

2SK3000

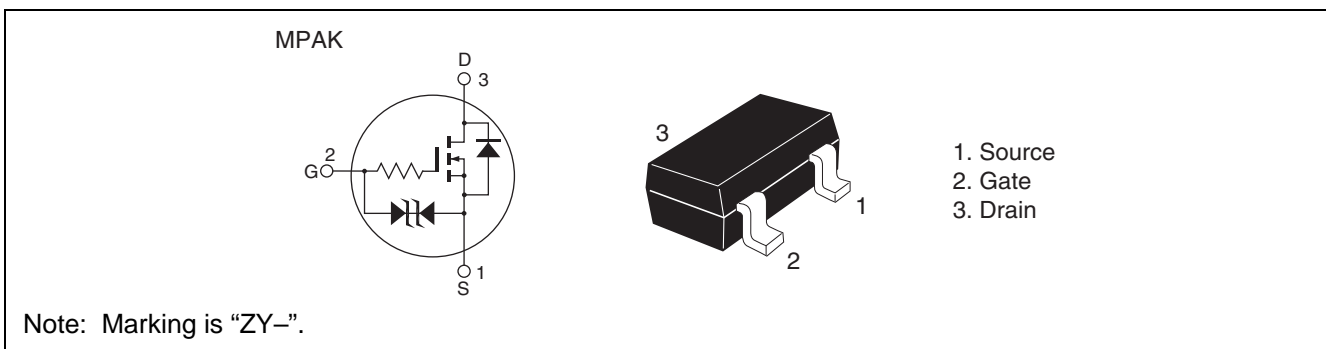
Silicon N Channel MOS FET
Low Frequency Power Switching

R07DS1134EJ0400
Rev.4.00
Jan 10, 2014

Features

- Low on-resistance
 $R_{DS(on)} = 0.16 \Omega$ typ. ($V_{GS} = 10 \text{ V}$, $I_D = 450 \text{ mA}$)
- 4 V gate drive devices.
- Small package (MPAK)
- Expansive drain to source surge power capability

Outline



Absolute Maximum Ratings

($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	40	V
Gate to source voltage	V_{GSS}	± 10	V
Drain current	I_D	1.0	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	4.0	A
Reverse drain current	I_{DR}	1.0	A
Channel dissipation	P_{ch} ^{Note2}	400	mW
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes: 1. $PW \leq 10 \mu\text{s}$, duty cycle $\leq 1 \%$

2. When using the glass epoxy board (10 mm x 10 mm x 1 mm^t)

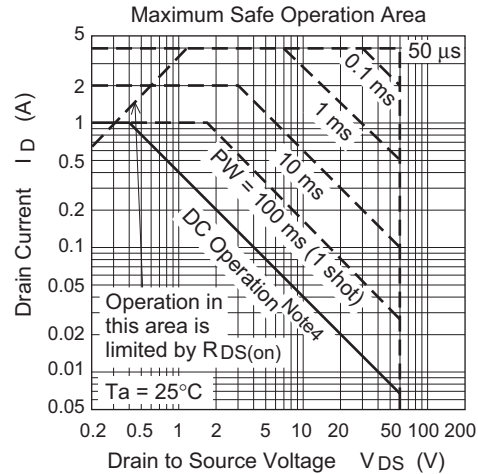
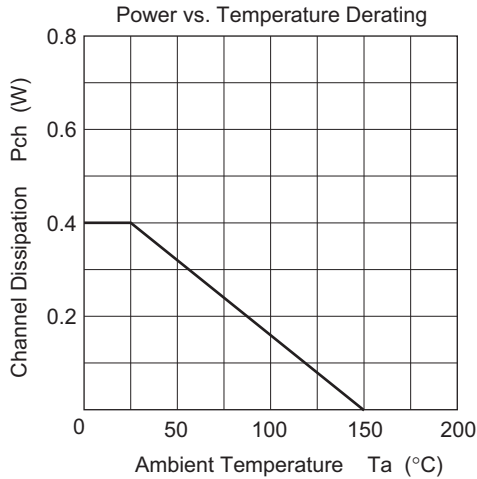
Electrical Characteristics

