

RJK2006DPJ, RJK2006DPE, RJK2006DPF

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0512-0200

Rev.2.00

Nov 19, 2009

Features

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

Outline

RENESAS Package code: PRSS0004AE-A (Package name: LDKPAK(L))	: PRSS0004AE-B LDKPAK(S)-(1)	: PRSS0004AE-C LDKPAK(S)-(2)	<p>1. Gate 2. Drain 3. Source 4. Drain</p>
RJK2006DPJ	RJK2006DPE	RJK2006DPF	

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source voltage	V _{DSS}	200	V
Gate to Source voltage	V _{GSS}	±30	V
Drain current	I _D	40	A
Drain peak current	I _{D (pulse)} ^{Note1}	100	A
Body-Drain diode reverse Drain current	I _{DR}	40	A
Body-Drain diode reverse Drain peak current	I _{DR (pulse)} ^{Note1}	100	A
Avalanche current	I _{AP} ^{Note3}	27	A
Avalanche energy	E _{AR} ^{Note3}	48.6	mJ
Channel dissipation	P _{ch} ^{Note2}	100	W
Channel to case thermal impedance	θ _{ch-c}	1.25	°C/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 Tc = 25°C

3. STch = 25°C, Tch ≤ 150°C

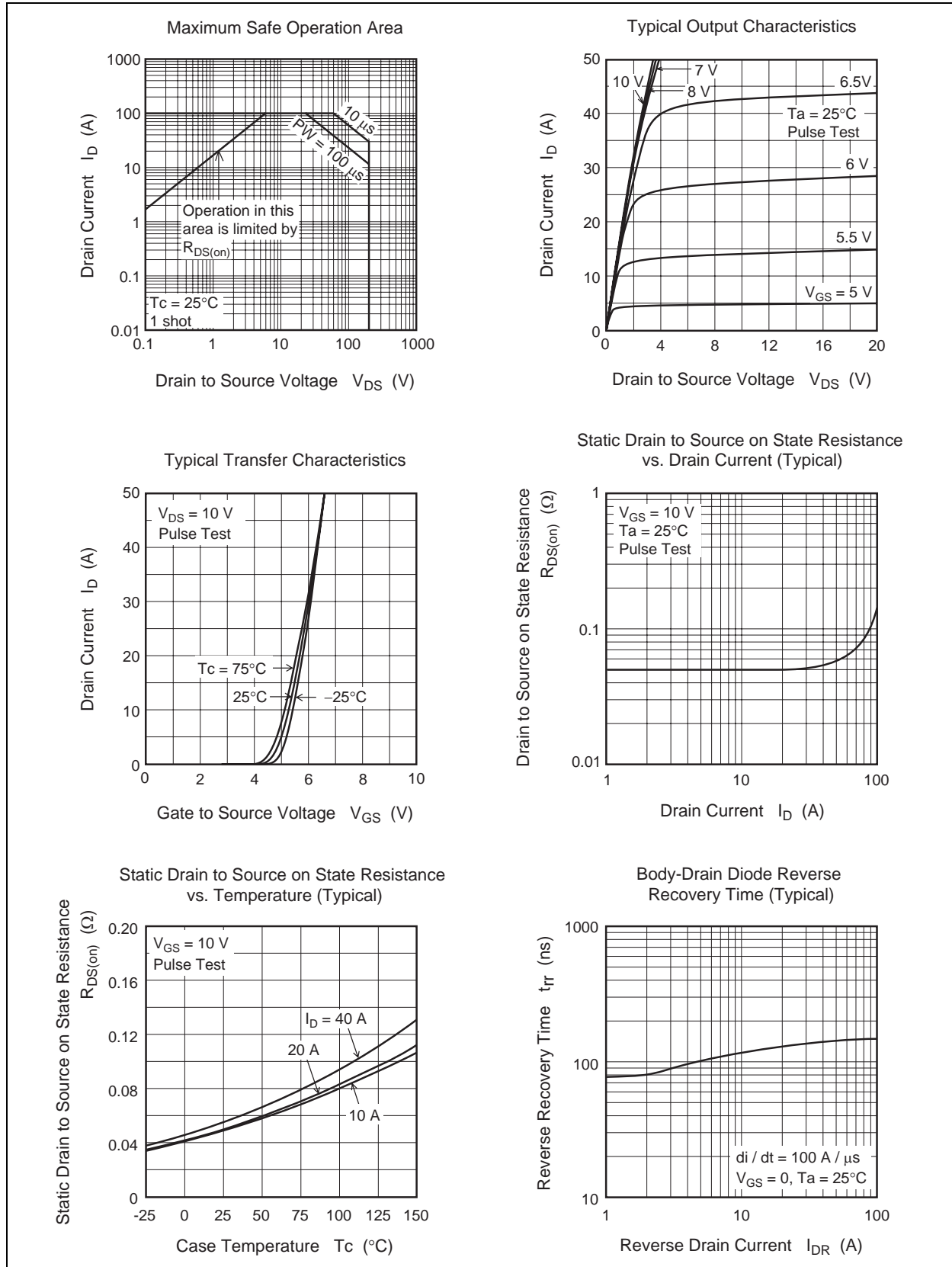
Electrical Characteristics

(Ta = 25°C)

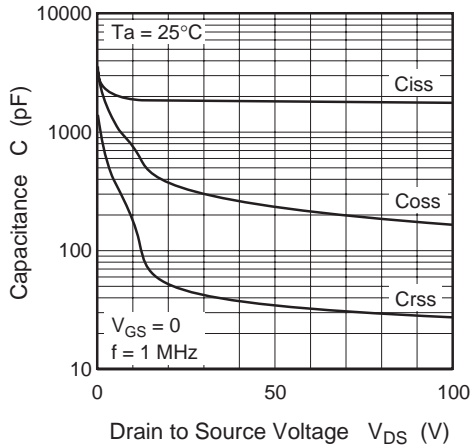
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	200	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero Gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 200 \text{ V}$, $V_{GS} = 0$
