

# 2SK1764

## Silicon N Channel MOS FET

REJ03G0970-0200  
(Previous: ADE-208-1317)  
Rev.2.00  
Sep 07, 2005

### Application

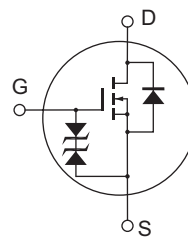
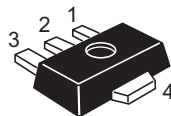
- Low frequency amplifier
- High speed switching

### Features

- Low on-resistance
- High speed switching
- 4 V Gate drive device can be driven from 5 V source
- Suitable for switching regulator, DC-DC converter

### Outline

RENESAS Package code: PLZZ0004CA-A  
(Package name: UPAK<sup>®</sup>)



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

Note: Marking is "KY".

\*UPAK is a trademark of Renesas Technology Corp.

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DS}$	60	V
Gate to source voltage	$V_{GS}$	$\pm 20$	V
Drain current	$I_D$	2	A
Drain peak current	$I_{D(pulse)}^{*1}$	4	A
Body to drain diode reverse drain current	$I_{DR}$	2	A
Channel power dissipation	$P_{ch}^{*2}$	1	W
Channel temperature	$T_{ch}$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

Notes: 1.  $PW \leq 100 \mu s$ , duty cycle  $\leq 10 \%$ 

2. Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)

