

2SK1151(L), 2SK1151(S), 2SK1152(L), 2SK1152(S)

Silicon N Channel MOS FET

R07DS0397EJ0300
(Previous: REJ03G0907-0200)
Rev.3.00
May 16, 2011

Application

High speed power switching

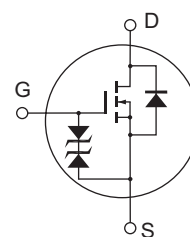
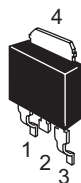
Features

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

Outline

RENESAS Package code: PRSS0004ZD-A
(Package name: DPAK(L)-(1))

RENESAS Package code: PRSS0004ZD-C
(Package name: DPAK(S))



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

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit	
Drain to source voltage	V_{DSS}	2SK1151	450	V
		2SK1152	500	
Gate to source voltage	V_{GSS}	±30	V	
Drain current	I_D	1.5	A	
Drain peak current	$I_{D(pulse)}^{*1}$	6	A	
Body to drain diode reverse drain current	I_{DR}	1.5	A	
Channel dissipation	P_{ch}^{*2}	20	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 $T_C = 25^\circ C$

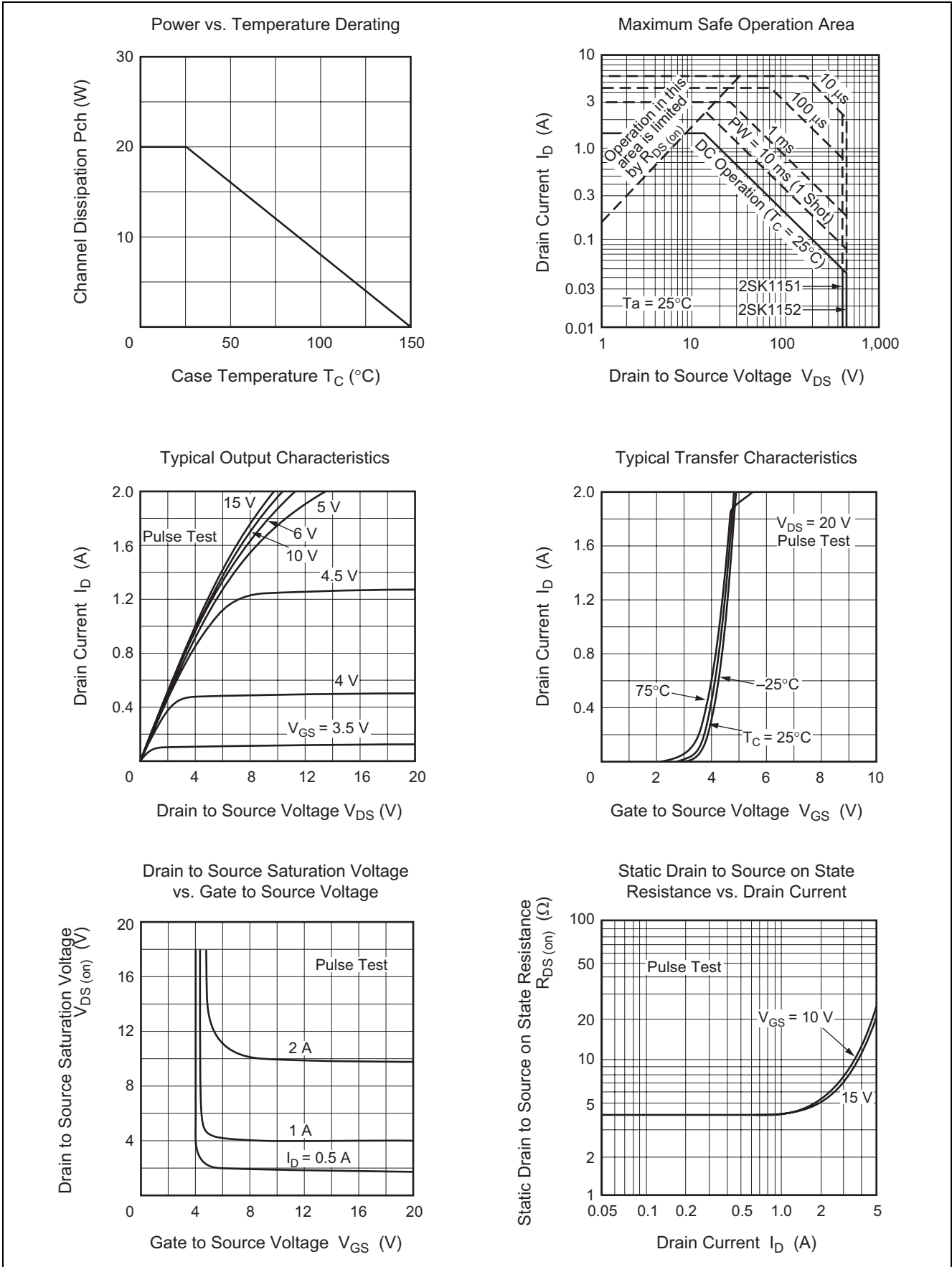
Electrical Characteristics

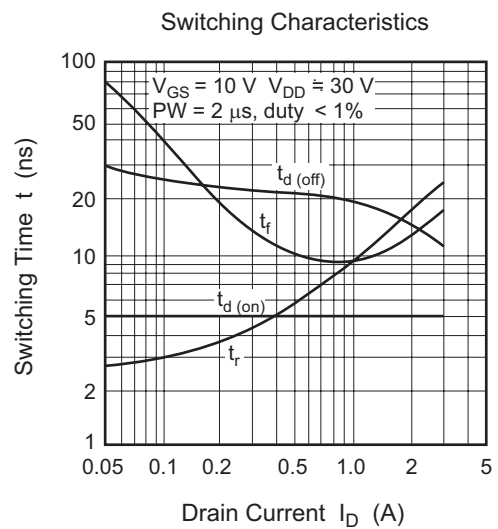
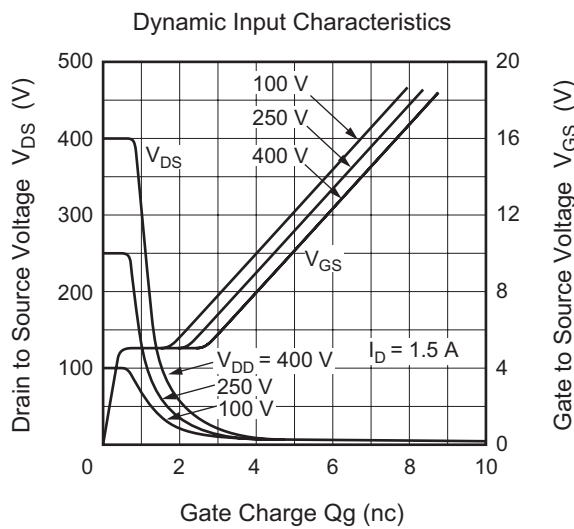
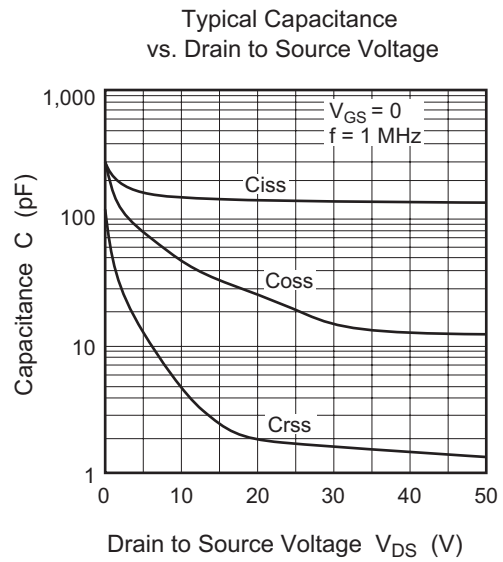
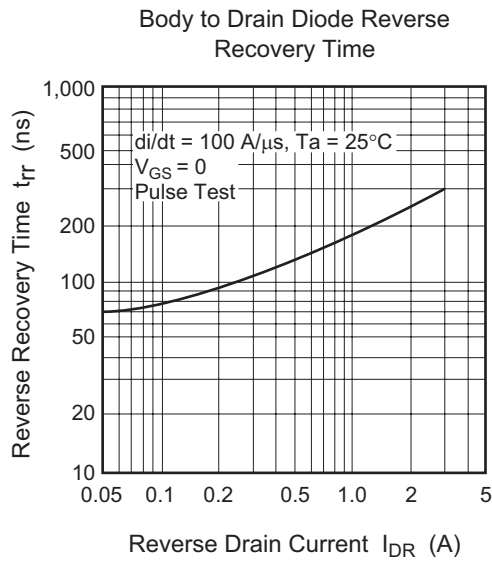
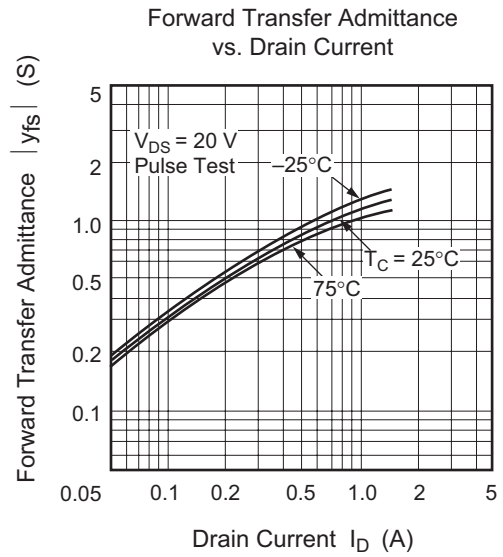
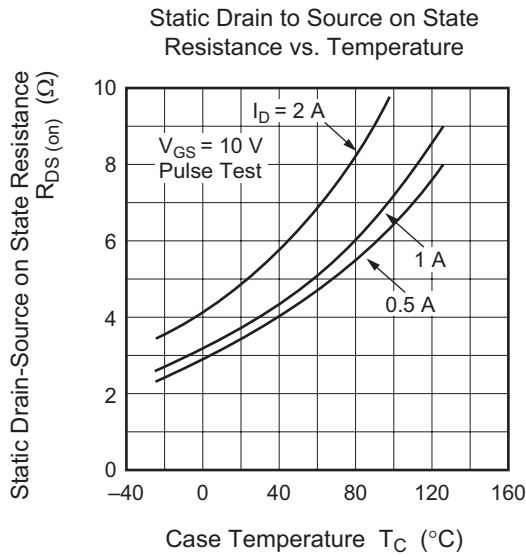
(Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1151	$V_{(BR)DSS}$	450	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
	2SK1152		500				
Gate to source breakdown voltage		$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}, V_{DS} = 0$
Gate to source leak current		I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	2SK1151	I_{DSS}	—	—	100	μA	$V_{DS} = 360 \text{ V}, V_{GS} = 0$
	2SK1152						$V_{DS} = 400 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage		$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	2SK1151	$R_{DS(on)}$	—	3.5	5.5	Ω	$I_D = 1 \text{ A}, V_{GS} = 10 \text{ V}^{*3}$
	2SK1152		—	4.0	6.0		
Forward transfer admittance		$ y_{fs} $	0.6	1.1	—	S	$I_D = 1 \text{ A}, V_{DS} = 20 \text{ V}^{*3}$
Input capacitance		C_{iss}	—	160	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$ $f = 1 \text{ MHz}$
Output capacitance		C_{oss}	—	45	—	pF	
Reverse transfer capacitance		C_{rss}	—	5	—	pF	
Turn-on delay time		$t_{d(on)}$	—	5	—	ns	$I_D = 1 \text{ A}, V_{GS} = 10 \text{ V},$ $R_L = 30 \text{ }\Omega$
Rise time		t_r	—	10	—	ns	
Turn-off delay time		$t_{d(off)}$	—	20	—	ns	
Fall time		t_f	—	10	—	ns	
Body to drain diode forward voltage		V_{DF}	—	1.0	—	V	$I_F = 1.5 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time		t_{rr}	—	220	—	ns	$I_F = 1.5 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

