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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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2SK3274 (L), 2SK3274 (S)

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1098-0300

Rev.3.00

May 15, 2006

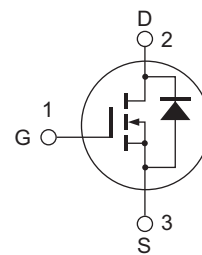
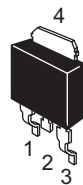
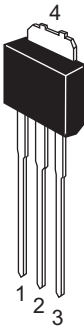
Features

- Low on-resistance
- $R_{DS(on)} = 10 \text{ m}\Omega$ typ.
- 4.5 V gate drive device
- High speed switching

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	Value	Unit
Drain to source voltage	V _{DSS}	30	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	30	A
Drain peak current	I _{D (pulse)} ^{Note 1}	120	A
Body-drain diode reverse drain current	I _{DR}	30	A
Avalanche current	I _{AP} ^{Note 3}	20	A
Avalanche energy	E _{AR} ^{Note 3}	40	mJ
Channel dissipation	P _{ch} ^{Note 2}	30	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

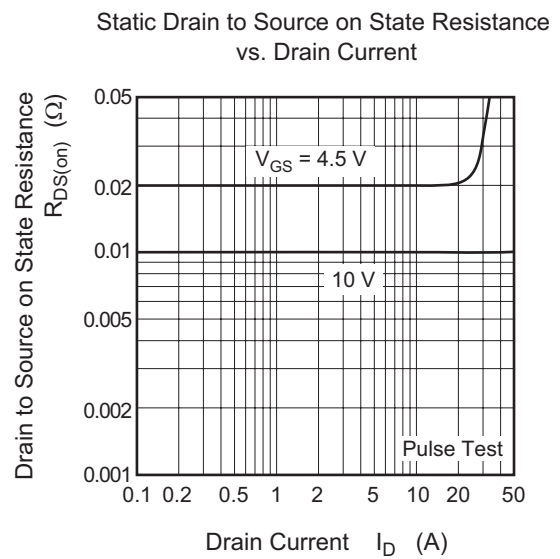
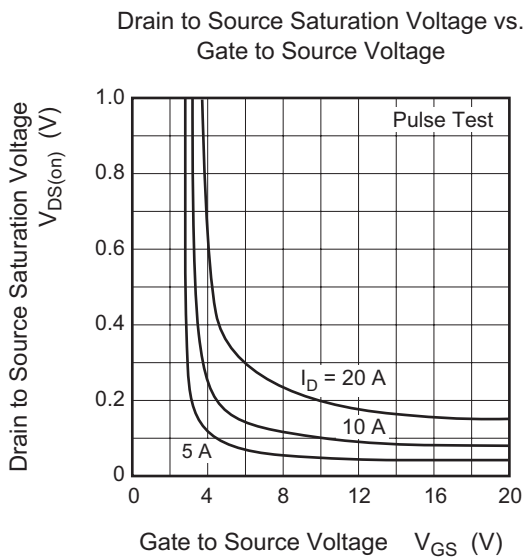
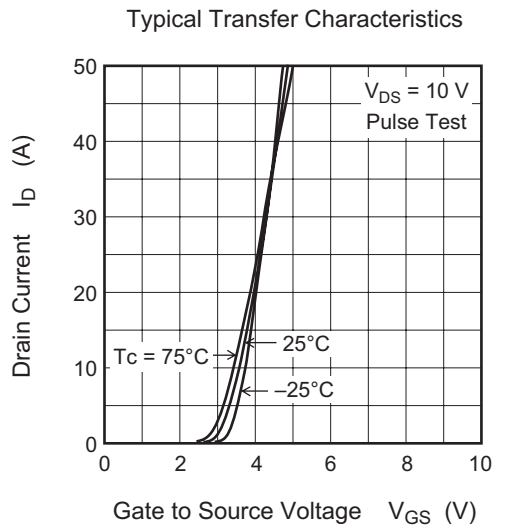
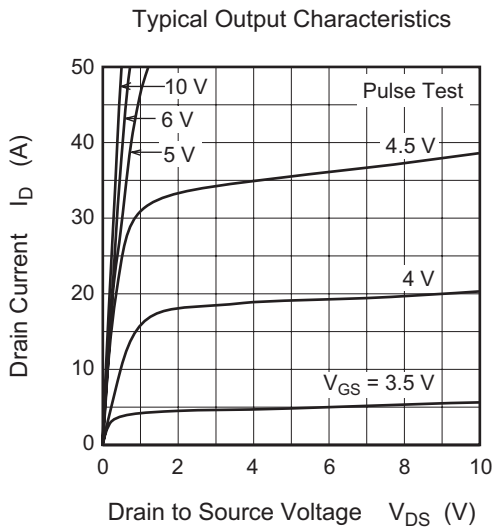
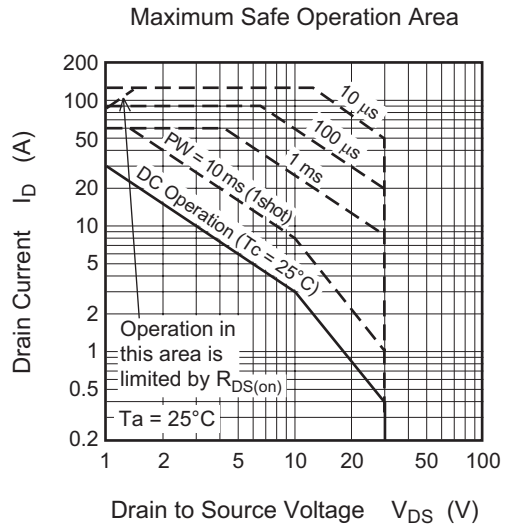
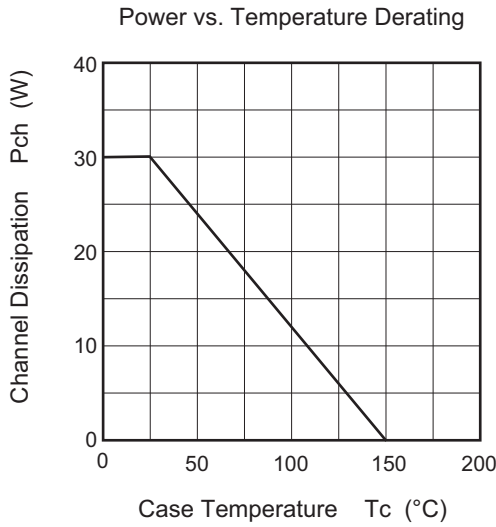
Electrical Characteristics

