RJK1525DPJ, RJK1525DPE, RJK1525DPF

Silicon N Channel MOS FET
High Speed Power Switching

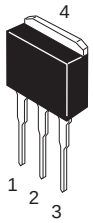
REJ03G0623-0200
Rev.2.00
Jun 30, 2010

Features

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

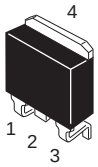
Outline

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



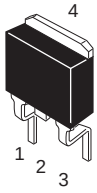
RJK1525DPJ

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

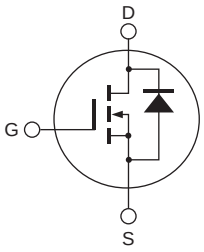


RJK1525DPE

RENESAS Package code: PRSS0004AE-C
(Package name LDPAK(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_{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	Pch Note2	75	W
Channel to case thermal impedance	θch-c	1.67	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%
2. Value at Tc = 25°C
3. STch = 25°C, Tch ≤ 150°C

Electrical Characteristics

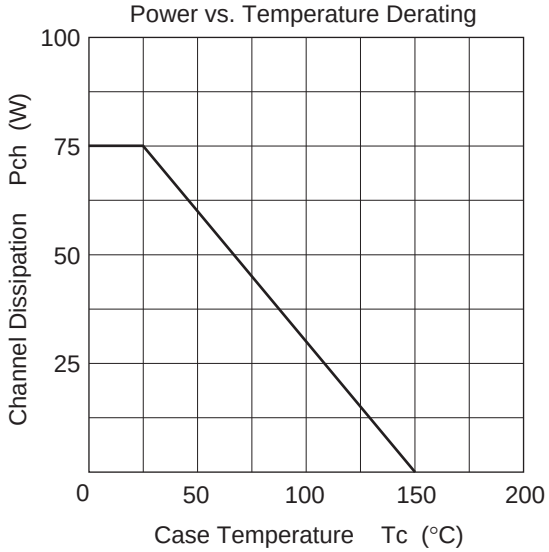
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	150	—	—	V	I_D = 10 mA, V_{GS} = 0
Zero Gate voltage drain current	I_{DSS}	—	—	1	μA	V_{DS} = 150 V, V_{GS} = 0
Gate to Source leak current	I_{GSS}	—	—	±0.1	μA	V_{GS} = ±30 V, V_{DS} = 0
Gate to Source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	V_{DS} = 10 V, I_D = 1 mA
Forward transfer admittance	|yfs|	7	12	—	S	I_D = 12.5 A, V_{DS} = 10 V Note4
Static Drain to Source on state resistance	$R_{DS(on)}$	—	0.093	0.110	Ω	I_D = 12.5 A, V_{GS} = 10 V Note4
Input capacitance	Ciss	—	680	—	pF	V_{DS} = 25 V V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	150	—	pF	
Reverse transfer capacitance	Crss	—	22	—	pF	
Turn-on delay time	td(on)	—	22	—	ns	I_D = 12.5 A V_{GS} = 10 V R_L = 6 Ω Rg = 10 Ω
Rise time	tr	—	110	—	ns	
Turn-off delay time	td(off)	—	45	—	ns	
Fall time	tf	—	12	—	ns	
Total Gate charge	Qg	—	18	—	nC	V_{DD} = 120 V V_{GS} = 10 V I_D = 25 A
Gate to Source charge	Qgs	—	4.5	—	nC	
Gate to Drain charge	Qgd	—	9	—	nC	
Body-Drain diode forward voltage	V_{DF}	—	0.95	1.50	V	I_F = 25 A, V_{GS} = 0 Note4
Body-Drain diode reverse recovery time	trr	—	100	—	ns	I_F = 25 A, V_{GS} = 0 diF/dt = 100 A/μs
Body-Drain diode reverse recovery charge	Qrr	—	0.4	—	μC	

