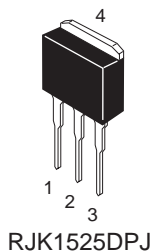
Apr.22,2005

### Features

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

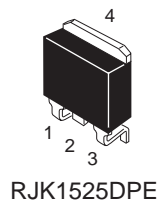
### Outline

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



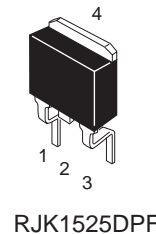
RJK1525DPJ

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

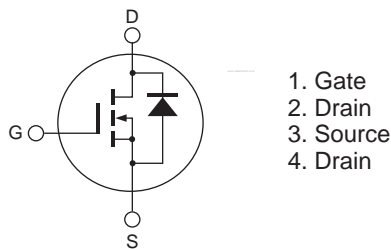


RJK1525DPE

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



RJK1525DPF



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

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source voltage	V <sub>DSS</sub>	150	V
Gate to Source voltage	V <sub>GSS</sub>	±30	V
Drain current	I <sub>D</sub>	25	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note1</sup>	50	A
Body-Drain diode reverse Drain current	I <sub>DR</sub>	25	A
Body-Drain diode reverse Drain peak current	I <sub>DR (pulse)</sub> <sup>Note1</sup>	50	A
Avalanche current	I <sub>AP</sub> <sup>Note3</sup>	17	A
Avalanche energy	E <sub>AR</sub> <sup>Note3</sup>	21.6	mJ
Channel dissipation	P <sub>ch</sub> <sup>Note2</sup>	75	W
Channel to case thermal impedance	θ <sub>ch-c</sub>	1.67	°C/W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

- Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%  
 2. Value at T<sub>c</sub> = 25°C  
 3. ST<sub>ch</sub> = 25°C, T<sub>ch</sub> ≤ 150°C

