

2SK3147(L), 2SK3147(S)

Silicon N Channel MOS FET
High Speed Power Switching

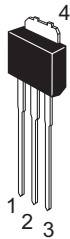
REJ03G1072-0200
(Previous: ADE-208-731)
Rev.2.00
Sep 07, 2005

Features

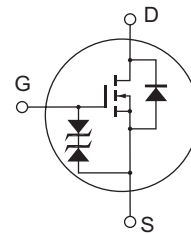
- Low on-resistance
 $R_{DS} = 0.1 \Omega$ typ.
- High speed switching
- 4 V gate drive device can be driven from 5 V source

Outline

RENESAS Package code: PRSS0004ZD-B
(Package name: DPAK(L)-(2))



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}	100	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	5	A
Drain peak current	I _{D(pulse)} ^{Note1}	20	A
Body-drain diode reverse drain current	I _{DR}	5	A
Avalanche current	I _{AP} ^{Note3}	5	A
Avalanche energy	E _{AR} ^{Note3}	2.5	mJ
Channel dissipation	P _{ch} ^{Note2}	20	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 T_c = 25°C
 3. Value at T_{ch} = 25°C, R_g ≥ 50 Ω

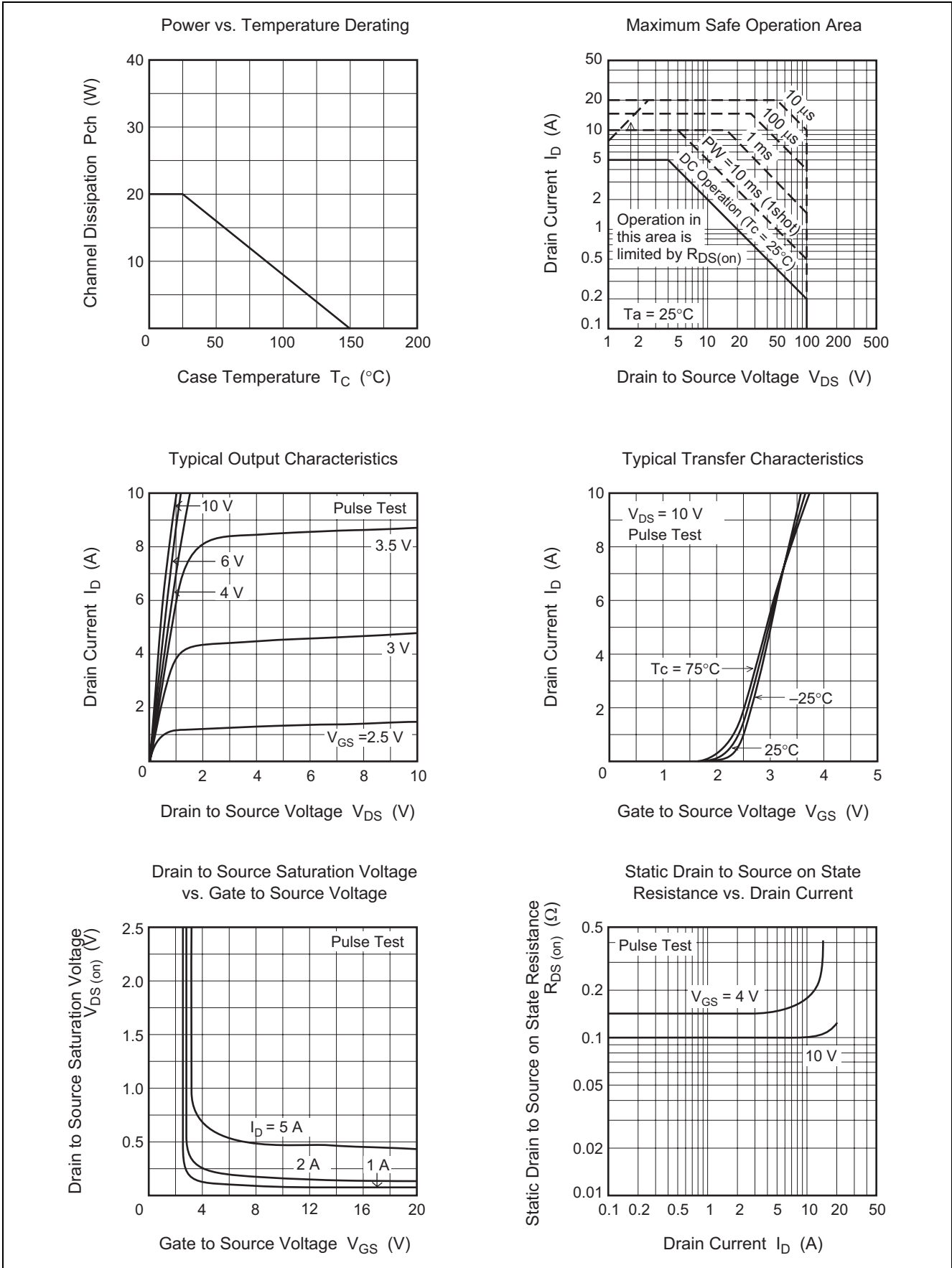
Electrical Characteristics

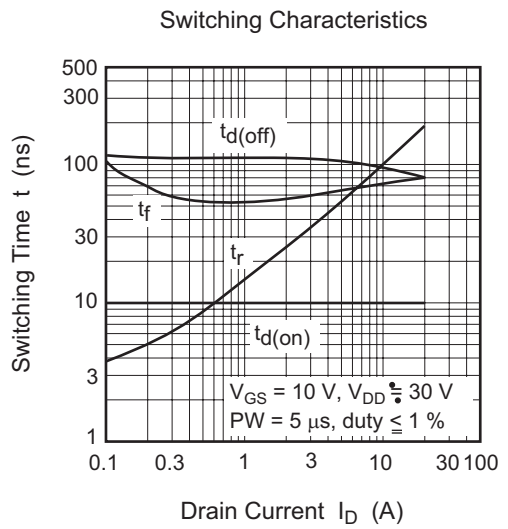
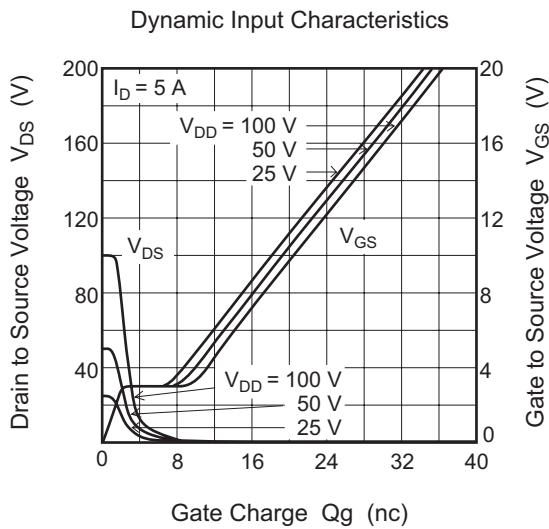
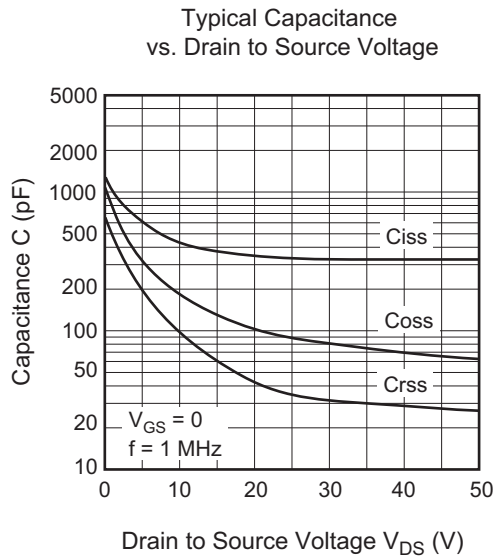
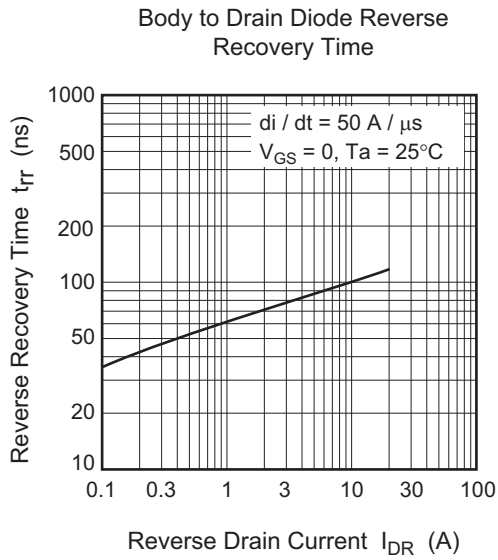
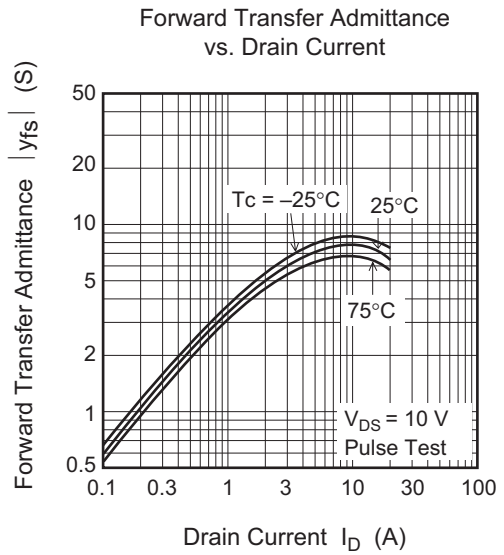
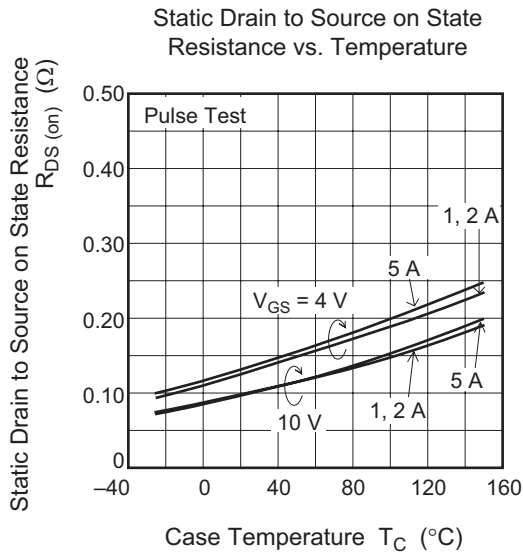
(Ta = 25°C)