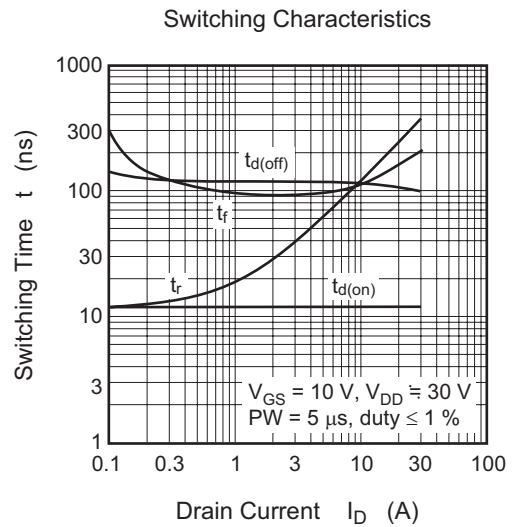
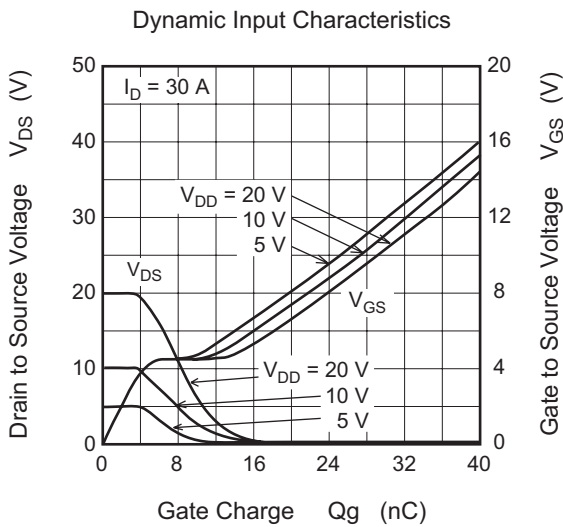
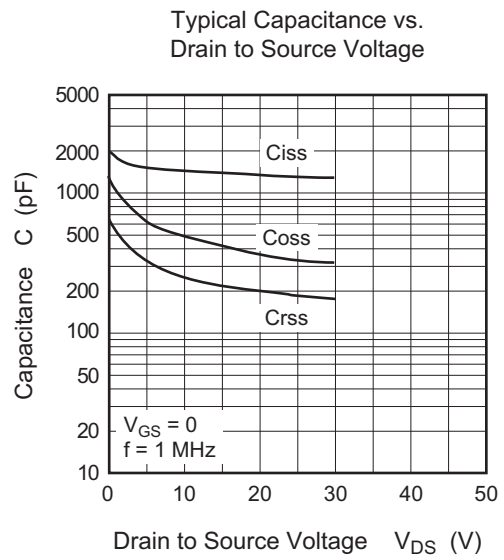
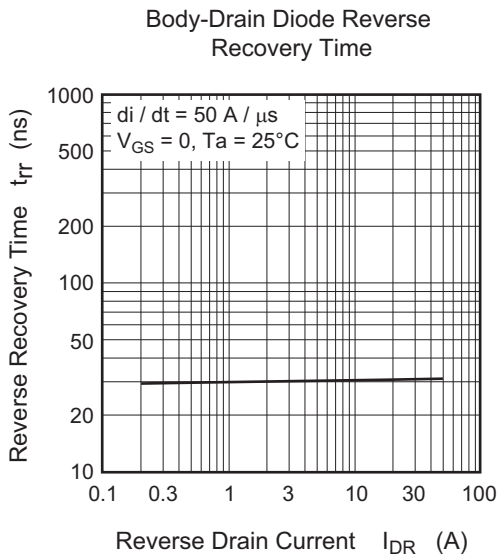
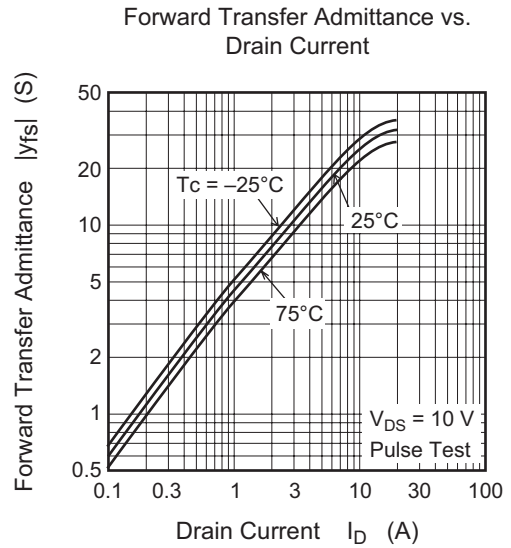
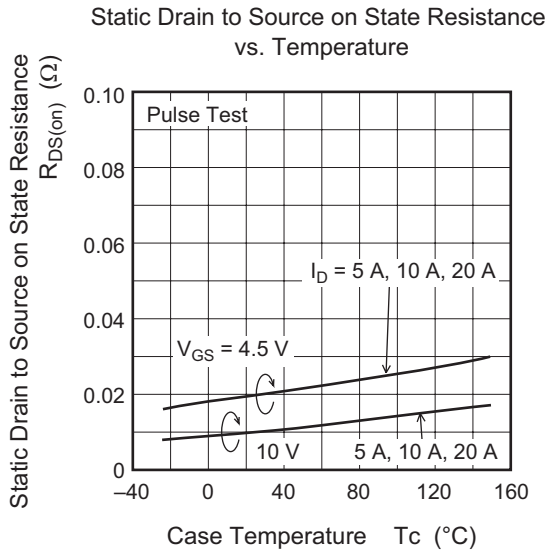
(Ta = 25°C)

