

2SK1764

Silicon N Channel MOS FET

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

Application

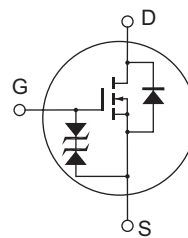
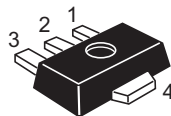
- Low frequency amplifier
- High speed switching

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[®])



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}	± 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)

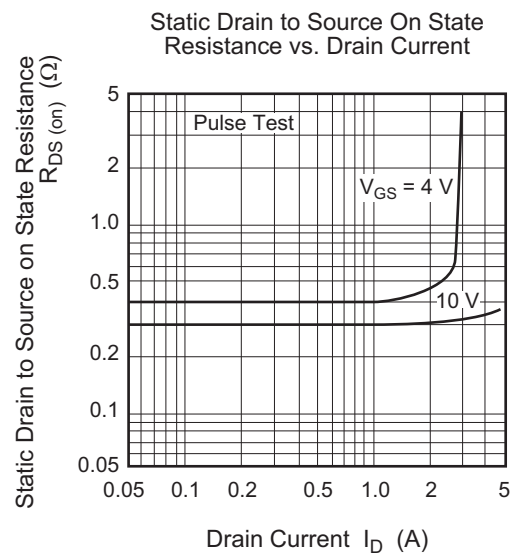
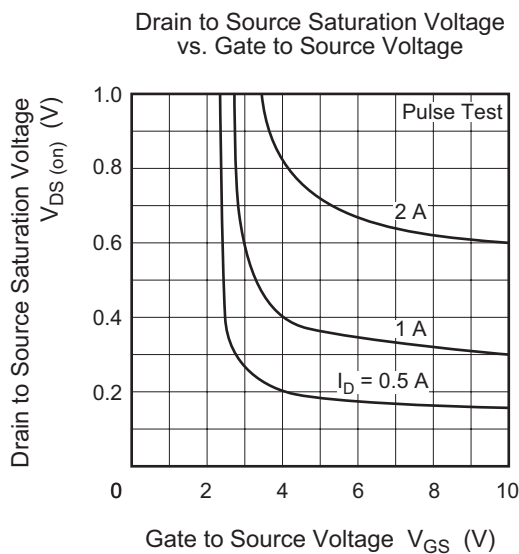
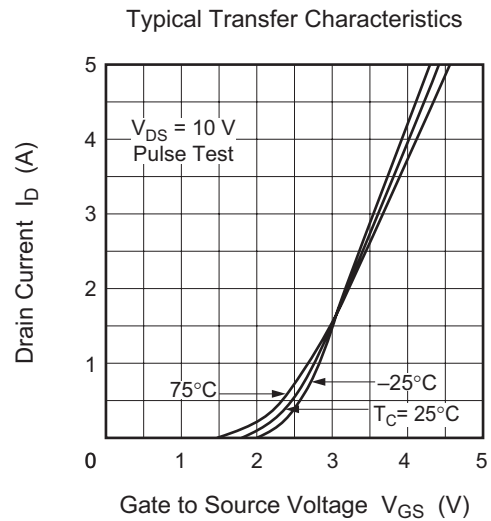
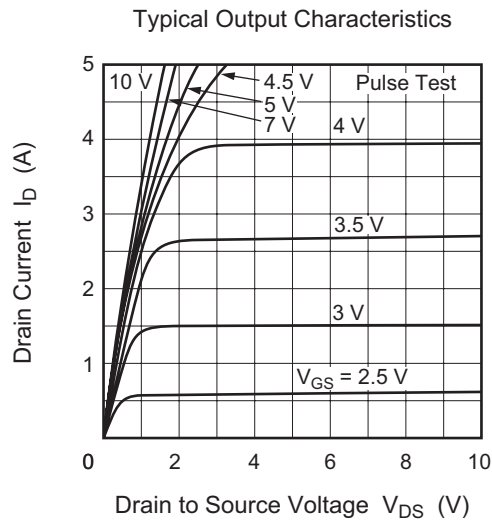
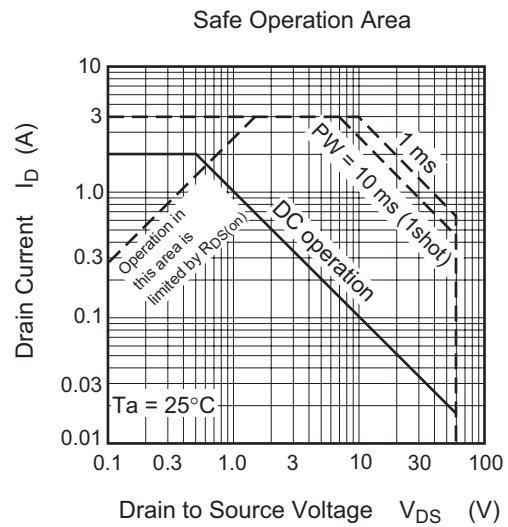
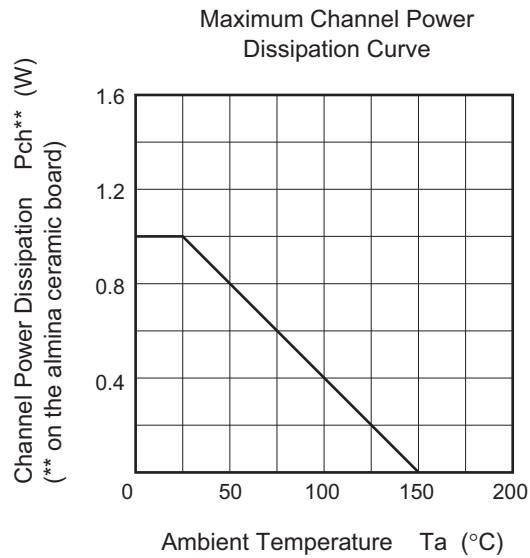
Electrical Characteristics