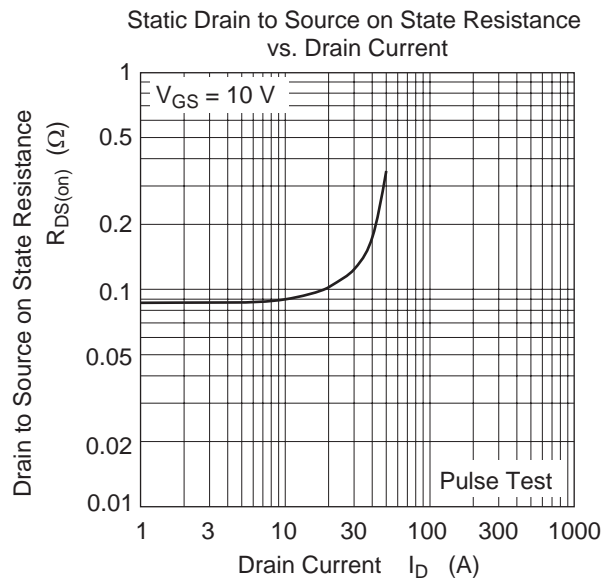
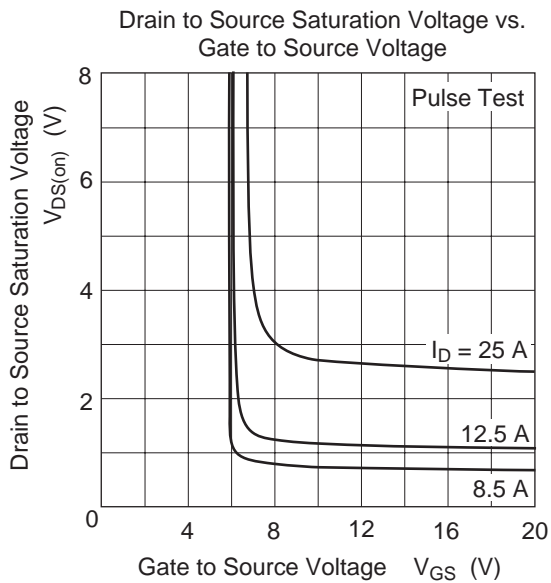
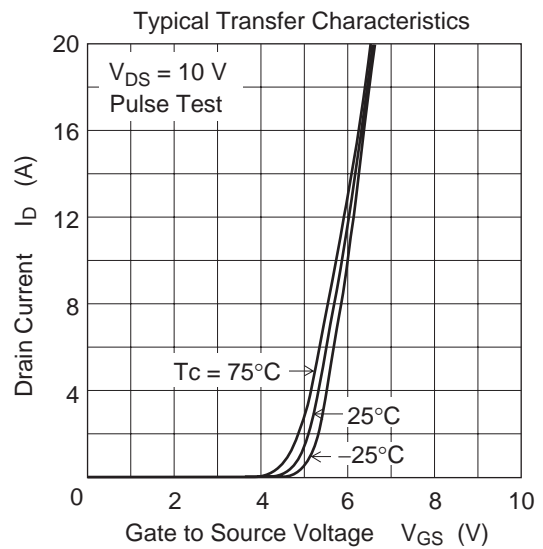
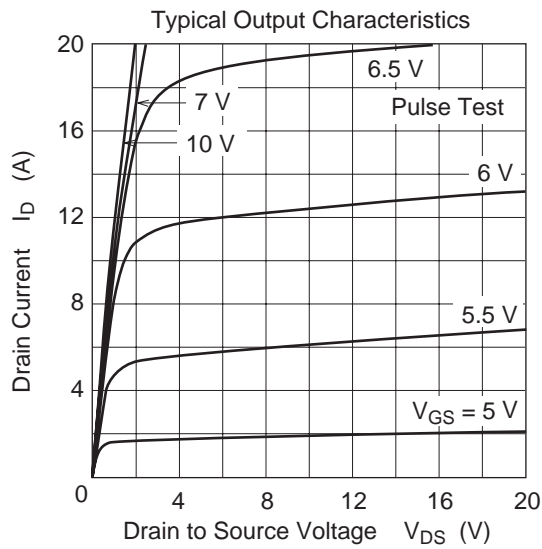
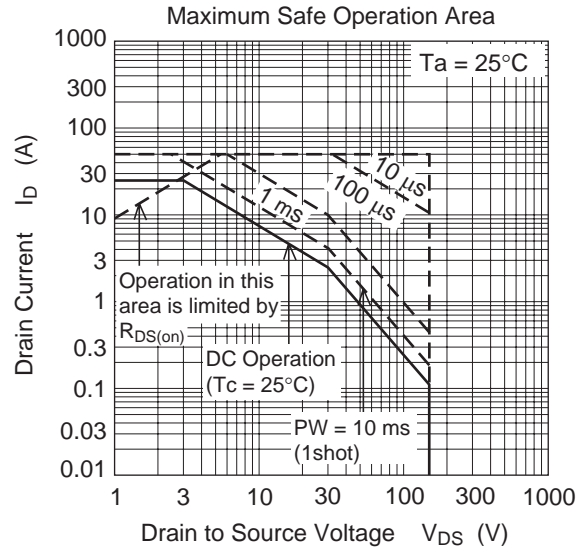
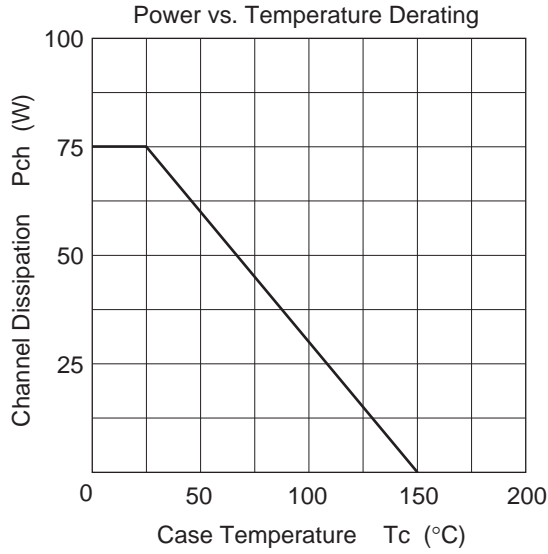
## Electrical Characteristics