Gate to Source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
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} $	15	26	—	S	$I_D = 20 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note4}
Static Drain to Source on state resistance	$R_{DS(on)}$	—	0.052	0.059	Ω	$I_D = 20 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	1800	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	C_{oss}	—	330	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	43	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	30	—	ns	$I_D = 20 \text{ A}$
Rise time	t_r	—	180	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	85	—	ns	$R_L = 5 \Omega$
Fall time	t_f	—	100	—	ns	$R_g = 10 \Omega$
Total Gate charge	Q_g	—	43	—	nC	$V_{DD} = 160 \text{ V}$
Gate to Source charge	Q_{gs}	—	11	—	nC	$V_{GS} = 10 \text{ V}$
Gate to Drain charge	Q_{gd}	—	20	—	nC	$I_D = 40 \text{ A}$
Body-Drain diode forward voltage	V_{DF}	—	1.0	1.5	V	$I_F = 40 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-Drain diode reverse recovery time	t_{rr}	—	150	—	ns	$I_F = 40 \text{ A}$, $V_{GS} = 0$
Body-Drain diode reverse recovery charge	Q_{rr}	—	0.8	—	μC	$di_F/dt = 100 \text{ A}/\mu\text{s}$

Notes: 4. Pulse test

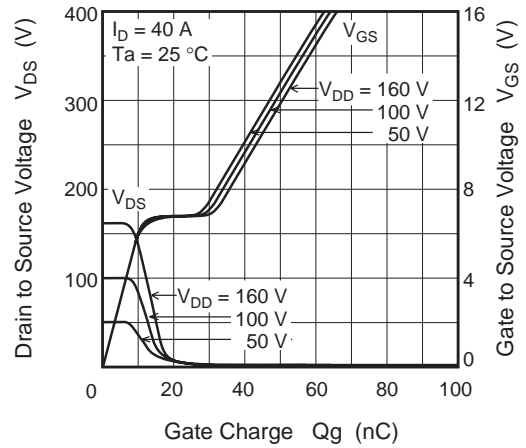
Main Characteristics



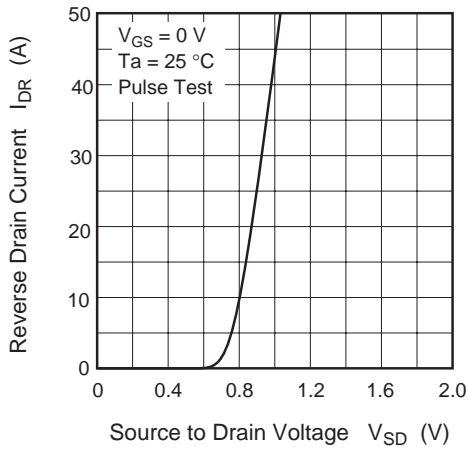
Typical Capacitance vs. Drain to Source Voltage