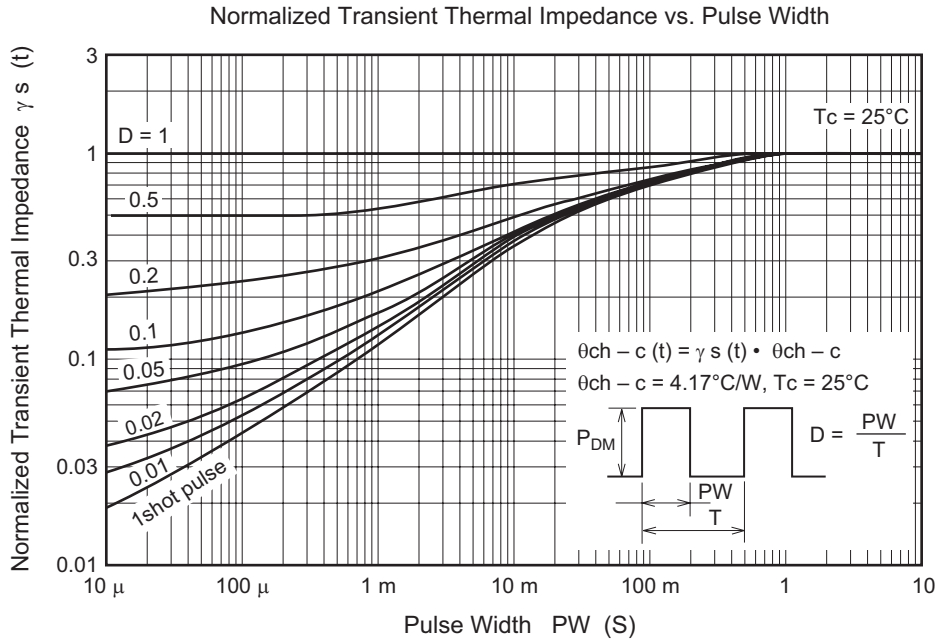
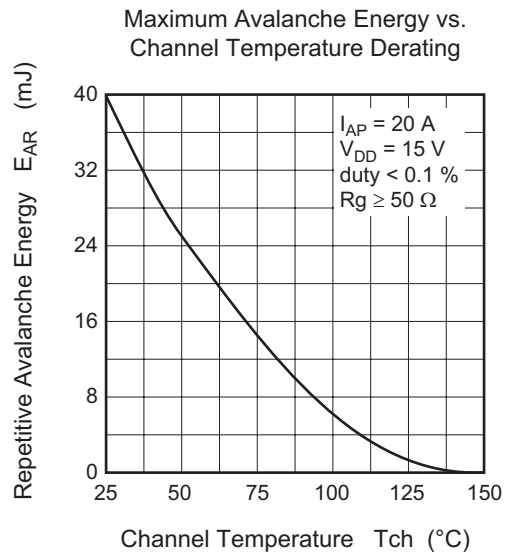
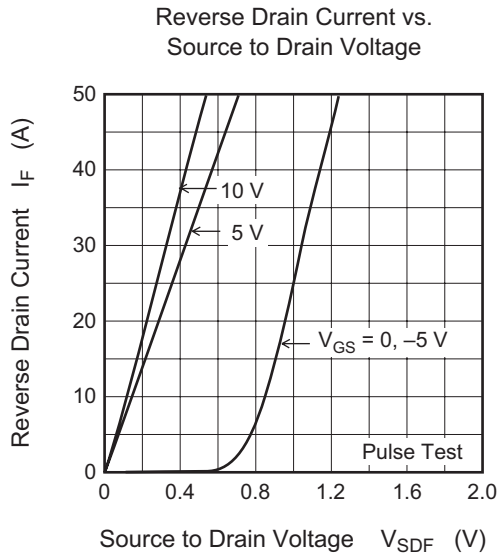
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	30	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source leak current	I _{GSS}	—	—	±0.1	μA	V _{GS} = ±20 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	10	μA	V _{DS} = 30 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS (off)}	1.5	—	3.0	V	V _{DS} = 10 V, I _D = 1 mA ^{Note 4}
Forward transfer admittance	y _{fs}	18	30	—	S	I _D = 15 A, V _{DS} = 10 V ^{Note 4}
Static drain to source on state resistance	R _{DS (on)}	—	10	13	mΩ	I _D = 15 A, V _{GS} = 10 V ^{Note 4}
	R _{DS (on)}	—	20	30	mΩ	I _D = 15 A, V _{GS} = 4.5 V ^{Note 4}
Input capacitance	C _{iss}	—	1500	—	pF	V _{DS} = 10 V V _{GS} = 0 f = 1 MHz
Output capacitance	C _{oss}	—	500	—	pF	
Reverse transfer capacitance	C _{rss}	—	250	—	pF	
Total gate charge	Q _g	—	27	—	nC	V _{DD} = 10 V V _{GS} = 10 V I _D = 30 A
Gate to source charge	Q _{gs}	—	6	—	nC	
Gate to drain charge	Q _{gd}	—	5	—	nC	
Turn-on delay time	t _{d (on)}	—	22	—	ns	V _{GS} = 10 V I _D = 15 A R _L = 2 Ω
Rise time	t _r	—	170	—	ns	
Turn-off delay time	t _{d (off)}	—	110	—	ns	
Fall time	t _f	—	145	—	ns	
Body-drain diode forward voltage	V _{DF}	—	1.0	—	V	I _F = 30 A, V _{GS} = 0
Body-drain diode reverse recovery time	t _{rr}	—	35	—	ns	I _F = 30 A, V _{GS} = 0 di _F /dt = 50 A/μs