(Ta = 25°C)

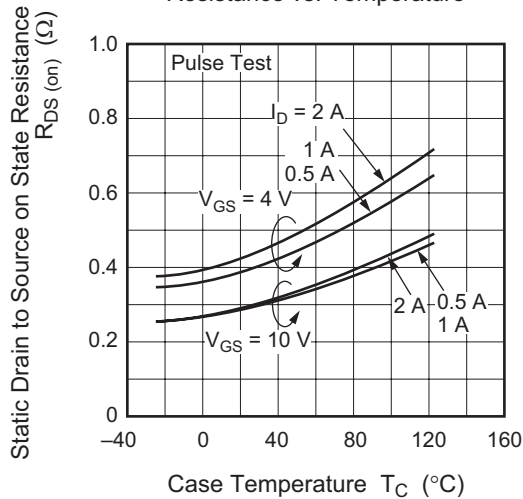
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1	—	2	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Drain to source cutoff current	I_{DSS}	—	—	10	μA	$V_{DS} = 50 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff current	I_{GSS}	—	—	± 5	μA	$V_{GS} = \pm 15 \text{ V}$, $V_{DS} = 0$
Static drain to source on state resistance	$R_{DS(on)1}$	—	0.3	0.45	Ω	$V_{GS} = 10 \text{ V}$, $I_D = 1 \text{ A}^{*3}$
Static drain to source on state resistance	$R_{DS(on)2}$	—	0.4	0.60	Ω	$V_{GS} = 4 \text{ V}$, $I_D = 1 \text{ A}^{*3}$
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

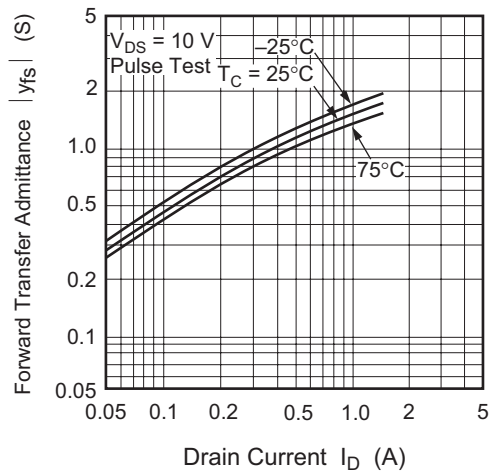
Main Characteristics



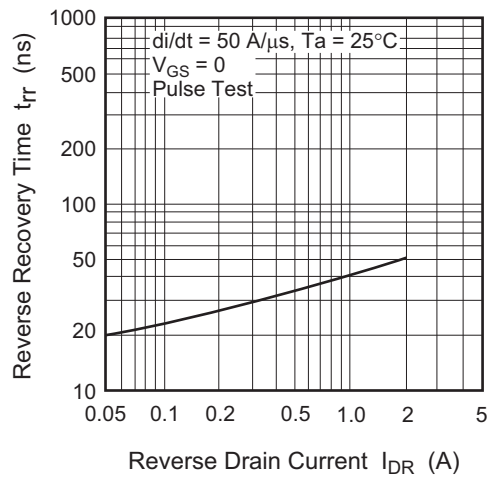
Static Drain to Source on State Resistance vs. Temperature