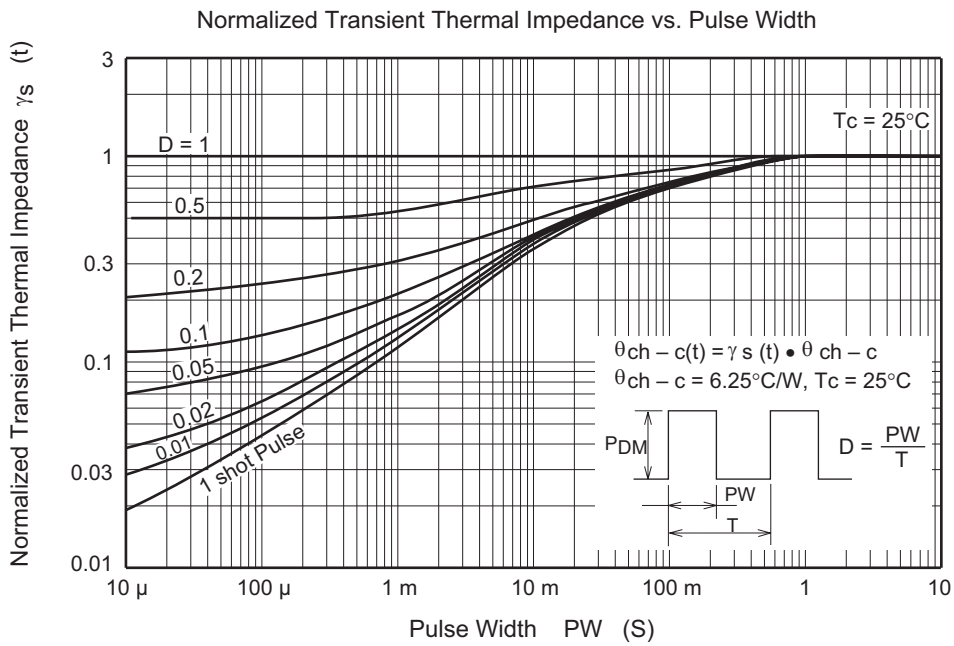
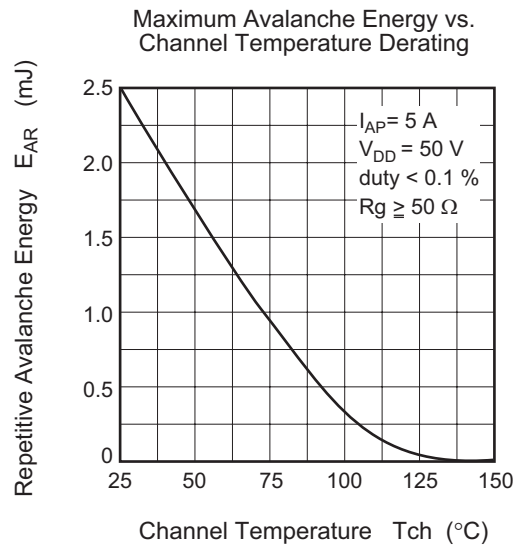
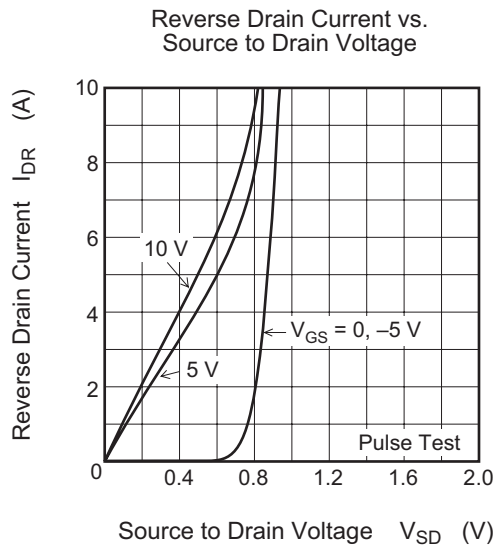
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	100	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 100 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.0	—	2.5	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance	R _{DS(on)}	—	0.1	0.13	Ω	I _D = 3 A, V _{GS} = 10 V ^{Note4}
	R _{DS(on)}	—	0.13	0.18	Ω	I _D = 3 A, V _{GS} = 4 V ^{Note4}
Forward transfer admittance	y _{fs}	3.5	6	—	S	I _D = 3 A, V _{DS} = 10 V ^{Note4}
Input capacitance	C _{iss}	—	420	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	C _{oss}	—	185	—	pF	
Reverse transfer capacitance	C _{rss}	—	100	—	pF	
Turn-on delay time	t _{d(on)}	—	10	—	ns	I _D = 3 A, V _{GS} = 10V, R _L = 10 Ω
Rise time	t _r	—	35	—	ns	
Turn-off delay time	t _{d(off)}	—	110	—	ns	
Fall time	t _f	—	60	—	ns	
Body-drain diode forward voltage	V _{DF}	—	0.85	—	V	I _F = 5 A, V _{GS} = 0
Body-drain diode reverse recovery time	t _{rr}	—	85	—	ns	I _F = 5 A, V _{GS} = 0 di _F / dt = 50 A/ μs