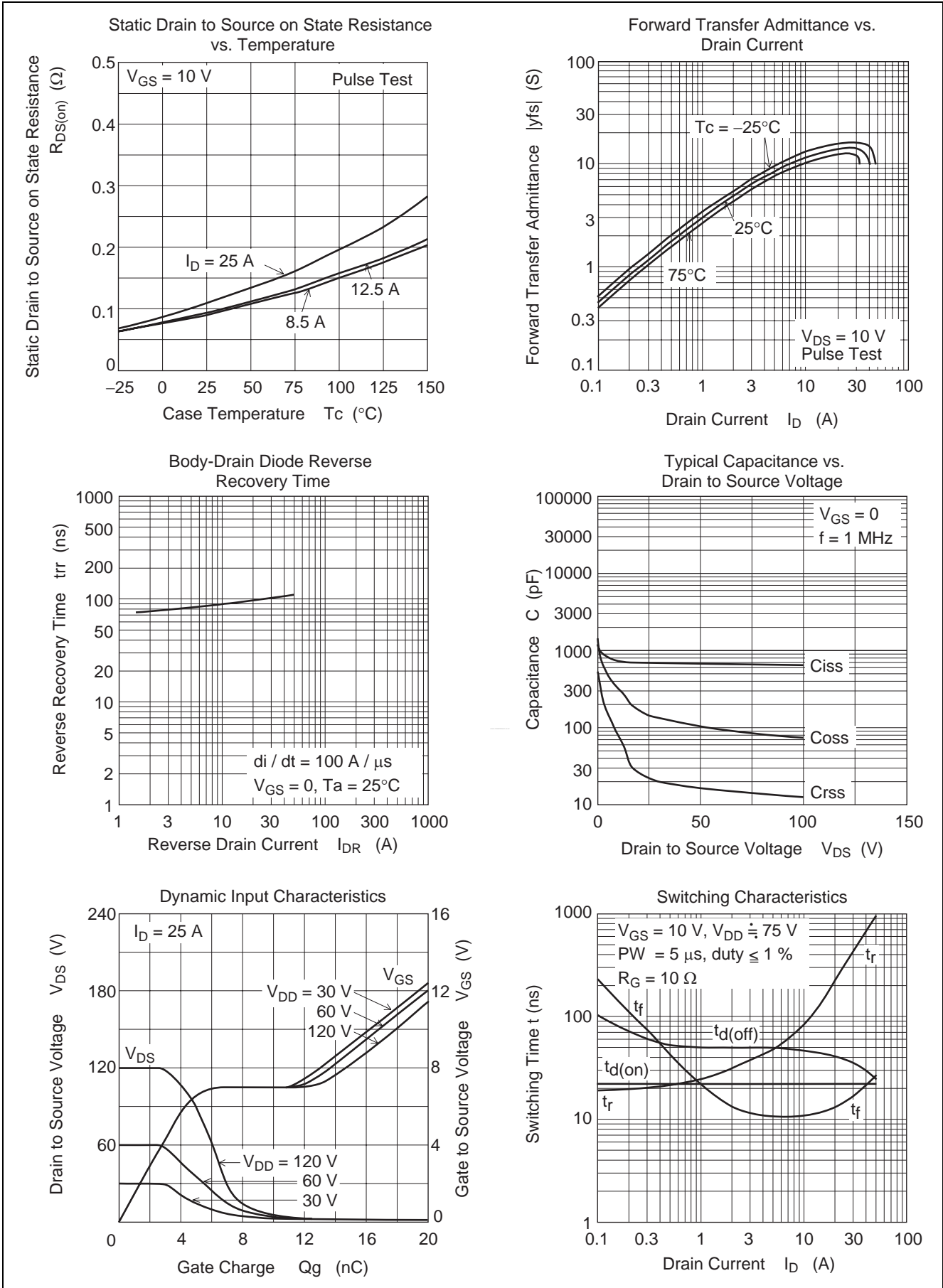
(Ta = 25°C)