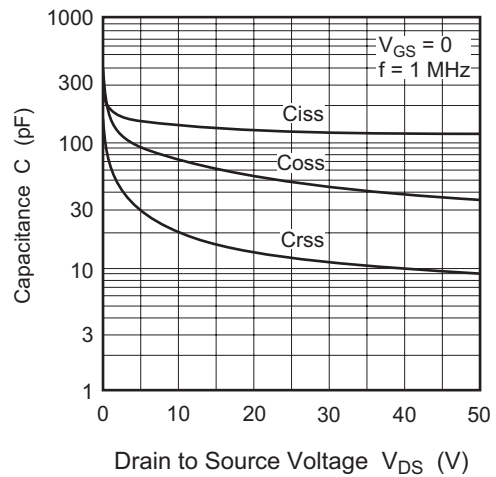
Forward Transfer Admittance vs. Drain Current



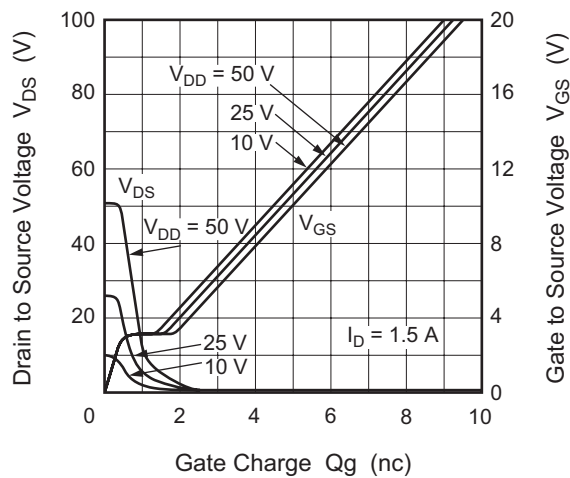
Body to Drain Diode Reverse Recovery Time



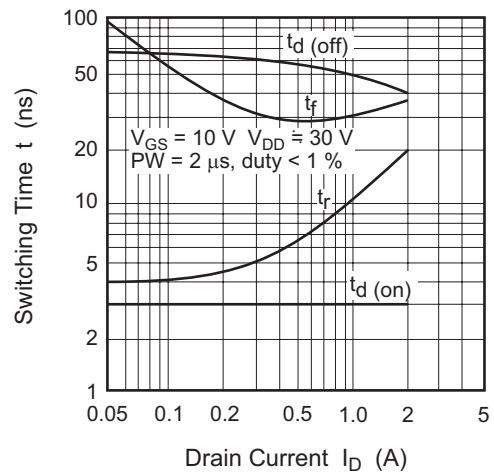
Typical Capacitance vs. Drain to Source Voltage

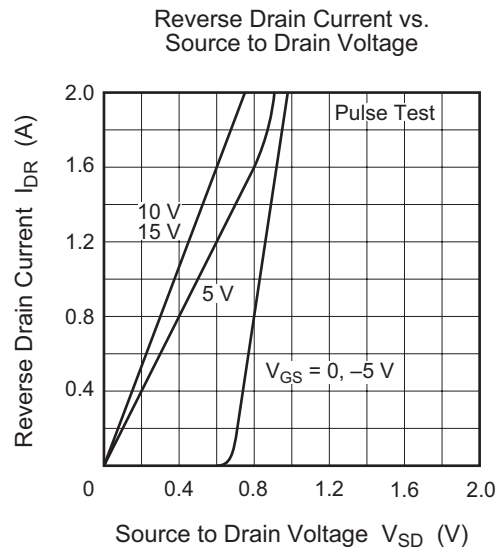


Dynamic Input Characteristics



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 ± 0.1 mm. The central circular feature has a diameter of $\phi 1$ mm. The distance from the center to the nearest edge is 1.8 Max mm. The distance between the two side features is 1.5 mm. The total width of the base is 3.0 mm. The distance from the center to the bottom edge is 2.5 ± 0.1 mm. The distance from the center to the top edge is 0.4 mm. The distance from the center to the side edge is 0.53 Max mm. The distance from the center to the bottom edge is 0.48 Max mm. The distance from the center to the side edge is 0.8 Min mm.
- Side View:** The height of the package is 1.5 ± 0.1 mm. The distance from the top edge to the bottom edge is 0.44 Max mm. The distance from the bottom edge to the side edge is 0.44 Max mm.
- End View:** The width of the package is 1.5 mm. The distance from the top edge to the bottom edge is (2.5) mm. The distance from the bottom edge to the side edge is (0.4) mm. The distance from the side edge to the bottom edge 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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