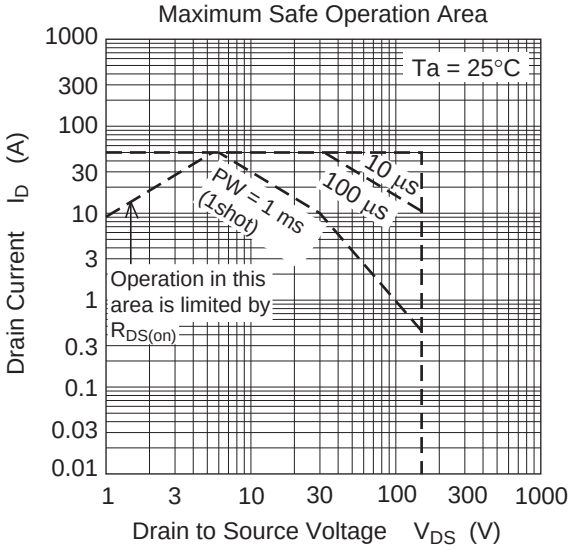
Notes: 4. Pulse test

Main Characteristics

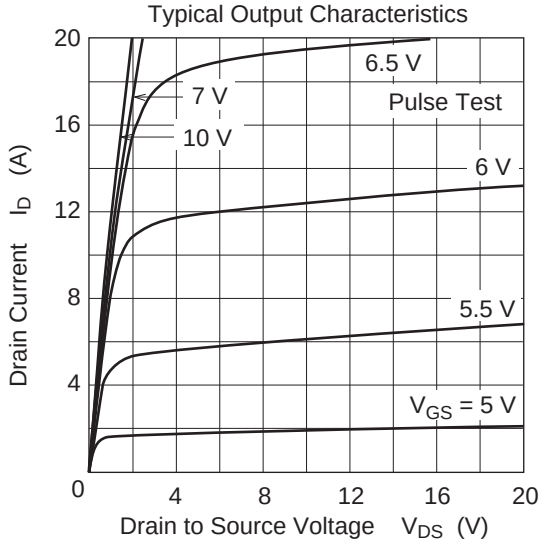
Power vs. Temperature Derating



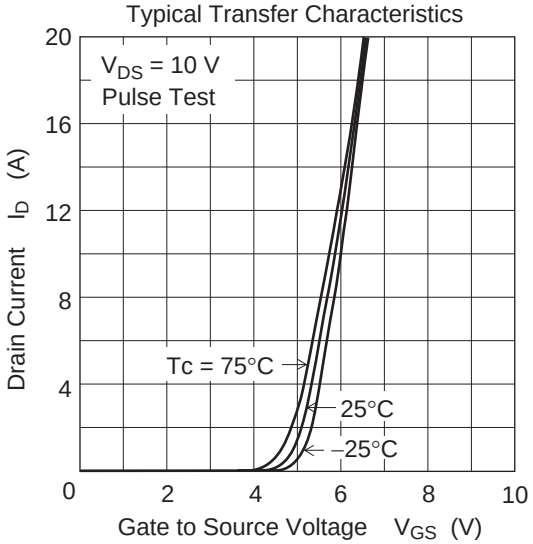
Maximum Safe Operation Area



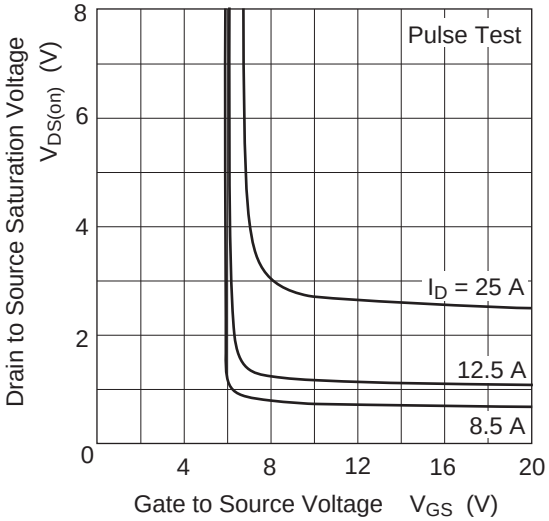
Typical Output Characteristics



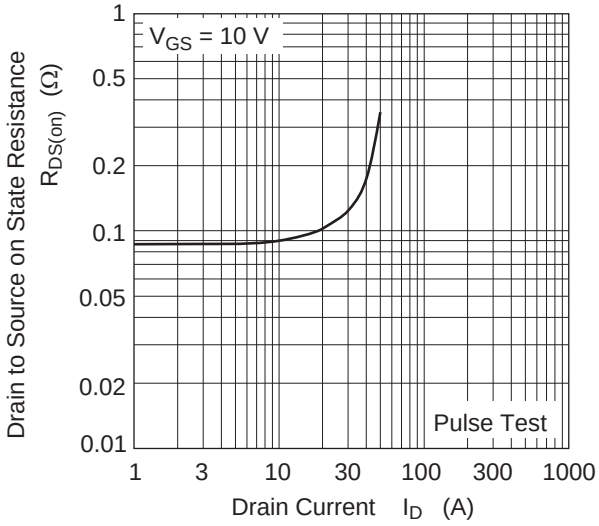
