

# 2SK2570

## Silicon N Channel MOS FET Low Frequency Power Switching

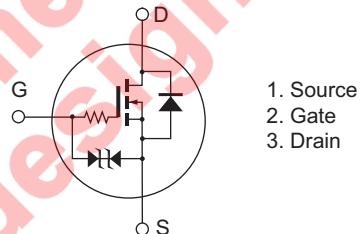
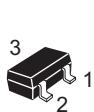
REJ03G1019-0200  
(Previous: ADE-208-574)  
Rev.2.00  
Sep 07, 2005

### Features

- Low on-resistance  
 $R_{DS(on)} = 0.8 \Omega$  typ. ( $V_{GS} = 4$  V,  $I_D = 100$  mA)
- 2.5 V gate drive devices.
- Small package (MPAK)

### Outline

RENESAS Package code: PLSP0003ZB-A  
(Package name: MPAK)



1. Source
2. Gate
3. Drain

Note: Marking is "ZL-"

**Absolute Maximum Ratings**

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	20	V
Gate to source voltage	V <sub>GSS</sub>	±10	V
Drain current	I <sub>D</sub>	0.2	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	0.4	A
Channel dissipation	P <sub>ch</sub>	150	mW
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Note: 1. PW ≤ 10 μs, duty cycle ≤ 1 %

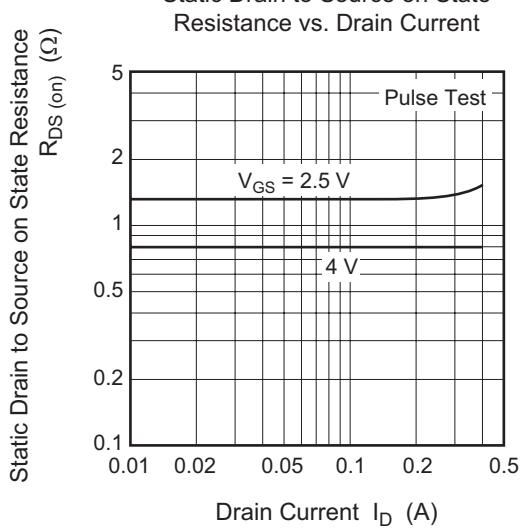
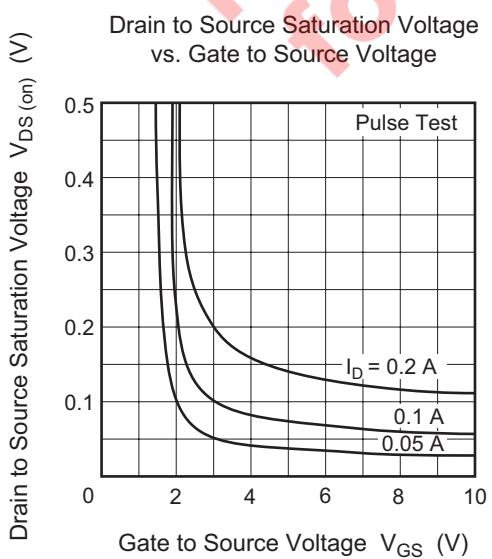
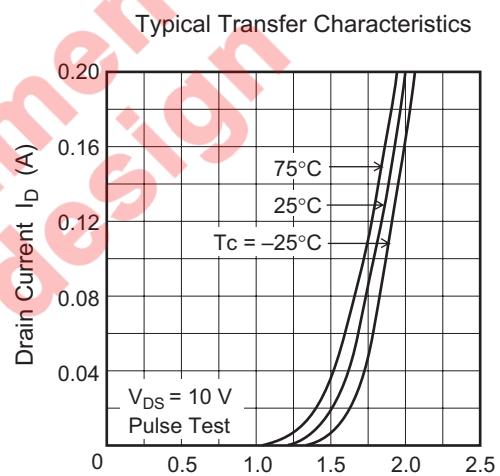
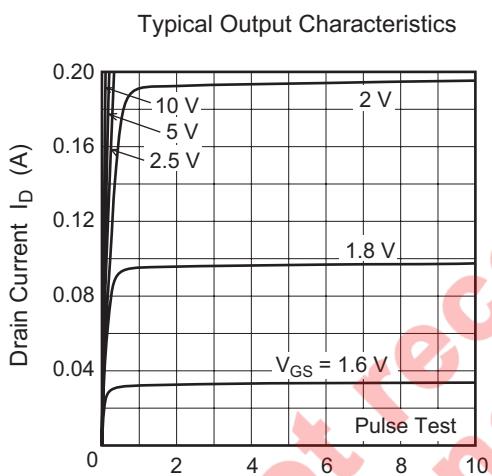
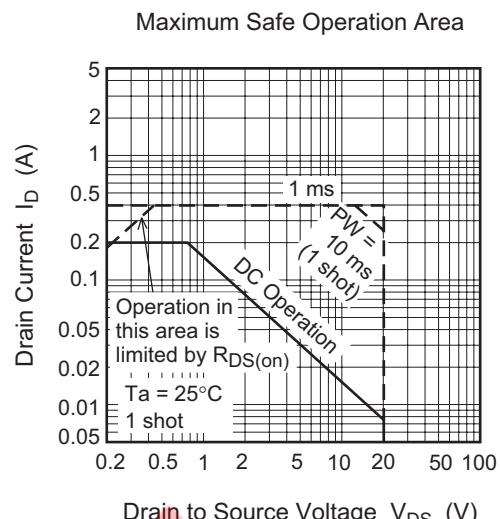
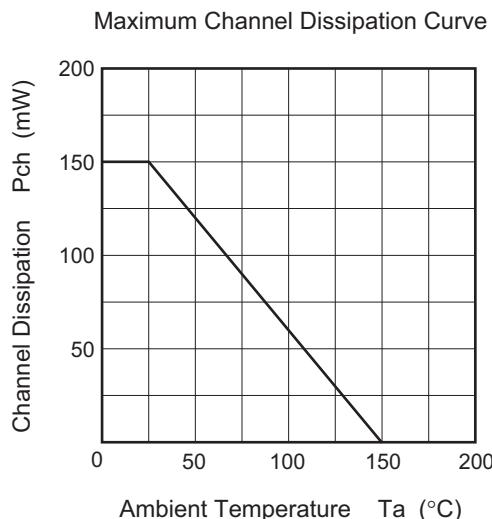
**Electrical Characteristics**