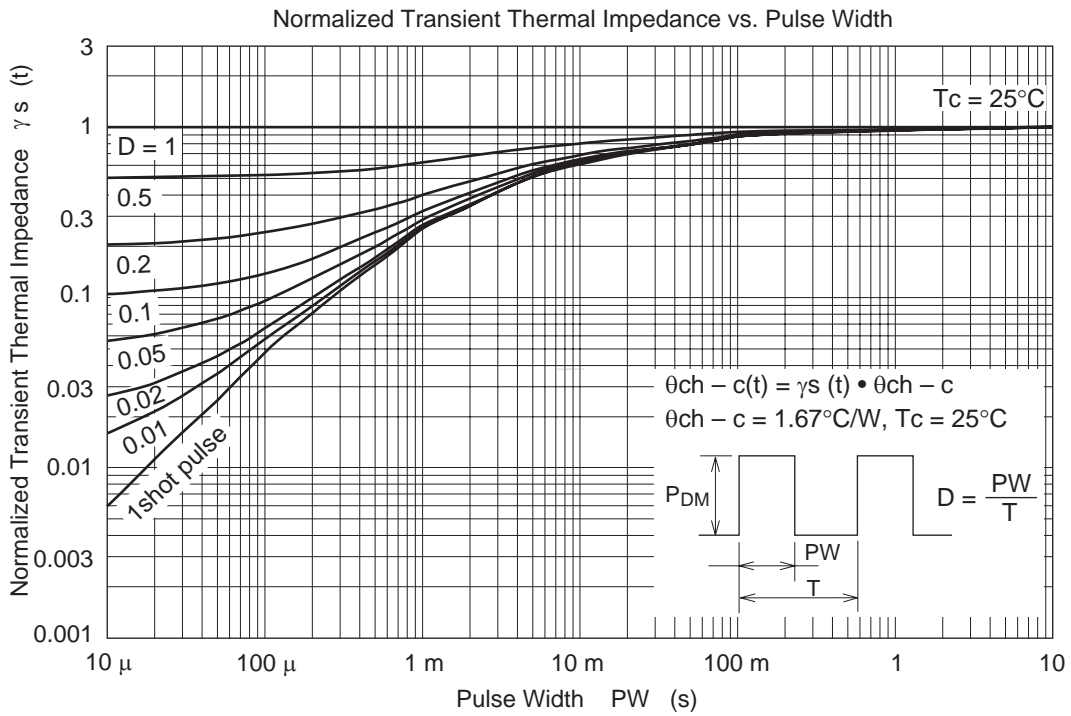
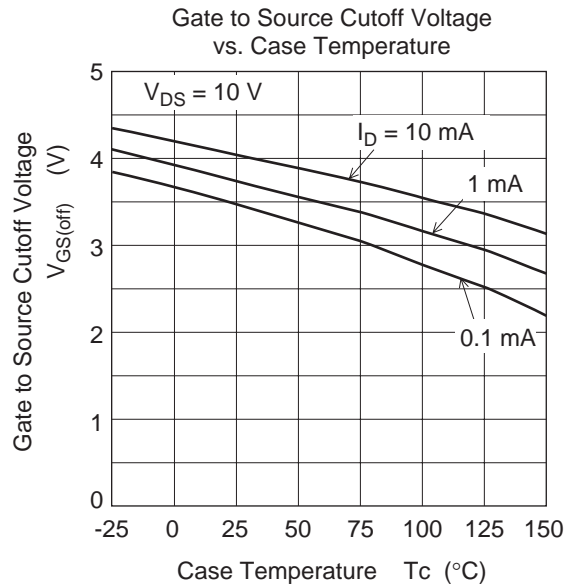
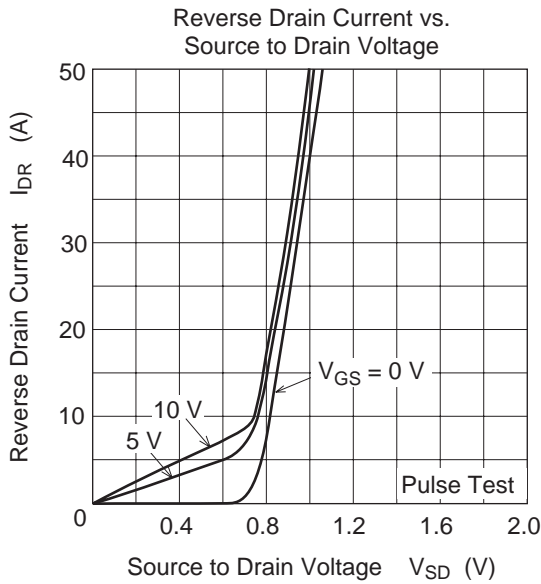
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	V <sub>(BR)DSS</sub>	150	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
Zero Gate voltage drain current	I <sub>DSS</sub>	—	—	1	μA	V <sub>DS</sub> = 150 V, V <sub>GS</sub> = 0
Gate to Source leak current	I <sub>GSS</sub>	—	—	±0.1	μA	V <sub>GS</sub> = ±30 V, V <sub>DS</sub> = 0
Gate to Source cutoff voltage	V <sub>GS(off)</sub>	3.0	—	4.5	V	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 mA
Forward transfer admittance	y <sub>fs</sub>	7	12	—	S	I <sub>D</sub> = 12.5 A, V <sub>DS</sub> = 10 V <sup>Note4</sup>
Static Drain to Source on state resistance	R <sub>DS(on)</sub>	—	0.093	0.110	Ω	I <sub>D</sub> = 12.5 A, V <sub>GS</sub> = 10 V <sup>Note4</sup>
Input capacitance	C <sub>iss</sub>	—	680	—	pF	V <sub>DS</sub> = 25 V