- Note: 4. Pulse test

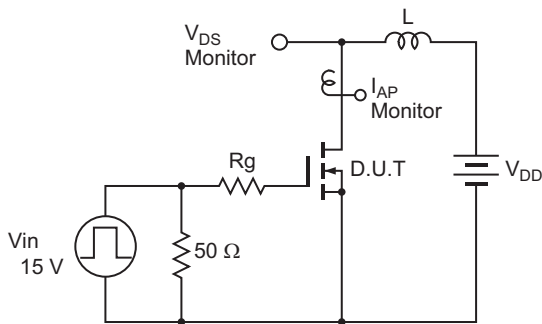
Main Characteristics





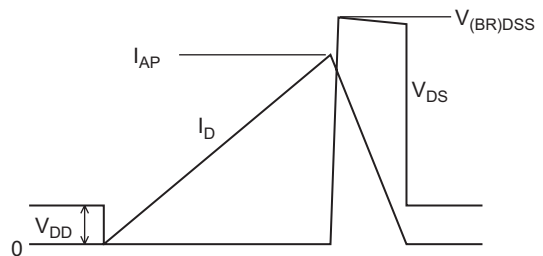


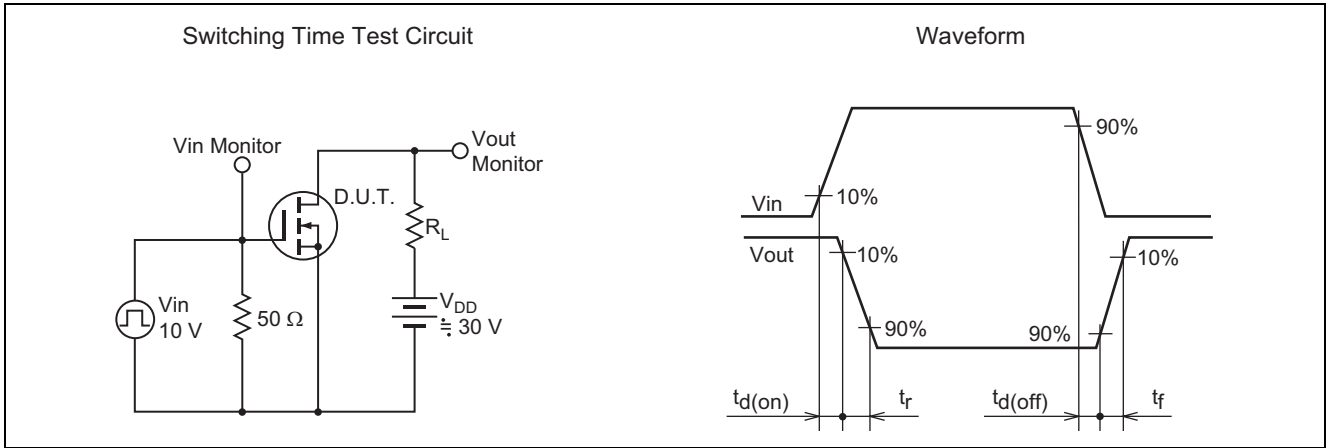