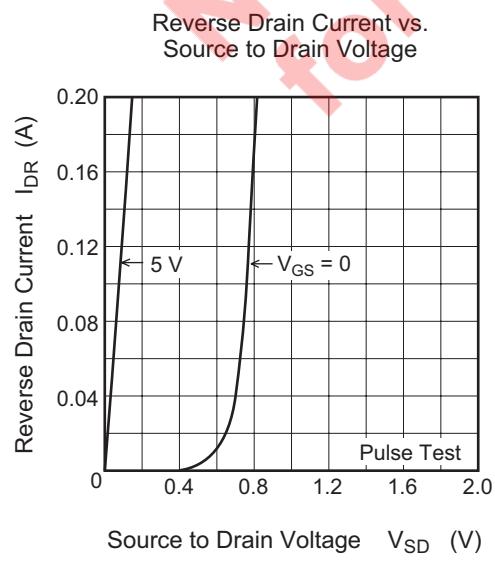
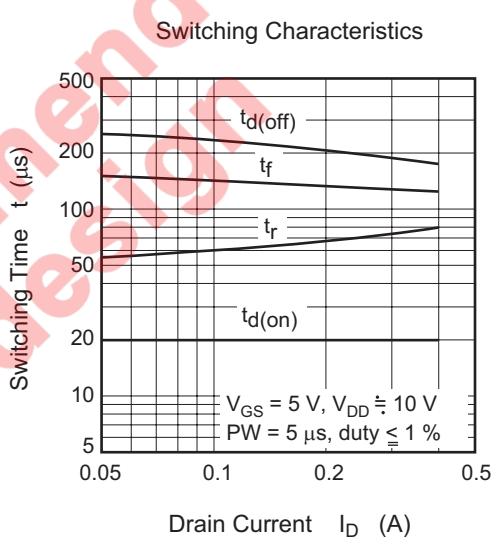
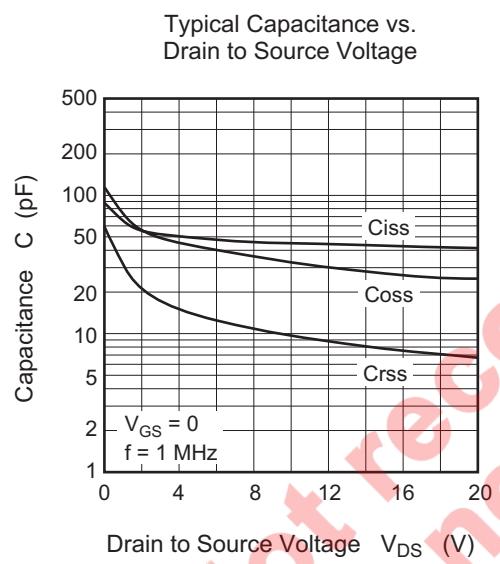
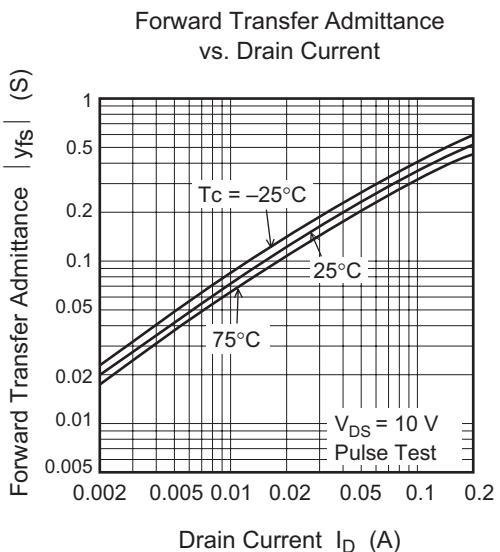
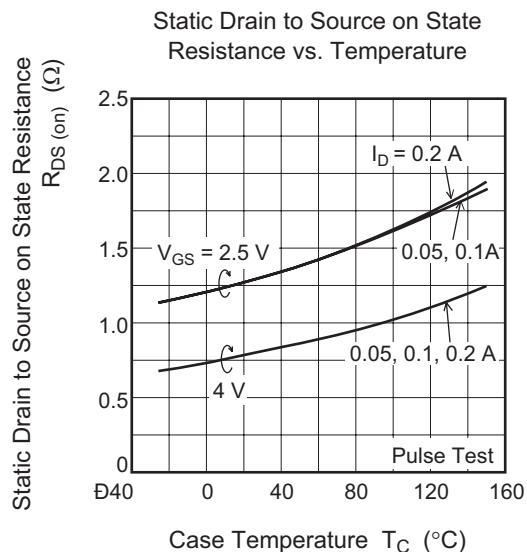
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	20	—	—	V	I <sub>D</sub> = 10 μA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±10	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	1.0	μA	V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±5.0	μA	V <sub>GS</sub> = ±6.5 V, V <sub>DS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	0.5	—	1.5	V	I <sub>D</sub> = 10 μA, V <sub>DS</sub> = 5 V
Static drain to source on state resistance	R <sub>DS(on)</sub>	—	0.8	1.1	Ω	I <sub>D</sub> = 100 mA, V <sub>GS</sub> = 4 V <sup>*2</sup>
		—	1.3	2.2	Ω	I <sub>D</sub> = 40 mA, V <sub>GS</sub> = 2.5 V <sup>*2</sup>
Forward transfer admittance	y <sub>fs</sub>	0.22	0.35	—	S	I <sub>D</sub> = 100 mA, V <sub>DS</sub> = 10 V <sup>*2</sup>
Input capacitance	C <sub>iss</sub>	—	45	—	pF	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0, f = 1 MHz
Output capacitance	C <sub>oss</sub>	—	33	—	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	9.6	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	20	—	ns	V <sub>GS</sub> = 5 V, I <sub>D</sub> = 100 mA, R <sub>L</sub> = 100 Ω
Rise time	t <sub>r</sub>	—	60	—	ns	
Turn-off delay time	t <sub>d(off)</sub>	—	240	—	ns	
Fall time	t <sub>f</sub>	—	140	—	ns	