Typical Transfer Characteristics



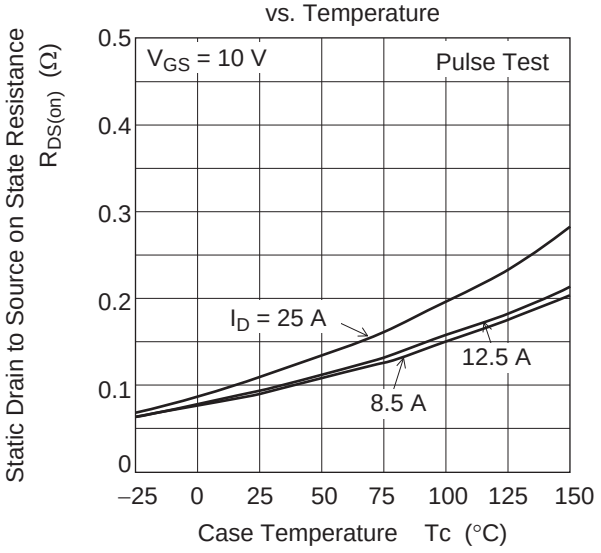
Drain to Source Saturation Voltage vs.
Gate to Source Voltage



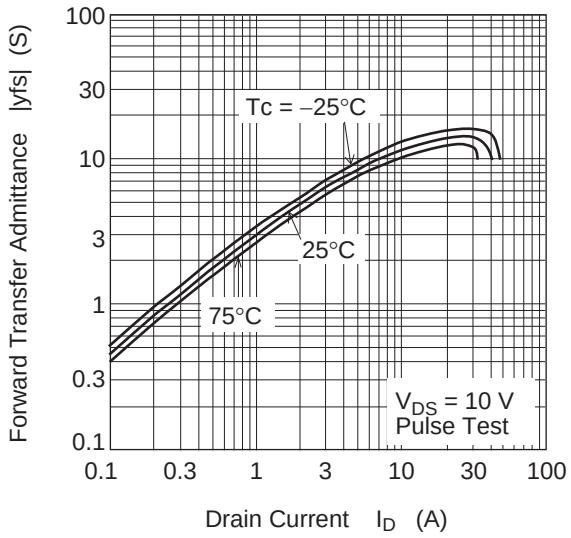
Static Drain to Source on State Resistance
vs. Drain Current



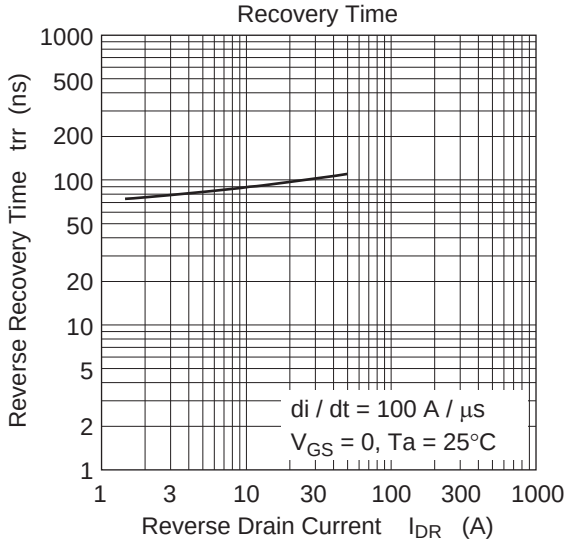
Static Drain to Source on State Resistance vs. Temperature