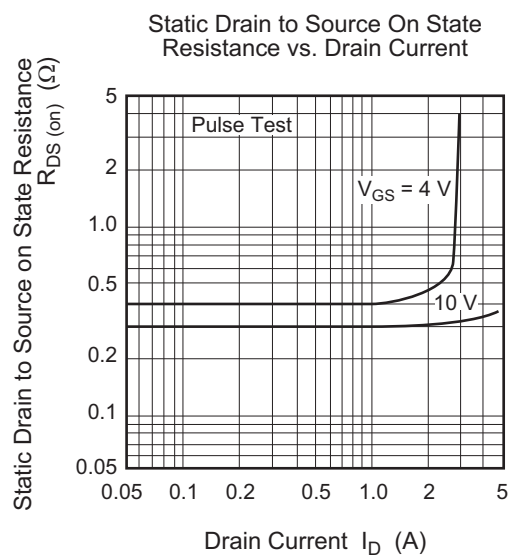
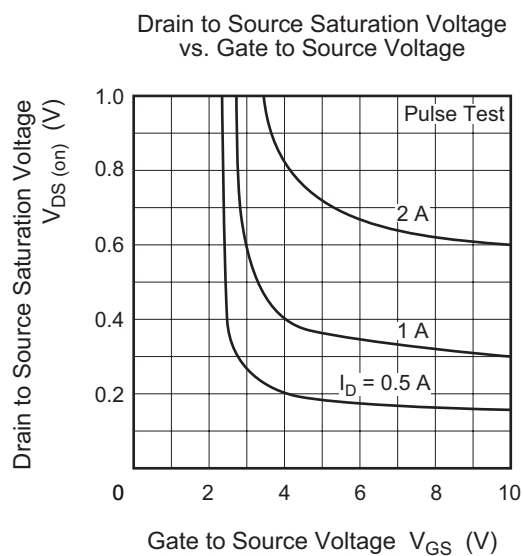
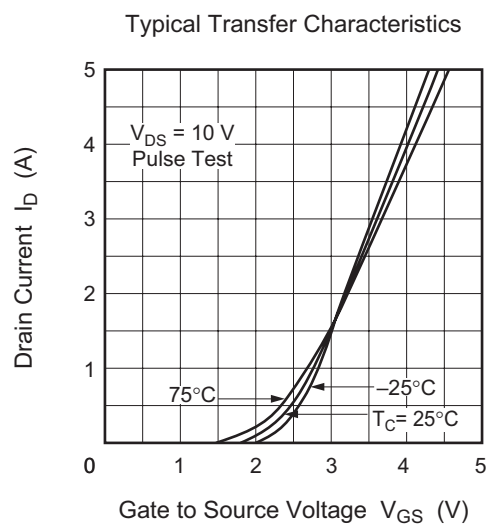
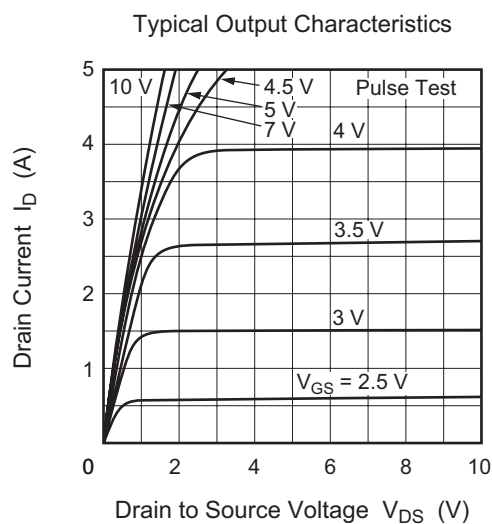
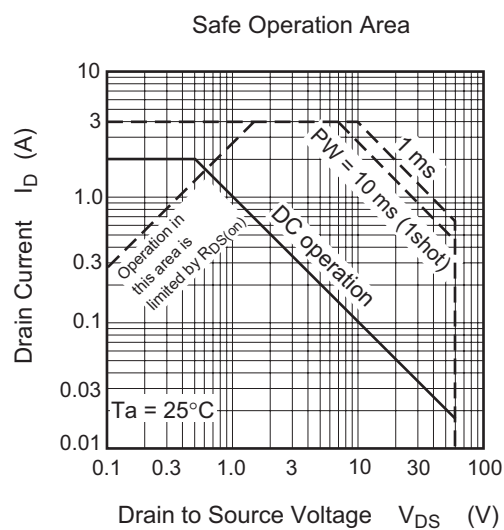
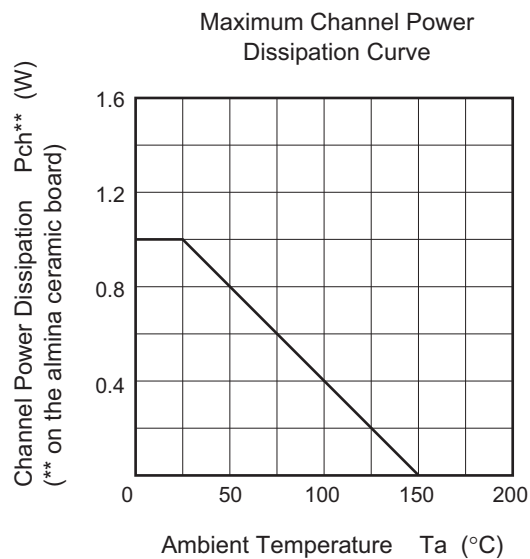
## Electrical Characteristics

(Ta = 25°C)