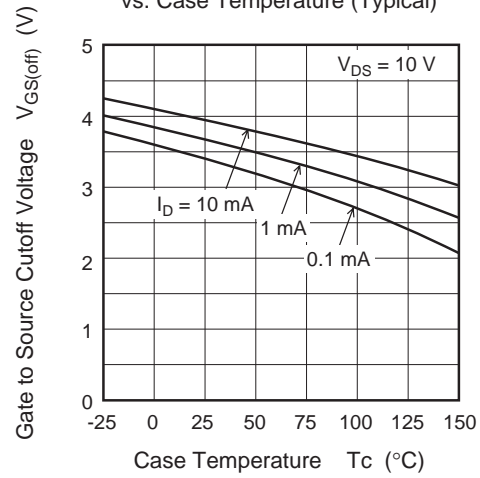
Dynamic Input Characteristics (Typical)

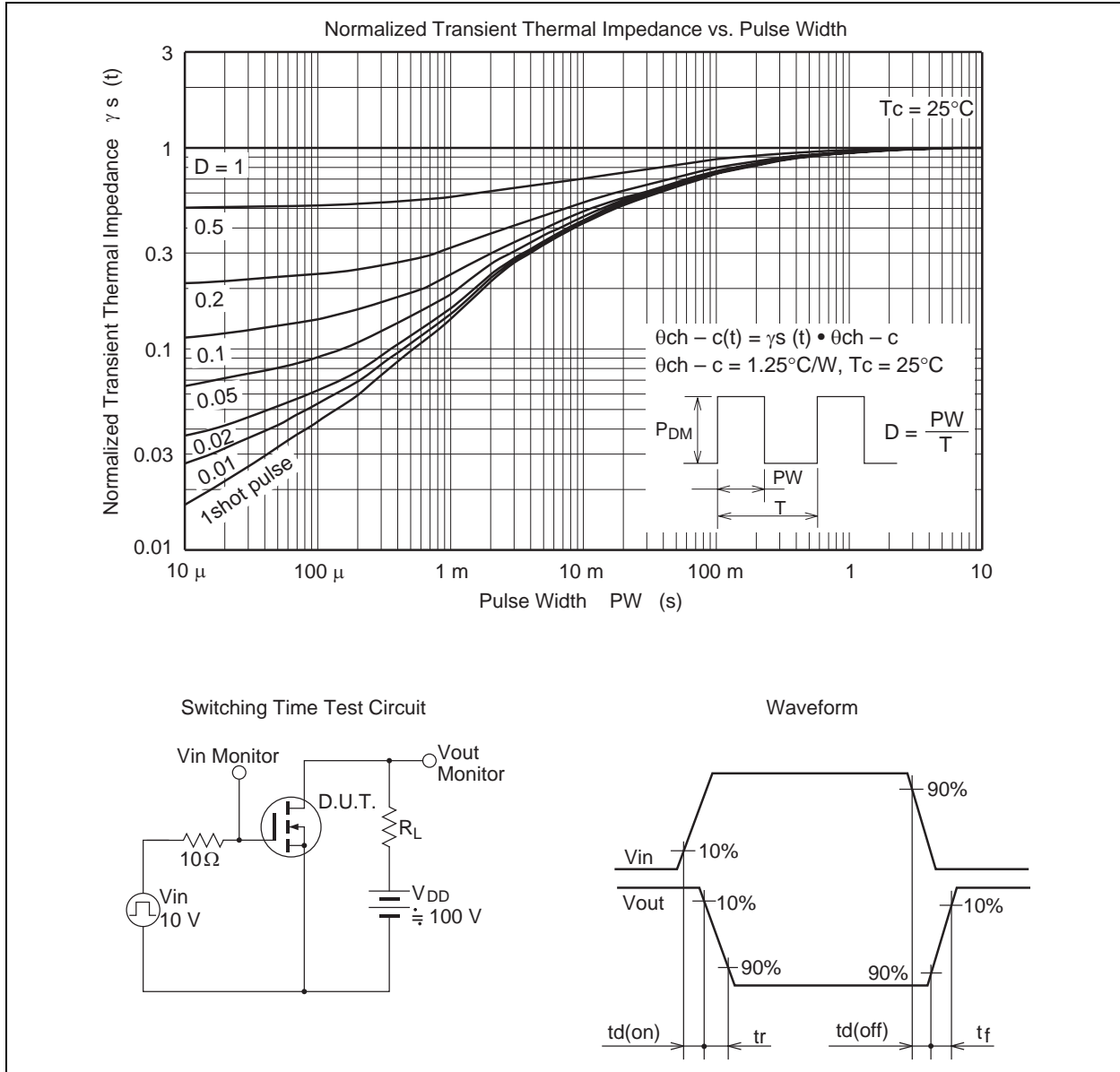


Reverse Drain Current vs. Source to Drain Voltage (Typical)