Avalanche Test Circuit



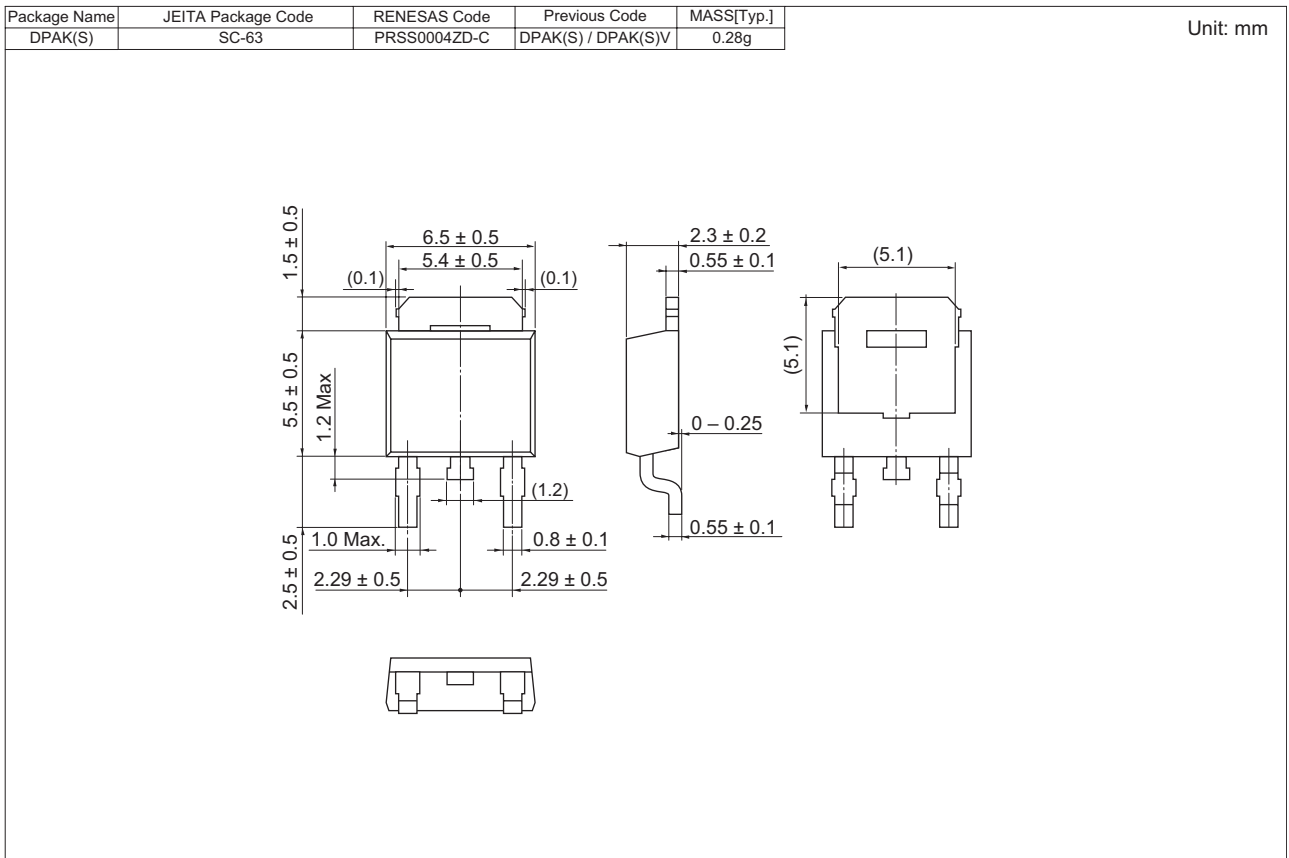
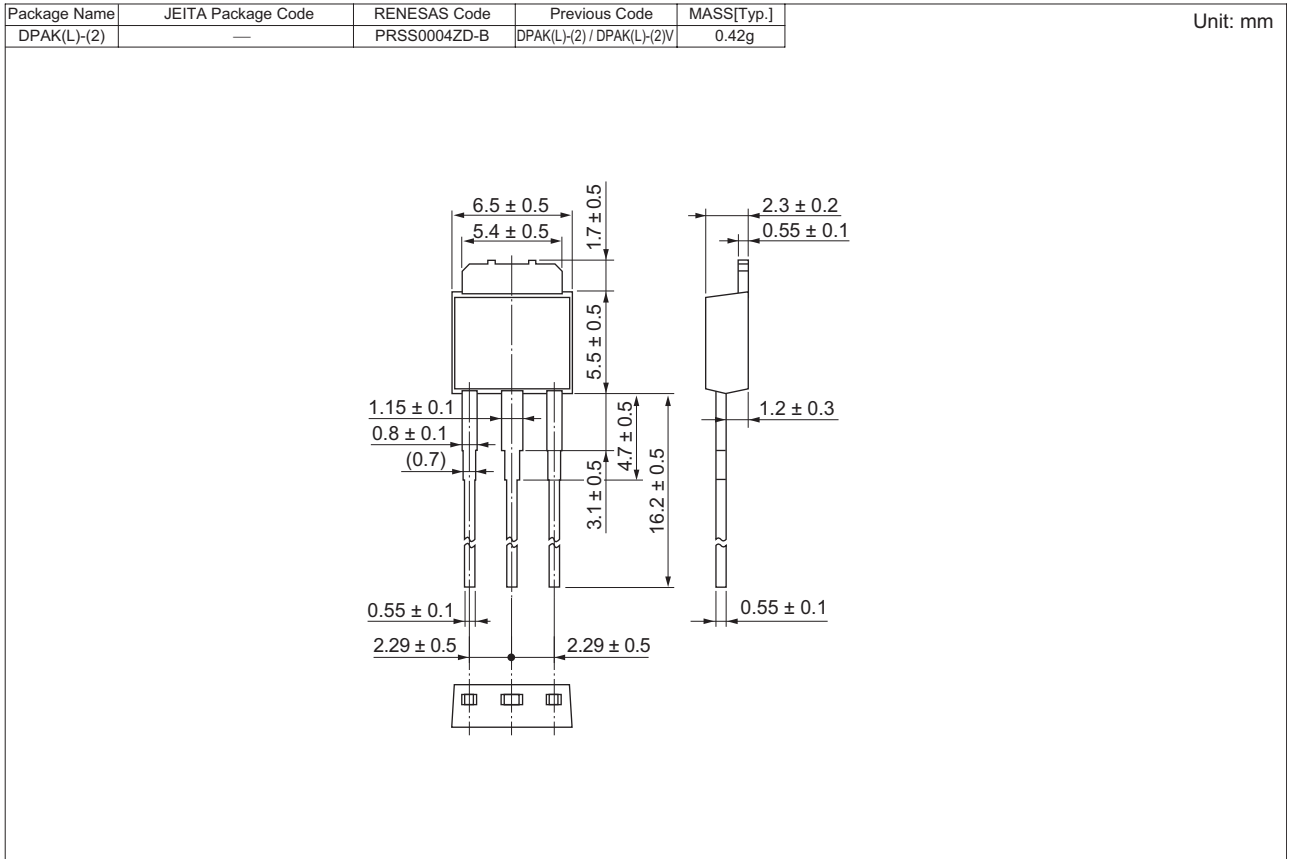
Avalanche Waveform

$$E_{AR} = \frac{1}{2} \cdot L \cdot I_{AP}^2 \cdot \frac{V_{DSS}}{V_{DSS} - V_{DD}}$$





Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK3274L-E	3200 pcs	Box (Sack)
2SK3274STL-E	3000 pcs	Taping

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