(Ta = 25°C)

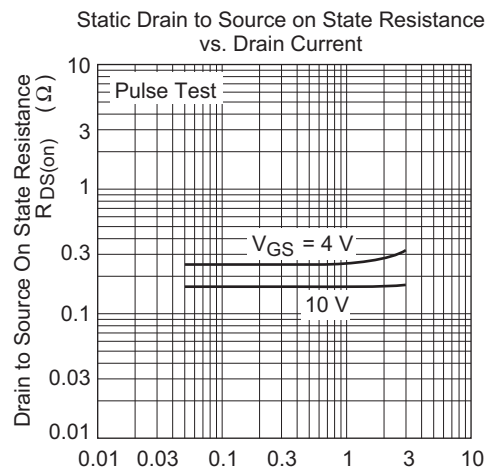
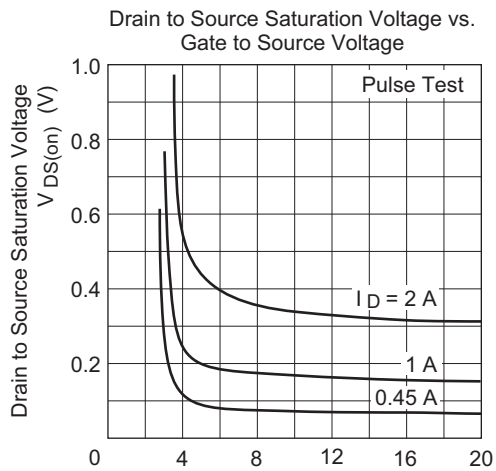
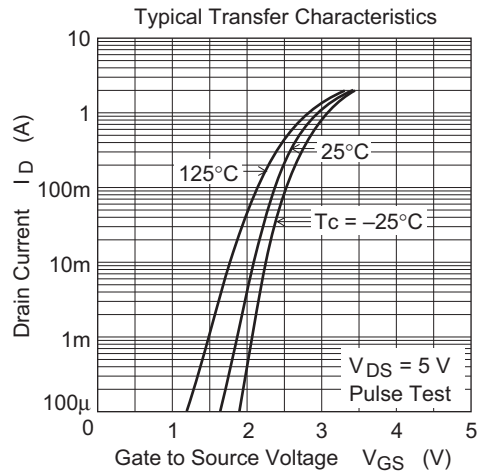
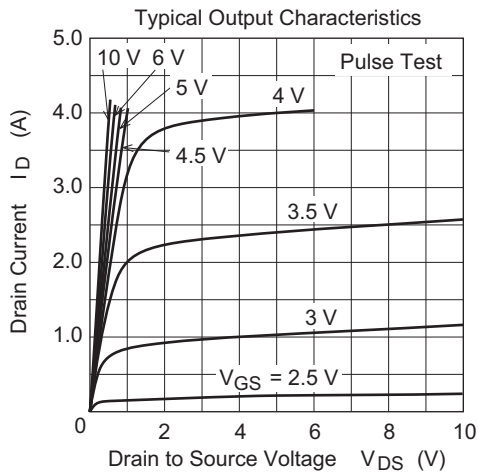
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	40	—	60	V	$I_D = 100 \mu A, V_{GS} = 0$
Drain to source voltage	$V_{DS(SUS)}$	40	—	—	V	$L = 100 \mu H, I_D = 3 A$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 10	—	—	V	$I_G = \pm 100 \mu A, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1.0	μA	$V_{DS} = 40 V, V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 5	μA	$V_{GS} = \pm 6.5 V, V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.1	—	2.1	V	$I_D = 10 \mu A, V_{DS} = 5 V$
Forward transfer admittance	$ y_{fs} $	0.5	1.2	—	S	$I_D = 450 mA, V_{DS} = 10 V$ ^{Note3}
Static drain to source on state resistance	$R_{DS(on)}$	—	0.24	0.5	Ω	$I_D = 450 mA, V_{GS} = 4 V$ ^{Note3}
	$R_{DS(on)}$	—	0.16	0.3	Ω	$I_D = 450 mA, V_{GS} = 10 V$ ^{Note3}
Input capacitance	C_{iss}	—	14.0	—	pF	$V_{DS} = 10 V$
Output capacitance	C_{oss}	—	68	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	3.0	—	pF	$f = 1 MHz$
Turn-on delay time	$t_{d(on)}$	—	0.12	—	μs	$V_{GS} = 4 V, I_D = 450 mA$ $R_L = 22 \Omega$
Rise time	t_r	—	0.6	—	μs	
Turn-off delay time	$t_{d(off)}$	—	1.7	—	μs	
Fall time	t_f	—	1.4	—	μs	