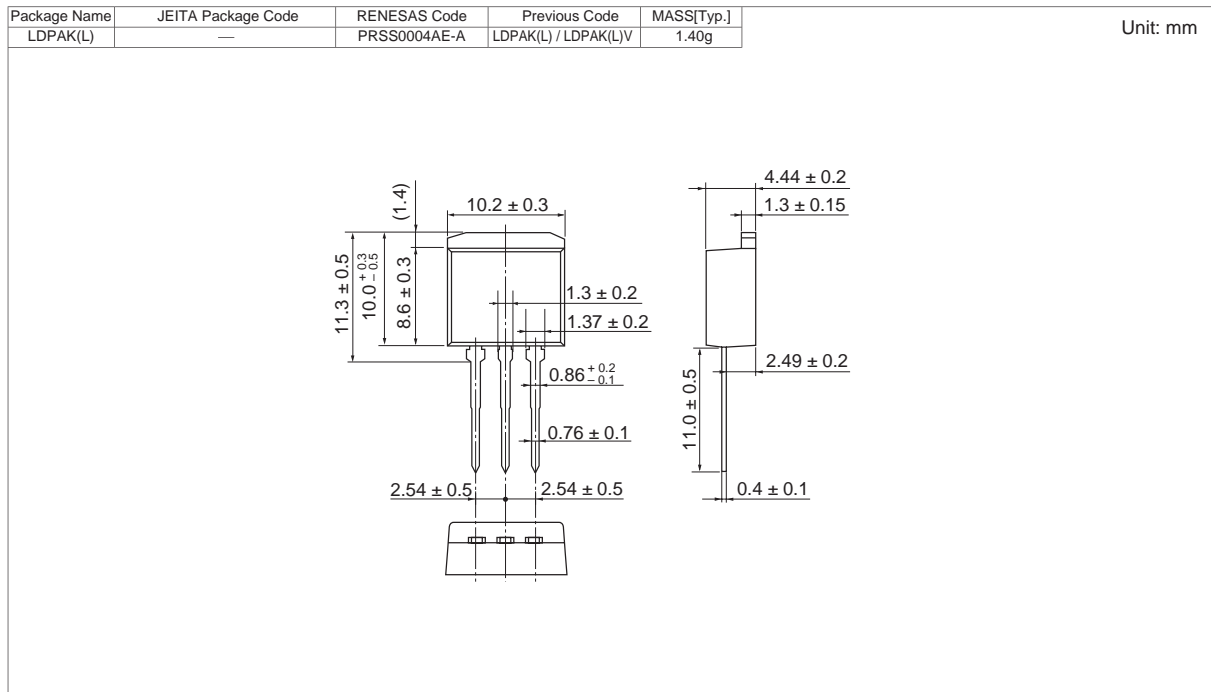
Gate to Source Cutoff Voltage vs. Case Temperature (Typical)