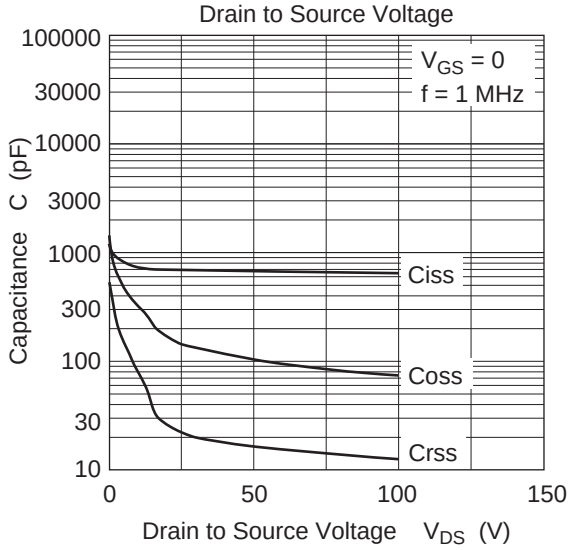
Forward Transfer Admittance vs. Drain Current



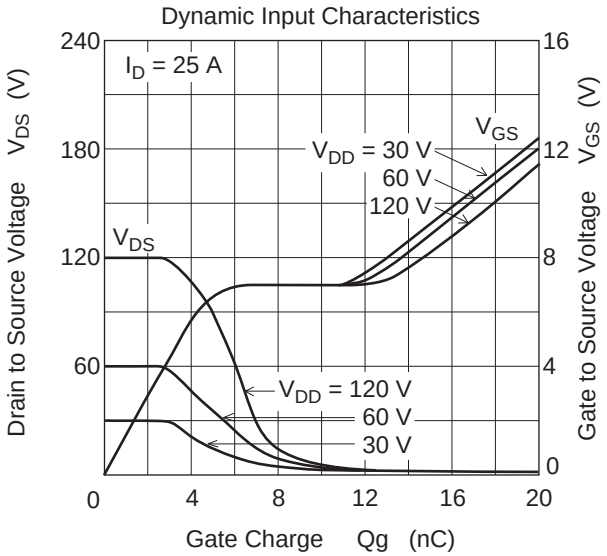
Body-Drain Diode Reverse Recovery Time



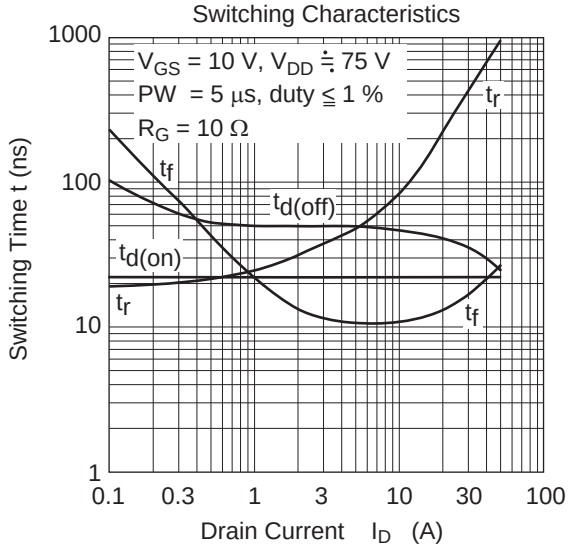
Typical Capacitance vs. Drain to Source Voltage