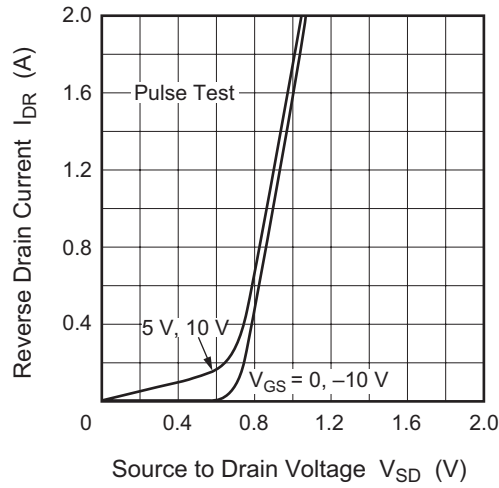
Note: 3. Pulse test

Main Characteristics



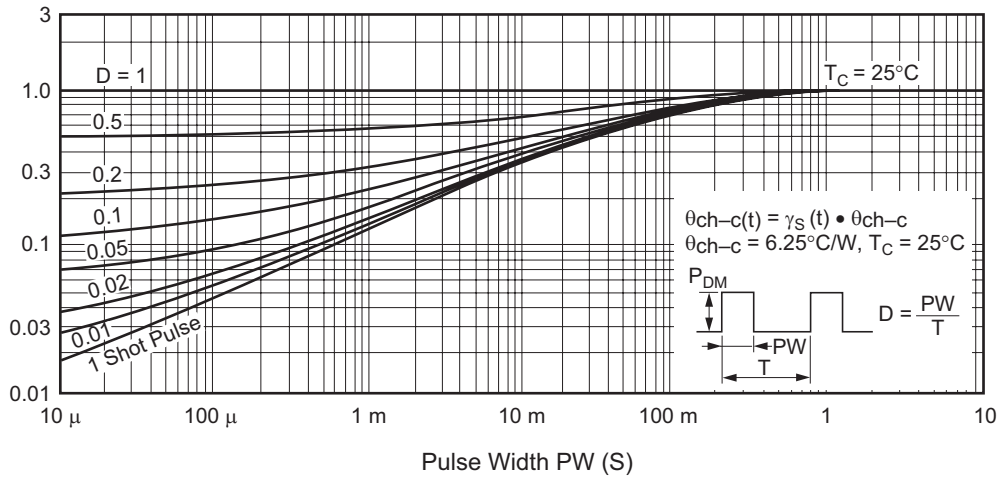


Reverse Drain Current vs. Source to Drain Voltage

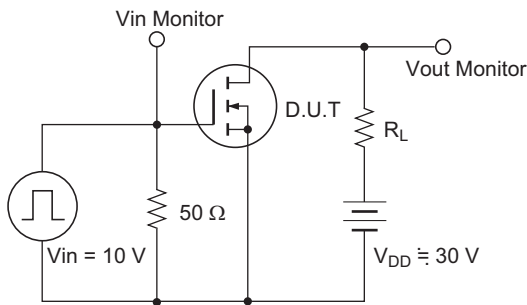


Normalized Transient Thermal Impedance $\gamma_S(t)$

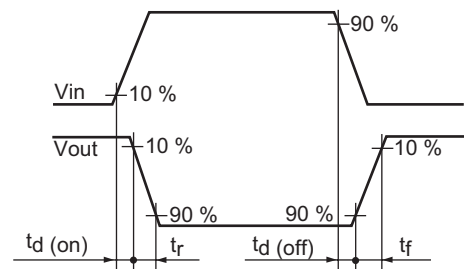
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

