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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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4AK25

Silicon N-Channel Power MOS FET Array

RENESAS

ADE-208-1207 (Z)

1st. Edition

Mar. 2001

Application

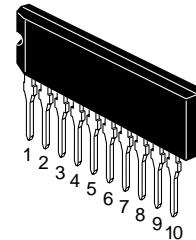
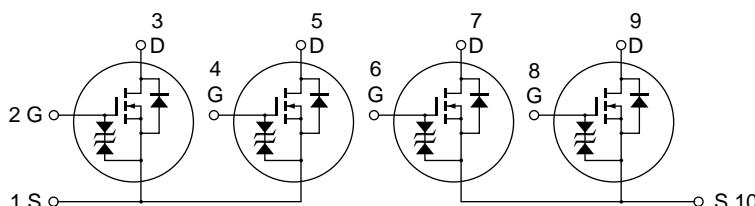
High speed power switching

Features

- Low on-resistance
 $R_{DS(on)}$ 0.45 , $V_{GS} = 10$ V, $I_D = 1$ A
- Low drive current
- High speed switching
- High density mounting

Outline

SP-10



1, 10. Source
2, 4, 6, 8. Gate
3, 5, 7, 9. Drain

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	60	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	1.5	A
Drain peak current	I _{D(pulse)} ^{*1}	4.5	A
Body to drain diode reverse drain current	I _{DR}	1.5	A
Channel dissipation	Pch (Tc = 25°C) ^{*2}	24	W
Channel dissipation	Pch ^{*2}	3.6	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW 10 µs, duty cycle 1%

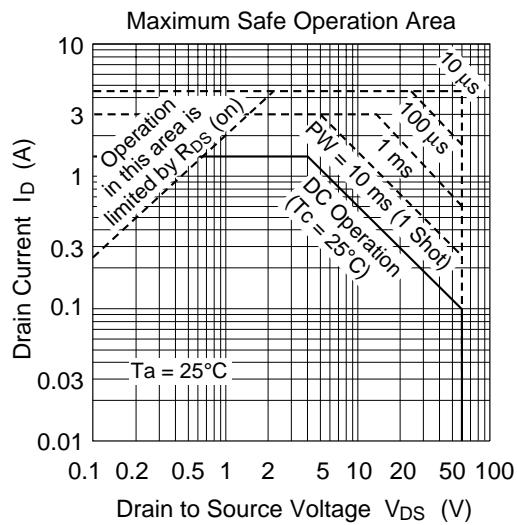
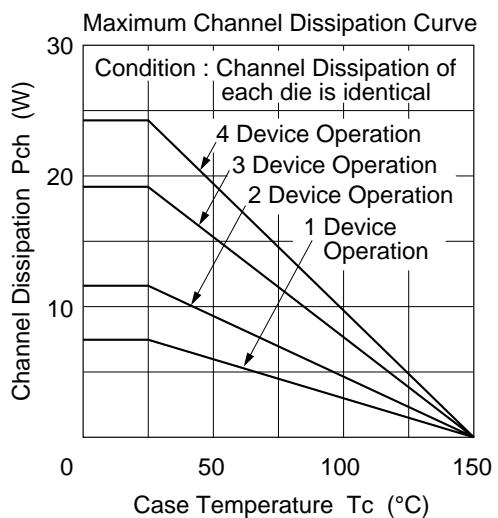
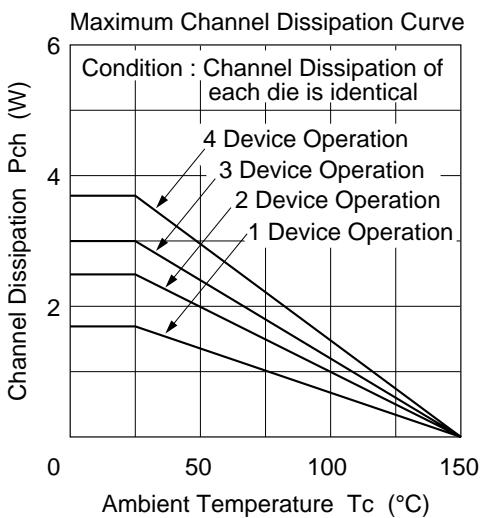
2. 4 Devices operation