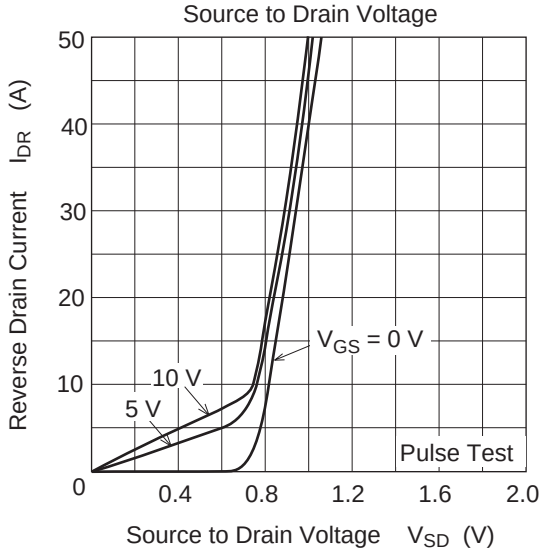
Dynamic Input Characteristics



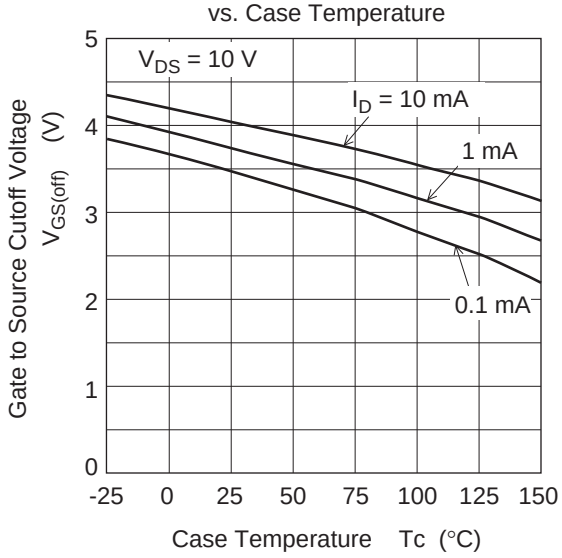
Switching Characteristics



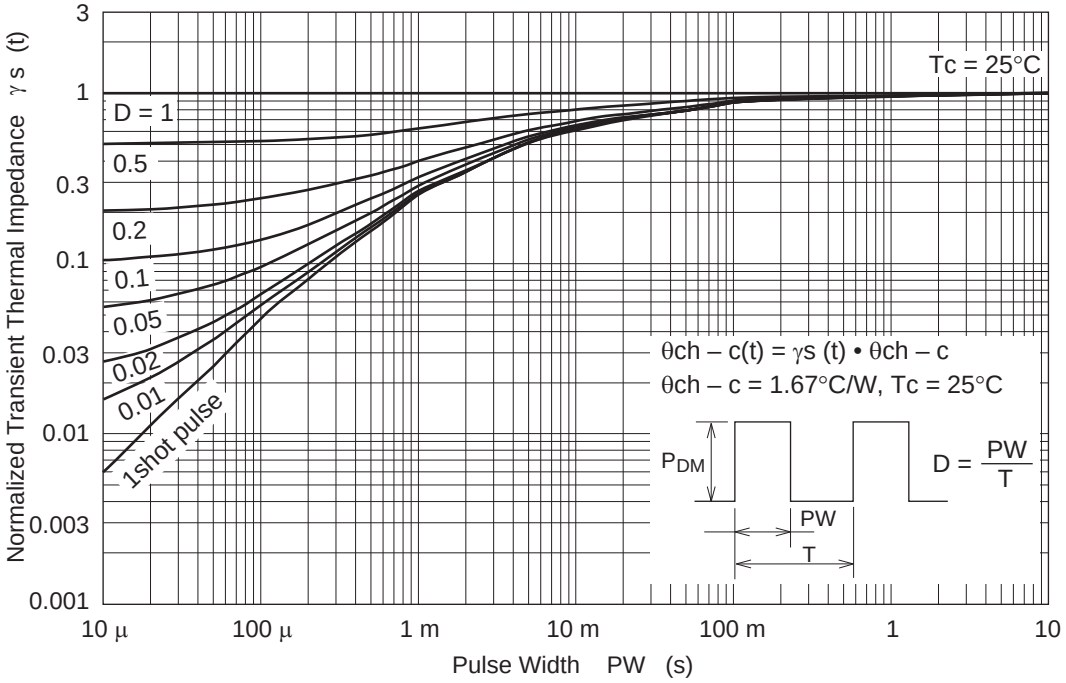
Reverse Drain Current vs.
Source to Drain Voltage



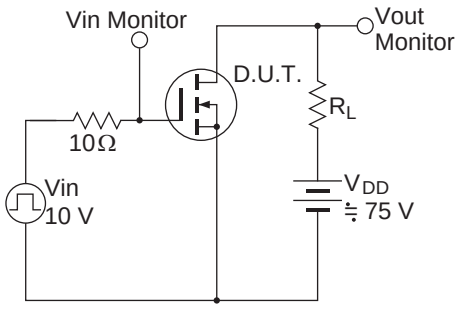
Gate to Source Cutoff Voltage
vs. Case Temperature