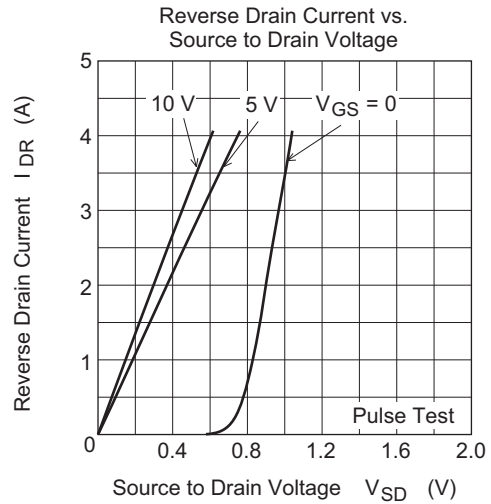
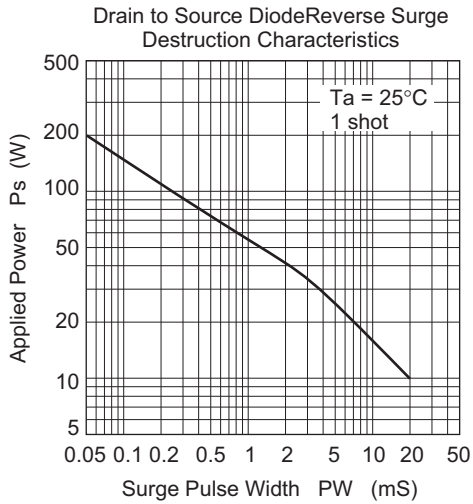
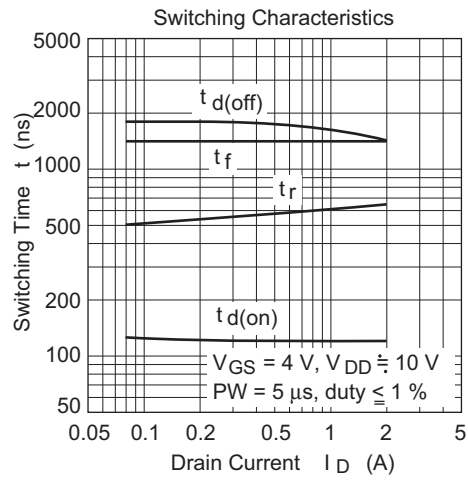
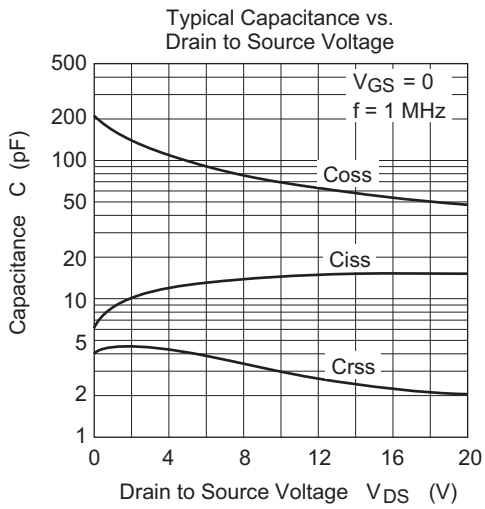
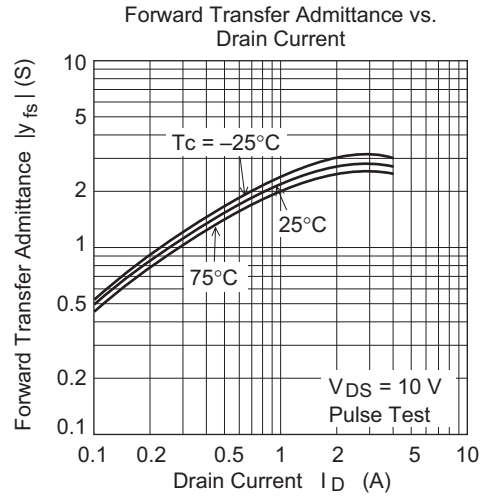
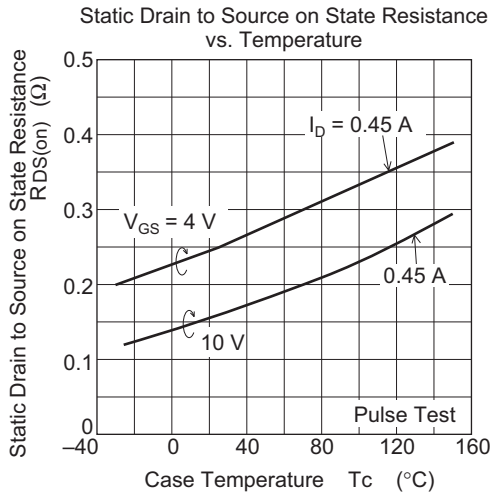
Notes: 3. Pulse test