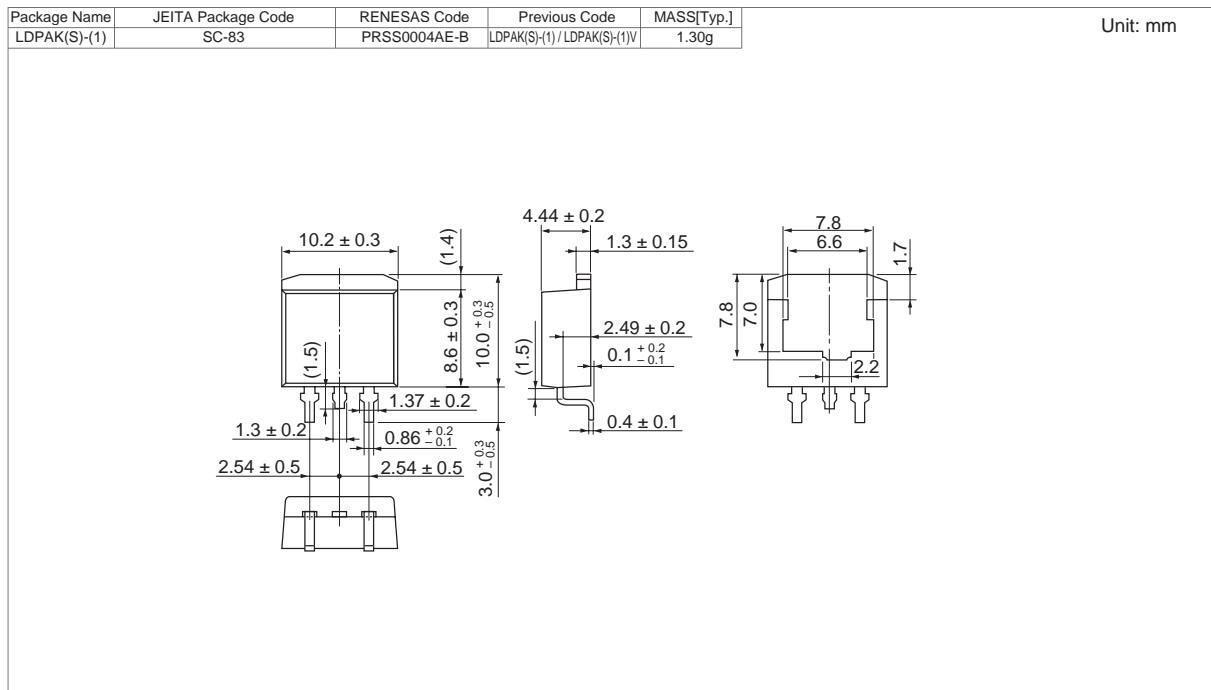


Package Dimensions

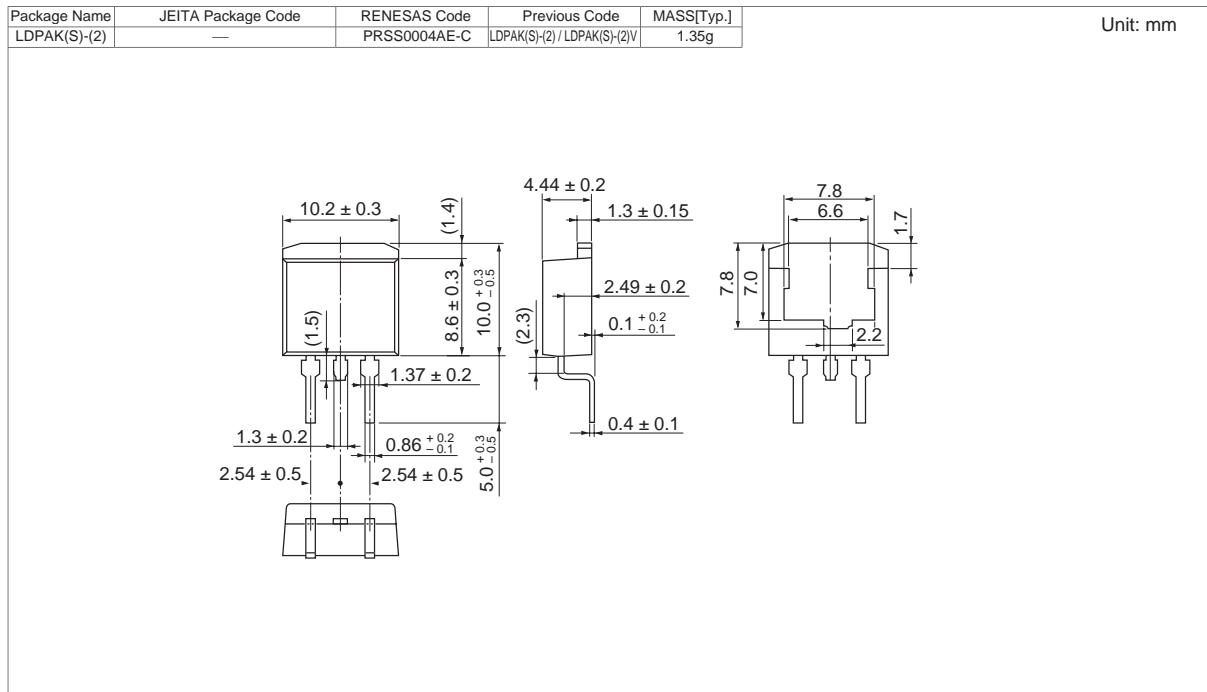
• RJK2006DPJ



• RJK2006DPE



• RJK2006DPF



Ordering Information

Part No.	Quantity	Shipping Container
RJK2006DPE-00-J3	1000 pcs	Taping

Notes:

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