- Note: 4. Pulse test

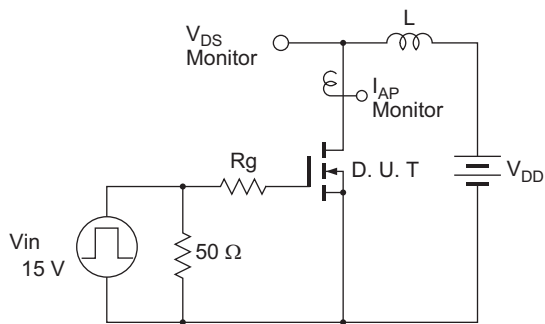
Main Characteristics



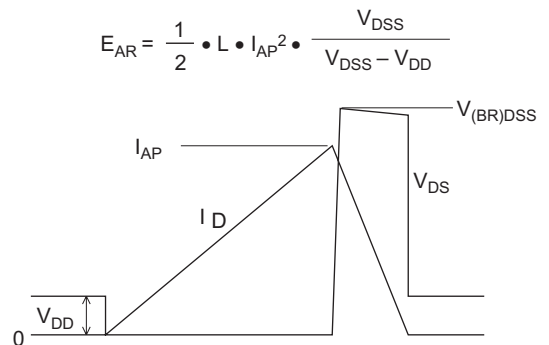


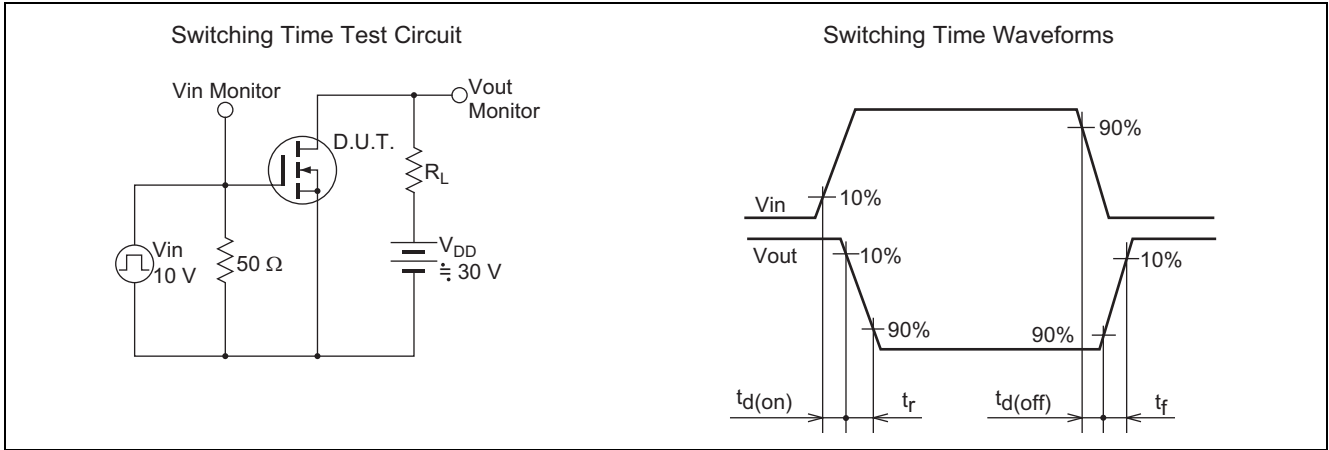