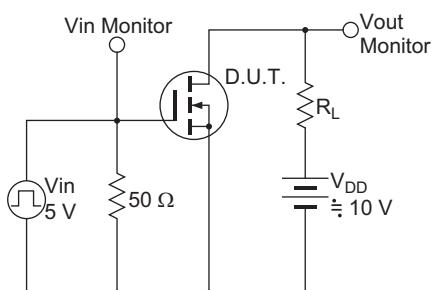
Notes: 2. Pulse test

## Main Characteristics

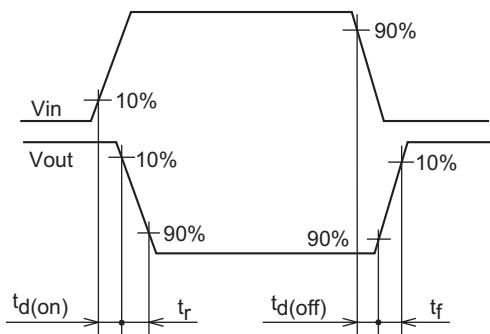




Switching Time Test Circuit



Waveform



Not recommend  
for new design

## Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
SC-59A	PLSP0003ZB-A	MPAK(T) / MPAK(T)V, MPAK / MPAKV	0.011g

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
A	1.0	—	1.3
A <sub>1</sub>	0	—	0.1
A <sub>2</sub>	1.0	1.1	1.2
[A <sub>3</sub> ]	—	0.25	—
b	0.35	0.42	0.5
b <sub>1</sub>	—	0.4	—
c	0.1	0.13	0.15
c <sub>1</sub>	—	0.11	—
D	2.7	—	3.1
E	1.35	1.5	1.65
[e]	—	0.95	—
HE	2.2	2.8	3.0
L	0.35	—	0.75
L <sub>1</sub>	0.15	—	0.55
L <sub>P</sub>	0.25	—	0.65
x	—	—	0.05
b <sub>2</sub>	—	—	0.55
[e <sub>1</sub> ]	—	1.95	—
I <sub>1</sub>	—	—	1.05
Q	—	0.3	—

## Ordering Information

Part Name	Quantity	Shipping Container
2SK2570ZL-TL-E	3000 pcs	Taping
2SK2570ZL-TR-E	3000 pcs	Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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