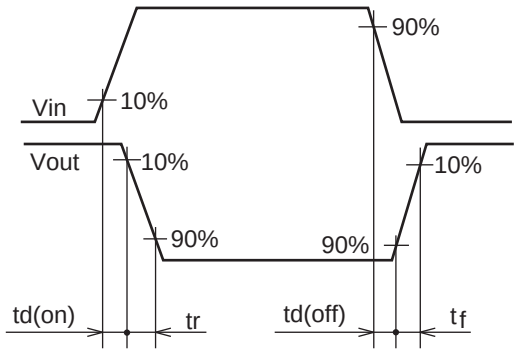
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



Waveform

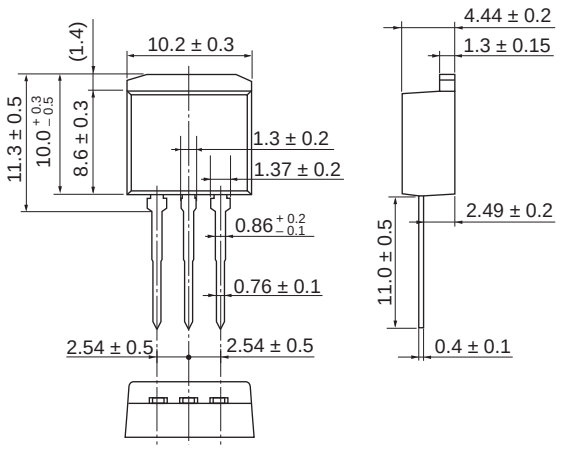


Package Dimensions

• RJK1525DPJ

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
—	PRSS0004AE-A	LDPAK(L) / LDPAK(L)V	1.40g

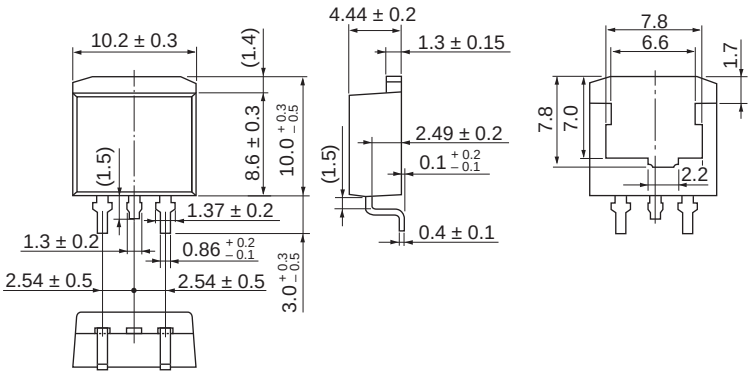
Unit: mm



• RJK1525DPE

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-83	PRSS0004AE-B	LDPAK(S)-(1) / LDPAK(S)-(1)V	1.30g

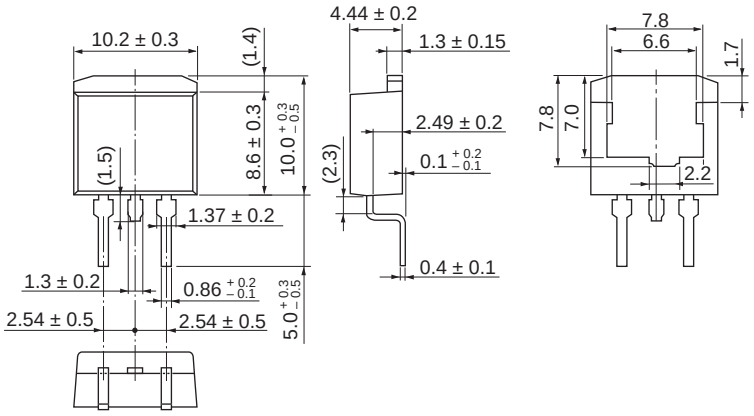
Unit: mm



• RJK1525DPF

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

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
RJK1525DPE-LE	1000 pcs	Taping

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