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 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 µA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	µA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	250	µA	V _{DS} = 50 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	1.0	—	2.0	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance	R _{DS(on)}	—	0.35	0.45		I _D = 1 A V _{GS} = 10 V ^{*1}
		—	0.47	0.65		I _D = 1 A V _{GS} = 4 V ^{*1}
Forward transfer admittance	y _{fs}	0.9	1.5	—	S	I _D = 1 A V _{DS} = 10 V ^{*1}
Input capacitance	C _{iss}	—	140	—	pF	V _{DS} = 10 V
Output capacitance	C _{oss}	—	70	—	pF	V _{GS} = 0
Reverse transfer capacitance	C _{rss}	—	20	—	pF	f = 1 MHz
Turn-on delay time	t _{d(on)}	—	3	—	ns	I _D = 1 A
Rise time	t _r	—	12	—	ns	V _{GS} = 10 V
Turn-off delay time	t _{d(off)}	—	50	—	ns	R _L = 30
Fall time	t _f	—	30	—	ns	
Body to drain diode forward voltage	V _{DF}	—	1.1	—	V	I _F = 1.5 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	70	—	µs	I _F = 1.5 A, V _{GS} = 0, dI/dt = 50 A/µs

Note: 1. Pulse Test

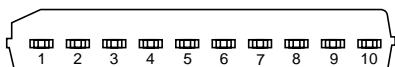
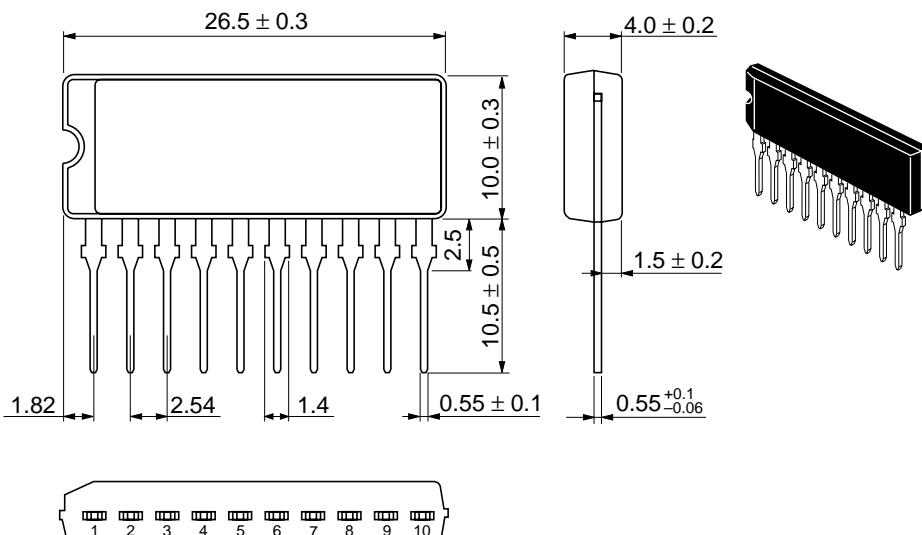
See characteristic curves of 2SK975



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	SP-10
JEDEC	—
EIAJ	—
Mass (reference value)	2.9 g

Cautions

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HITACHI

Hitachi, Ltd.

Semiconductor & Integrated Circuits.

Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL	NorthAmerica	:	http://semiconductor.hitachi.com/
	Europe	:	http://www.hitachi-eu.com/hel/ecg
	Asia	:	http://sicapac.hitachi-asia.com
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For further information write to:

Hitachi Semiconductor (America) Inc.	Hitachi Europe GmbH
179 East Tasman Drive, San Jose, CA 95134	Electronic Components Group
Tel: <1> (408) 433-1990	Dornacher Straße 3
Fax: <1>(408) 433-0223	D-85622 Feldkirchen, Munich
	Germany
	Tel: <49> (89) 9 9180-0
	Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.
Electronic Components Group.
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 585160

Hitachi Asia Ltd.
Hitachi Tower
16 Collyer Quay #20-00,
Singapore 049318
Tel : <65>-538-6533/538-8577
Fax : <65>-538-6933/538-3877
URL : http://www.hitachi.com.sg

Hitachi Asia Ltd.
(Taipei Branch Office)
4/F, No. 167, Tun Hwa North Road,
Hung-Kuo Building,
Taipei (105), Taiwan
Tel : <886>-(2)-2718-3666
Fax : <886>-(2)-2718-8180
Telex : 23222 HAS-TP
URL : http://www.hitachi.com.tw

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon,
Hong Kong
Tel : <852>-(2)-735-9218
Fax : <852>-(2)-730-0281
URL : http://www.hitachi.com.hk

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