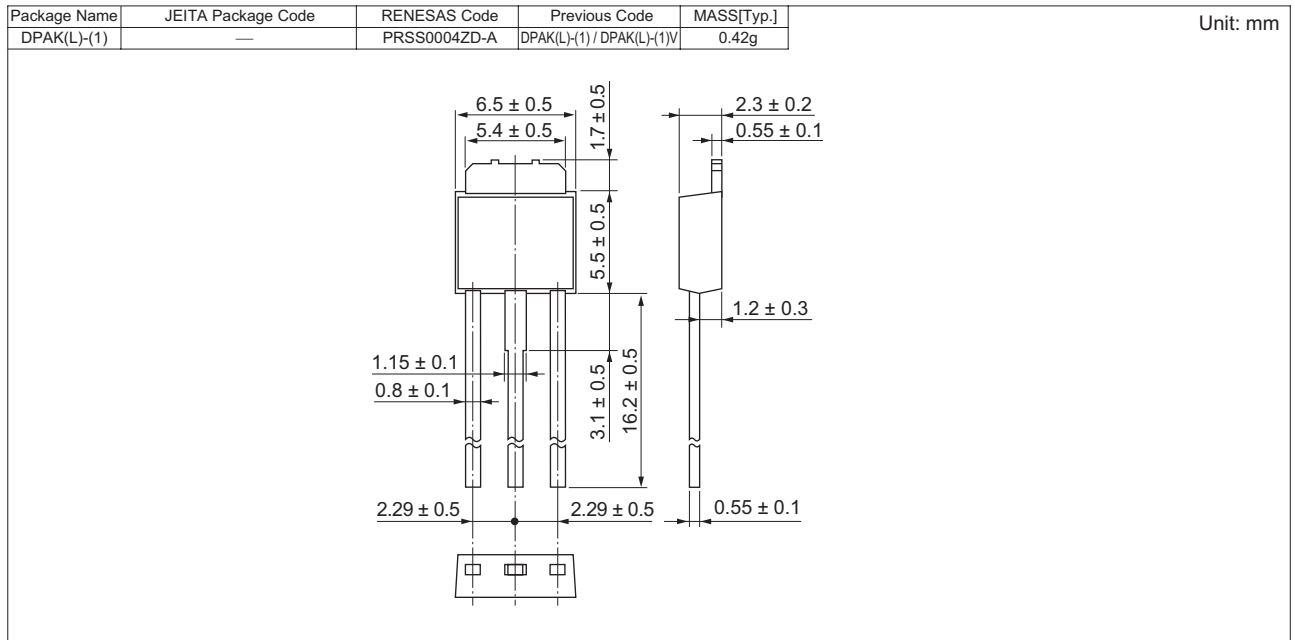


Waveforms

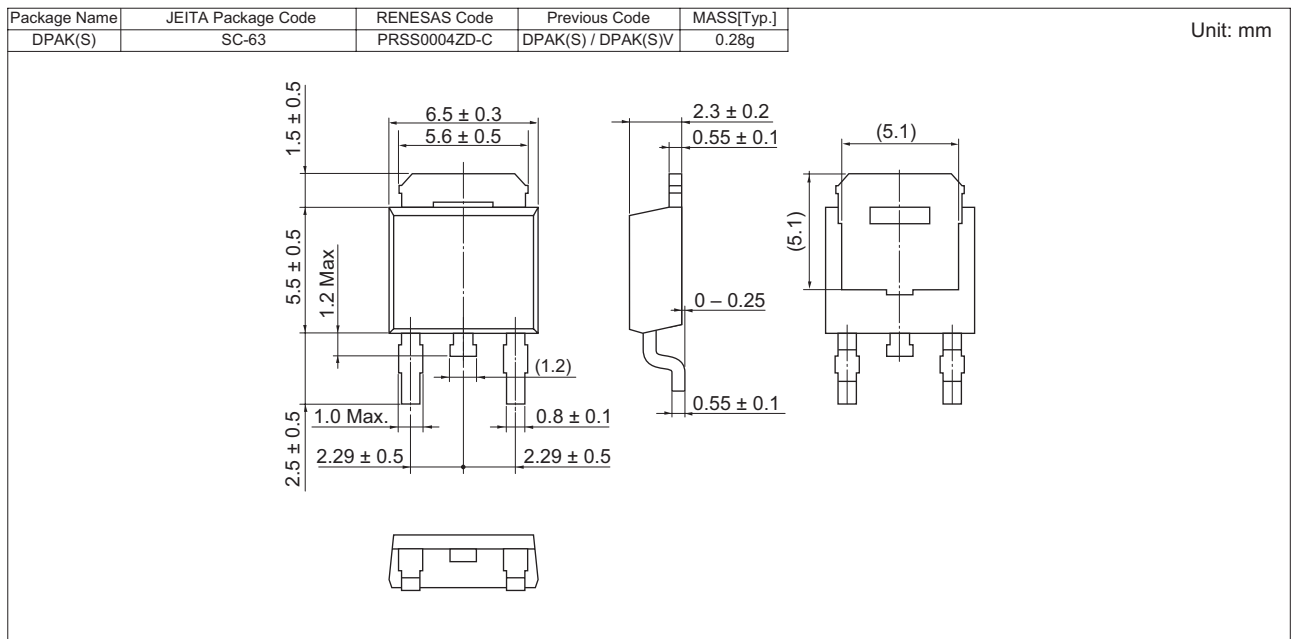


Package Dimensions

• 2SK1151(L), 2SK1152(L)



• 2SK1151(S), 2SK1152(S)



Ordering Information

Orderable Part Number	Quantity	Shipping Container
2SK1151L-E	2160 pcs	Box (Tube)
2SJ1151STR-E	3000 pcs	Taping
2SK1152L-E	2160 pcs	Box (Tube)
2SJ1152STR-E	3000 pcs	Taping

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