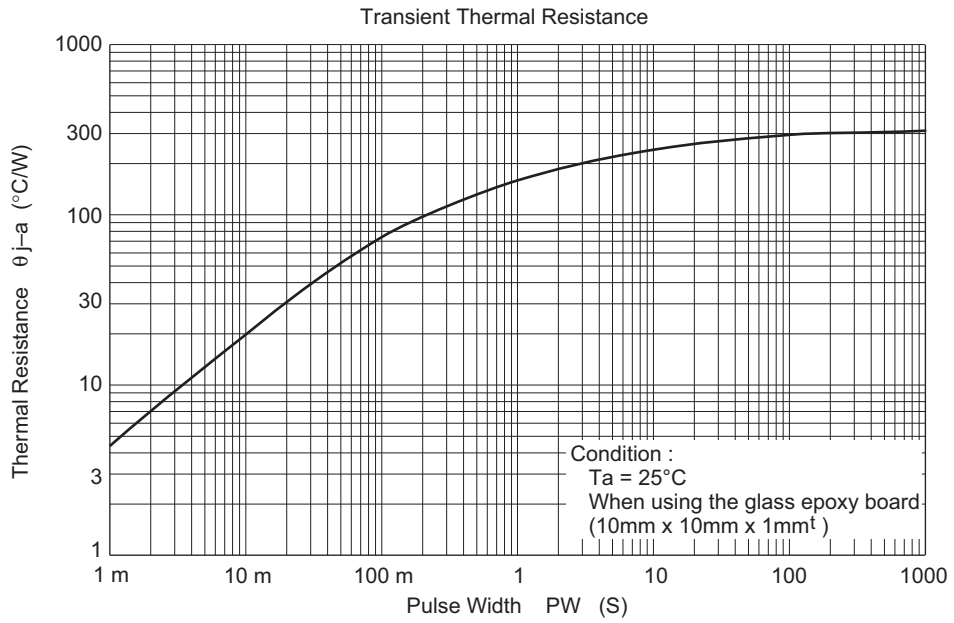
Main Characteristics



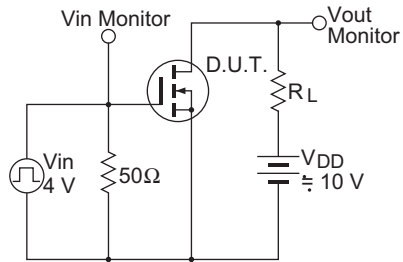
Note4 : When using the glass epoxy board (10mm x 10mm x 1mm^t)



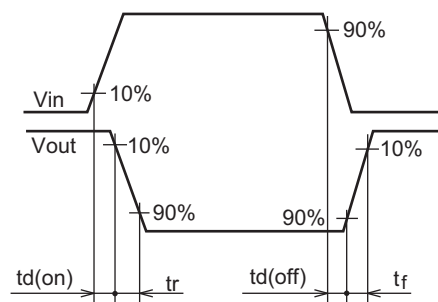




Switching Time Test Circuit

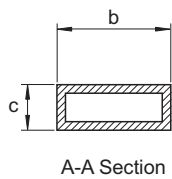
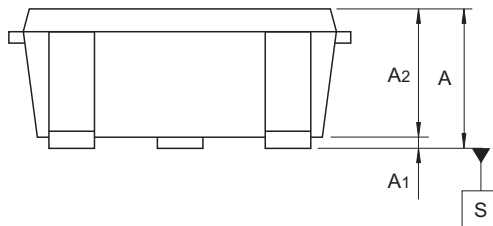
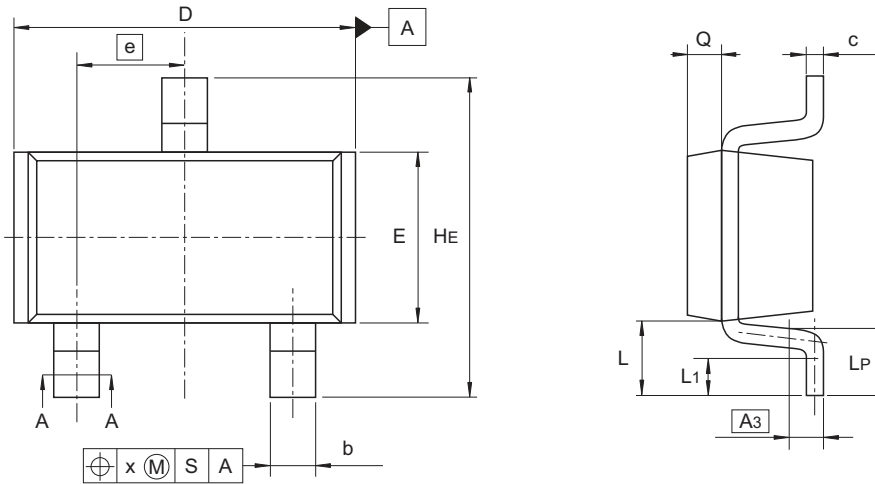


Switching Time Waveforms



Package Dimensions

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



Reference Symbol	Dimensions in millimeters		
	Min	Nom	Max
A	1.0	—	1.3
A1	0	—	0.1
A2	1.0	1.1	1.2
A3	—	0.25	—
b	0.35	0.4	0.5
c	0.1	0.16	0.26
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
L1	0.15	—	0.55
LP	0.25	—	0.65
x	—	—	0.05
Q	—	0.3	—

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Ordering Information

Part Name	Quantity	Shipping Container
2SK3000	3000 pcs	φ178 mm Reel Taping (TL)

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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