Output capacitance	C <sub>oss</sub>	—	150	—	pF	V <sub>GS</sub> = 0
Reverse transfer capacitance	C <sub>rss</sub>	—	22	—	pF	f = 1 MHz
Turn-on delay time	td(on)	—	22	—	ns	I <sub>D</sub> = 12.5 A
Rise time	tr	—	110	—	ns	V <sub>GS</sub> = 10 V
Turn-off delay time	td(off)	—	45	—	ns	R <sub>L</sub> = 6 Ω
Fall time	tf	—	12	—	ns	R <sub>g</sub> = 10 Ω
Total Gate charge	Q <sub>g</sub>	—	18	—	nC	V <sub>DD</sub> = 120 V
Gate to Source charge	Q <sub>gs</sub>	—	4.5	—	nC	V <sub>GS</sub> = 10 V
Gate to Drain charge	Q <sub>gd</sub>	—	9	—	nC	I <sub>D</sub> = 25 A
Body-Drain diode forward voltage	V <sub>DF</sub>	—	0.95	1.50	V	I <sub>F</sub> = 25 A, V <sub>GS</sub> = 0 <sup>Note4</sup>
Body-Drain diode reverse recovery time	trr	—	100	—	ns	I <sub>F</sub> = 25 A, V <sub>GS</sub> = 0
Body-Drain diode reverse recovery charge	Q <sub>rr</sub>	—	0.4	—	μC	diF/dt = 100 A/μs