Avalanche Test Circuit

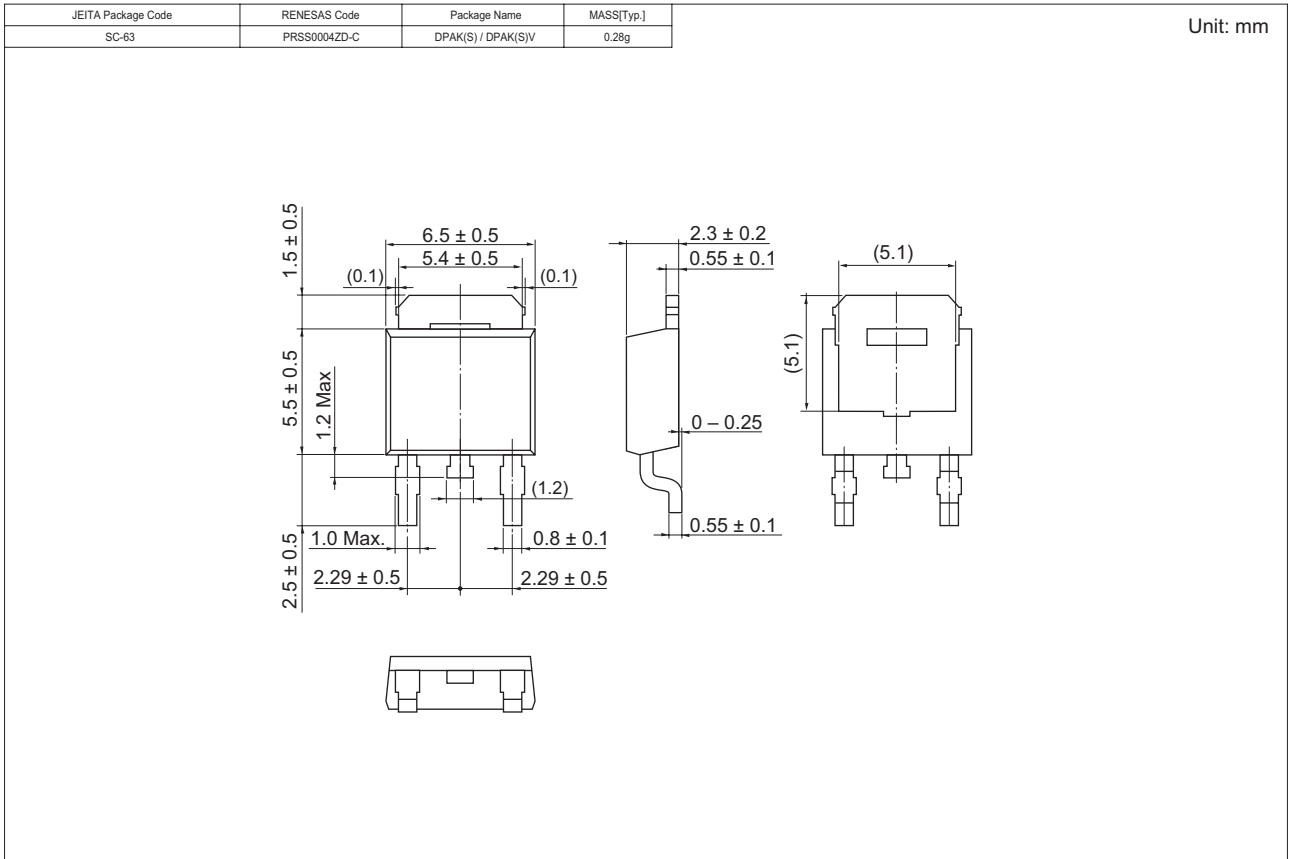
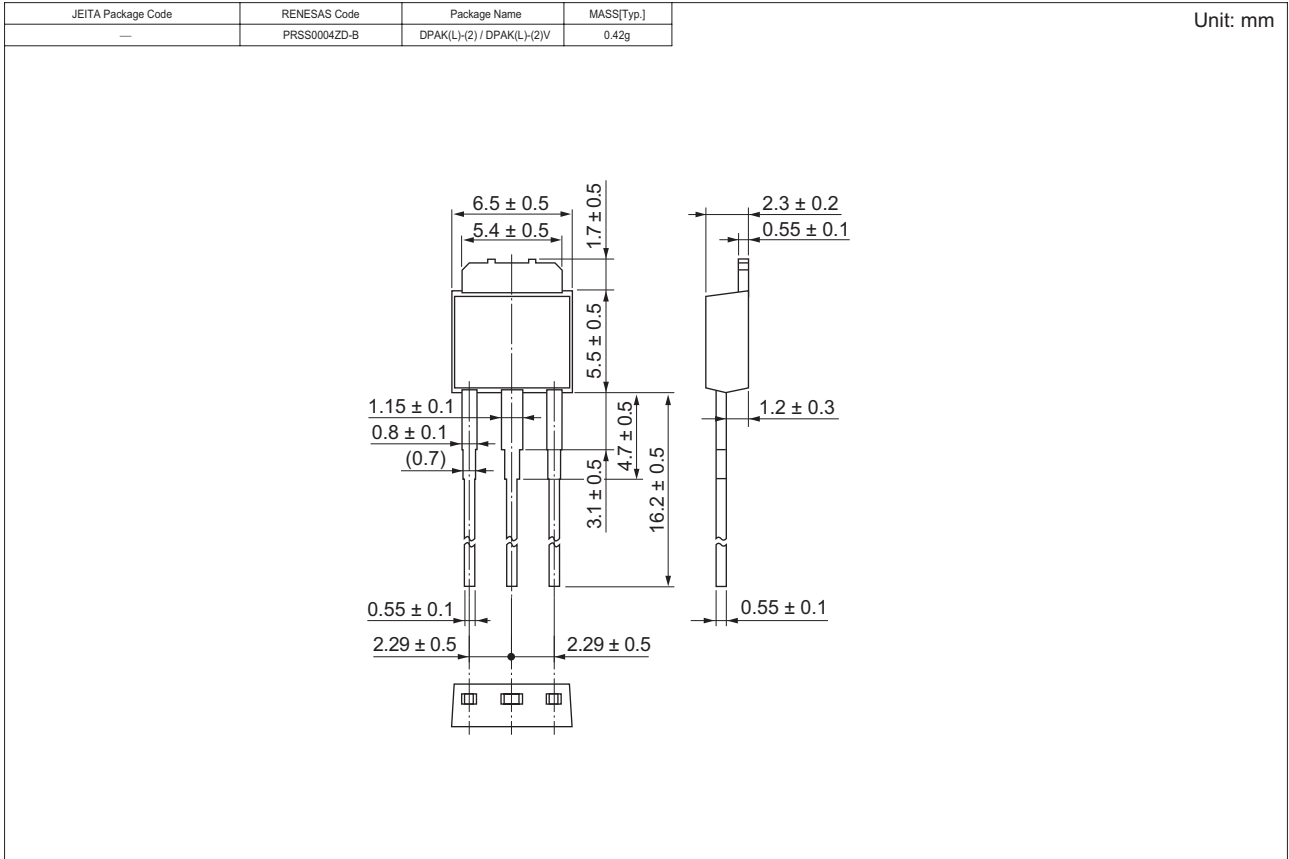


Avalanche Waveform





Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK3147L-E	3200 pcs	Box (Sack)
2SK3147STL-E	3000 pcs	Taping

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