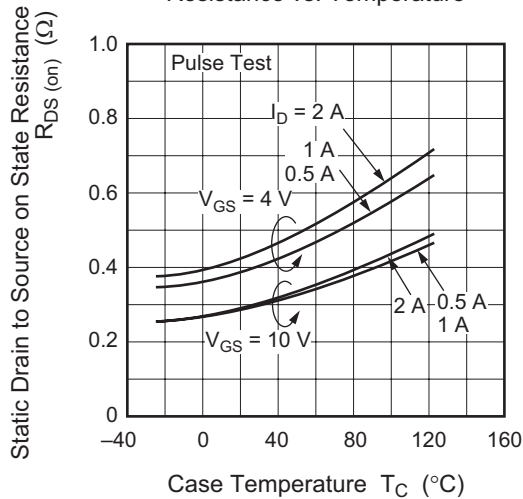
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100 \mu A$ , $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1	—	2	V	$V_{DS} = 10 \text{ V}$ , $I_D = 1 \text{ mA}$
Drain to source cutoff current	$I_{DSS}$	—	—	10	$\mu A$	$V_{DS} = 50 \text{ V}$ , $V_{GS} = 0$
Gate to source cutoff current	$I_{GSS}$	—	—	$\pm 5$	$\mu A$	$V_{GS} = \pm 15 \text{ V}$ , $V_{DS} = 0$
Static drain to source on state resistance	$R_{DS(on)1}$	—	0.3	0.45	$\Omega$	$V_{GS} = 10 \text{ V}$ , $I_D = 1 \text{ A}^{*3}$
Static drain to source on state resistance	$R_{DS(on)2}$	—	0.4	0.60	$\Omega$	$V_{GS} = 4 \text{ V}$ , $I_D = 1 \text{ A}^{*3}$
Forward transfer admittance	$ y_{fs} $	0.9	1.7	—	S	$V_{DS} = 10 \text{ V}$ , $I_D = 1 \text{ A}^{*3}$
Input capacitance	$C_{iss}$	—	140	—	pF	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	75	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	20	—	pF	
Turn on time	$t_{on}$	—	18	—	ns	$V_{DS} = 10 \text{ V}$ , $I_D = 1 \text{ A}^{*3}$ , $R_L = 30 \Omega$
Turn off time	$t_{off}$	—	80	—	ns	

Note: 3. Pulse Test

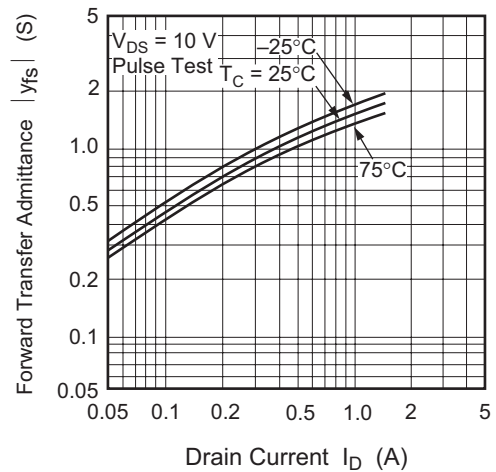
## Main Characteristics



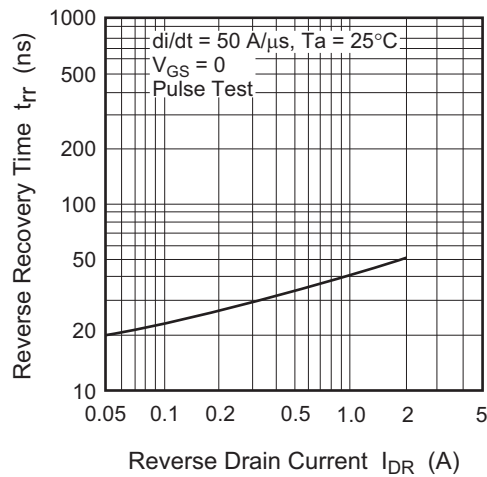
Static Drain to Source on State Resistance vs. Temperature



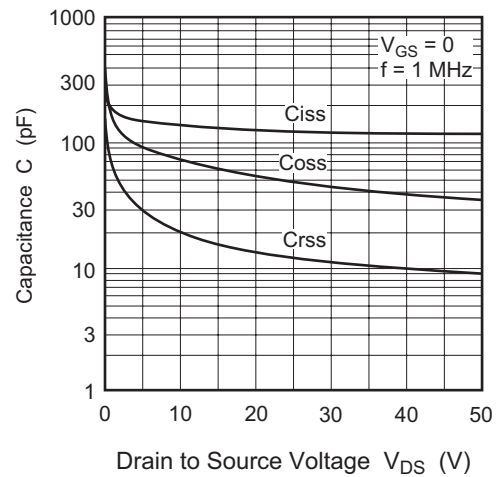
Forward Transfer Admittance vs. Drain Current