- Notes: 4. Pulse test

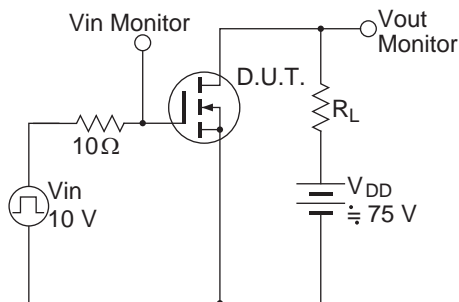
## Main Characteristics



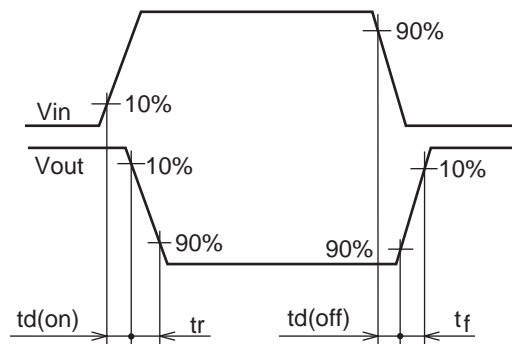




Switching Time Test Circuit

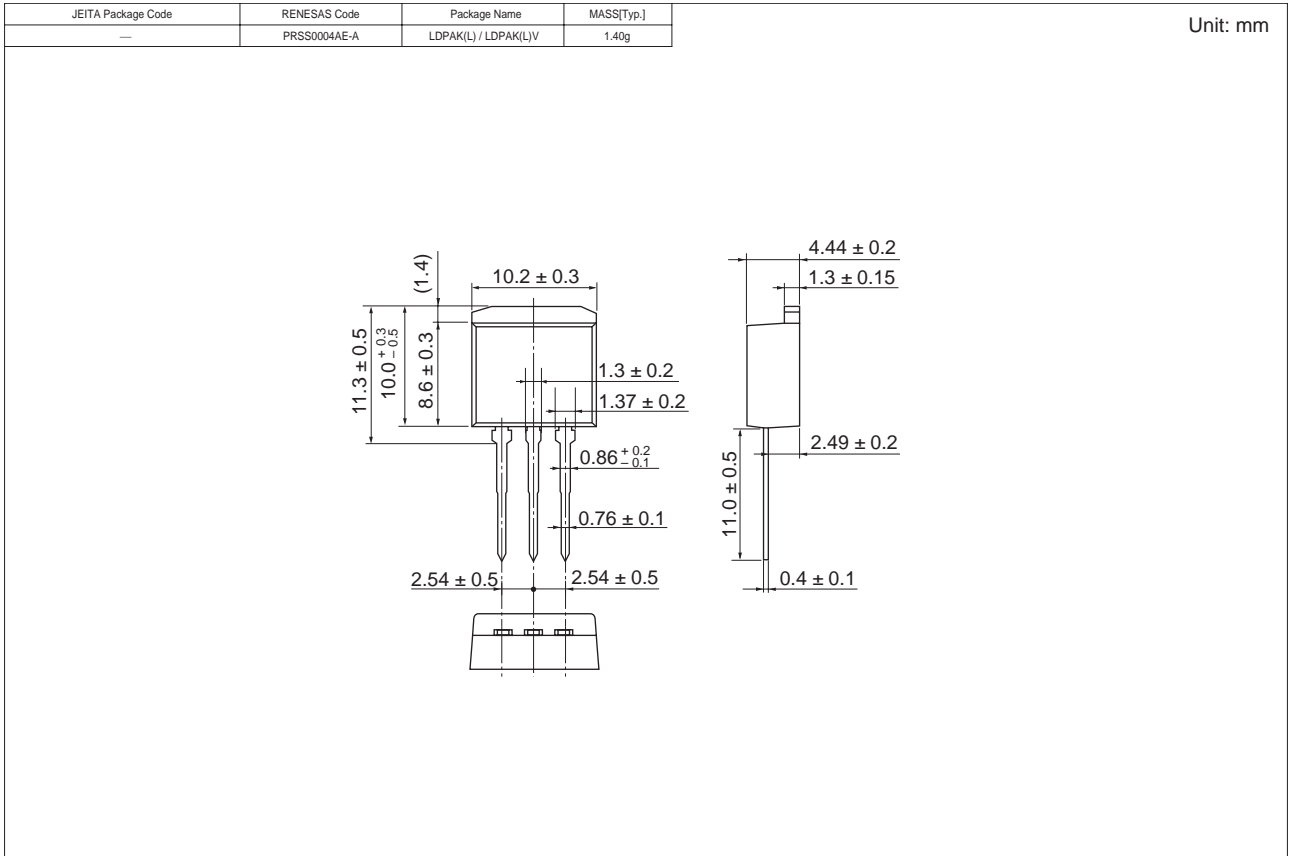


Waveform

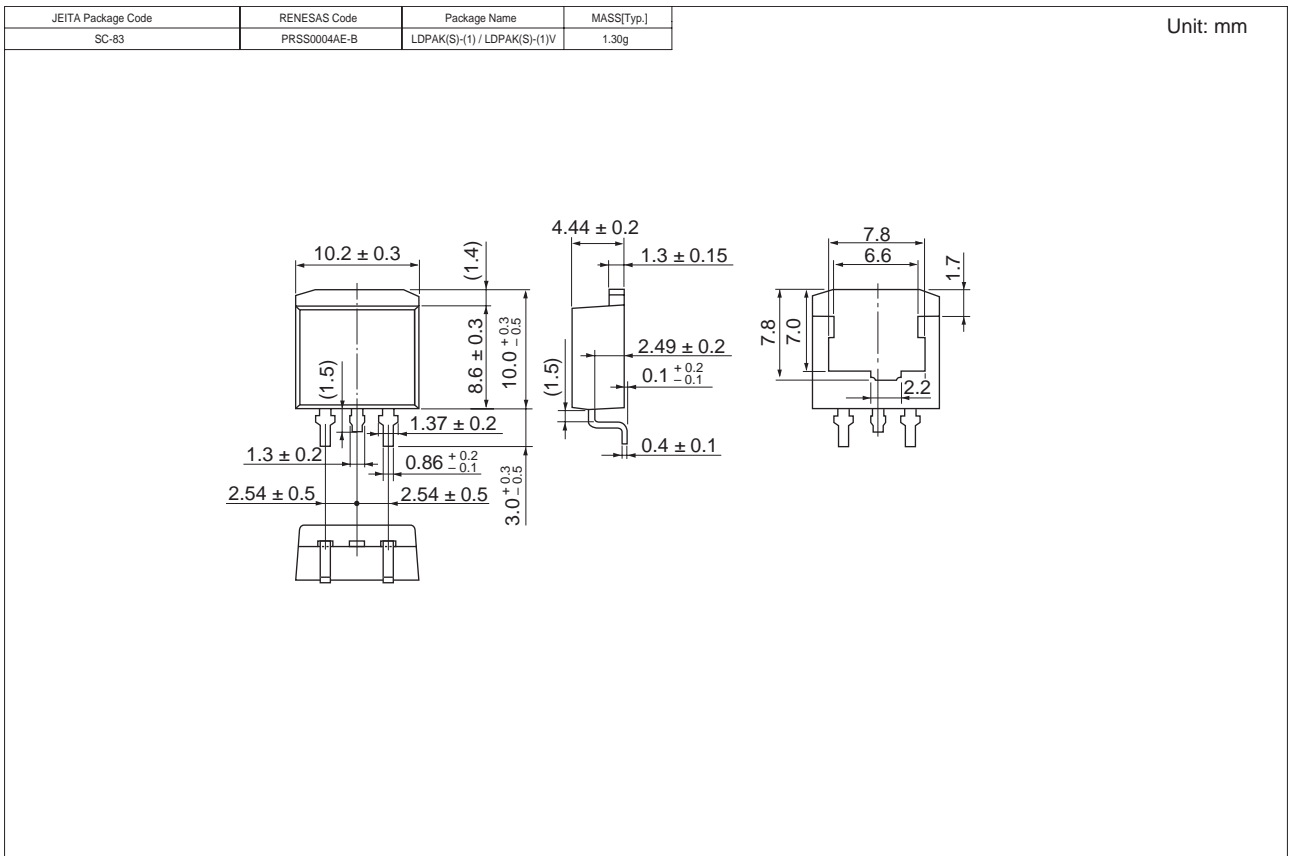


### Package Dimensions

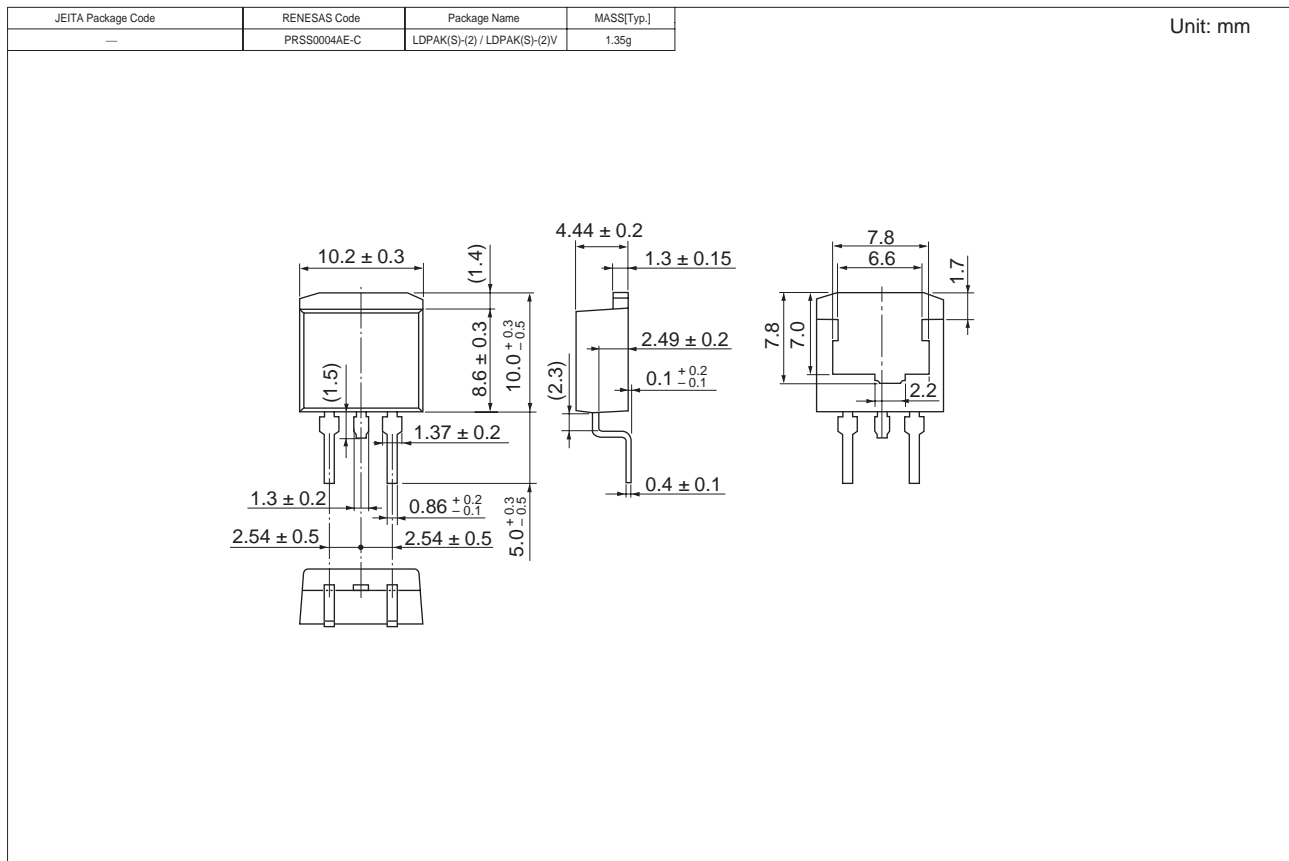
• RJK1525DPJ



• RJK1525DPE



• RJK1525DPF



**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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