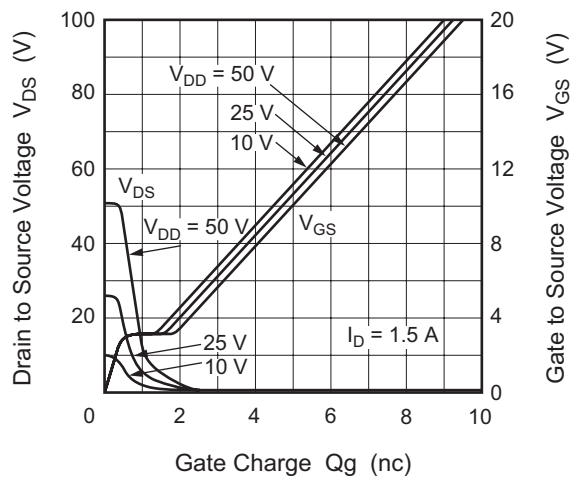
Body to Drain Diode Reverse Recovery Time



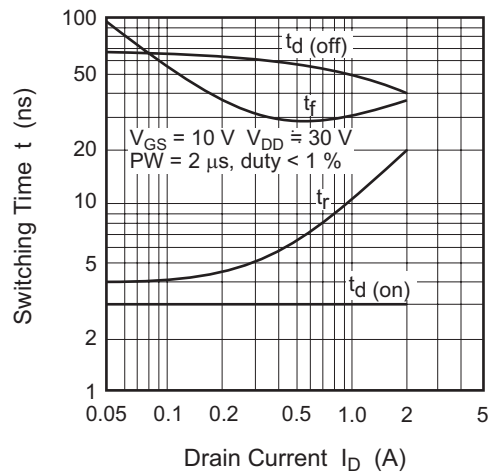
Typical Capacitance vs. Drain to Source Voltage

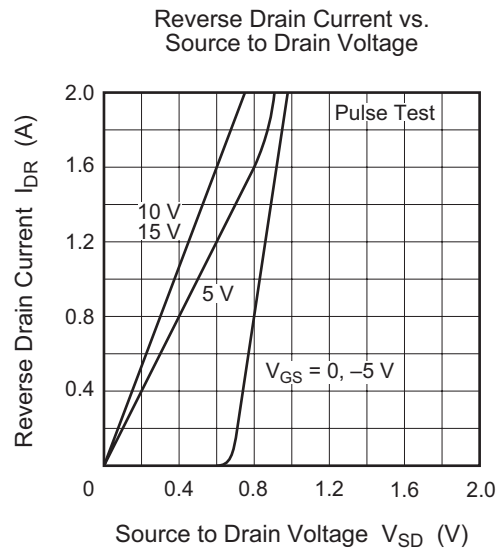


Dynamic Input Characteristics



Switching Characteristics





## Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]	Unit: mm
SC-62	PLZZ0004CA-A	UPAK / UPAKV	0.050g	

The drawing shows three views of the package:

- Top View:** Overall width is  $4.5 \pm 0.1$  mm. The central body width is  $1.8 \text{ Max}$  mm. The distance from the body to the lead is  $0.4$  mm. The lead width is  $2.5 \pm 0.1$  mm. The lead thickness is  $0.53 \text{ Max}$  mm. The distance between leads is  $1.5$  mm. The total width including leads is  $3.0$  mm. The distance from the body to the lead tip is  $4.25 \text{ Max}$  mm. The minimum lead height is  $0.8 \text{ Min}$  mm. A circular feature with diameter  $\phi 1$  is located on the body.
- Side View:** The lead height is  $1.5 \pm 0.1$  mm. The lead thickness is  $0.44 \text{ Max}$  mm.
- End View:** The lead width is  $(1.5)$  mm. The lead thickness is  $(0.4)$  mm. The lead height is  $(0.2)$  mm.

## Ordering Information

Part Name	Quantity	Shipping Container
2SK1764KYTL-E	3000 pcs	Taping, $\phi 178$ mm Reel
2SK1764KYTR-E	3000 pcs	Taping, $\phi 178$ mm Reel

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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