

---

# 2SK439

Silicon N-Channel MOS FET

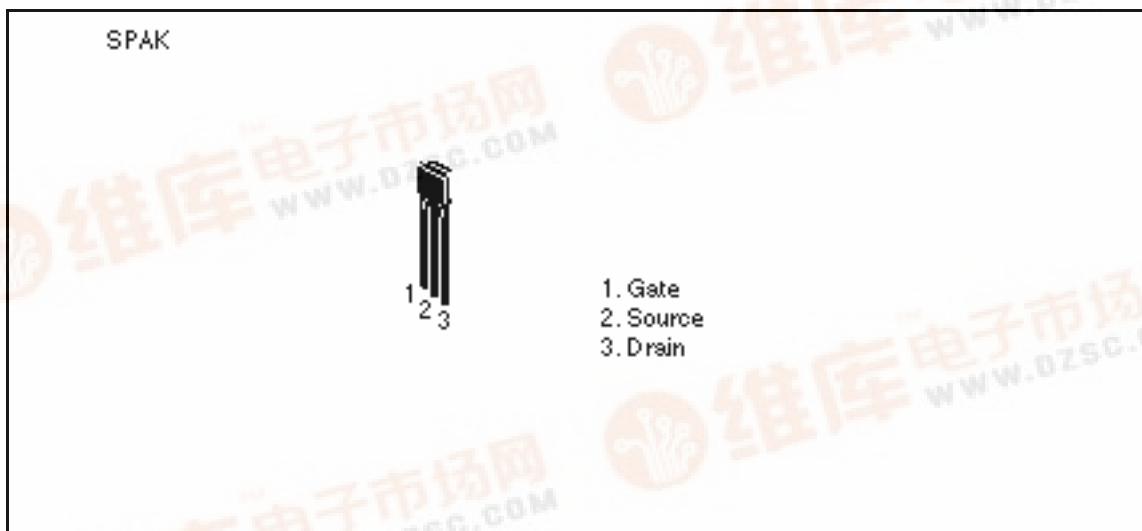
# HITACHI

---

## Application

VHF amplifier

## Outline



## 2SK439

### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DS}$	20	V
Gate to source voltage	$V_{GSS}$	±5	V
Drain current	$I_D$	30	mA
Gate current	$I_G$	±1	mA
Channel power dissipation	Pch	300	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

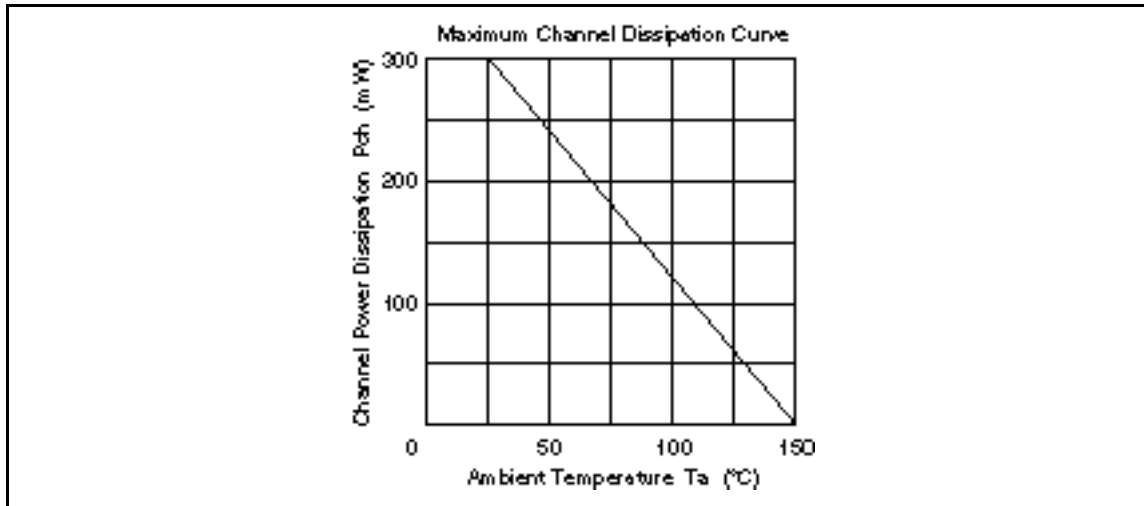
### Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSX}$	20	—	—	V	$I_D = 100 \mu A, V_{GS} = -4 V$
Gate cutoff current	$I_{GSS}$	—	—	±20	nA	$V_{GS} = \pm 5 V, V_{DS} = 0$
Drain current	$I_{DSS}^{*1}$	4	—	12	mA	$V_{DS} = 10 V, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0	—	-2.0	V	$V_{DS} = 10 V, I_D = 10 \mu A$
Forward transfer admittance	$ y_{fs} $	8	14	—	mS	$V_{DS} = 10 V, V_{GS} = 0, f = 1 \text{ kHz}$
Input capacitance	Ciss	—	2.5	—	pF	$V_{DS} = 10 V, V_{GS} = 0, f = 1 \text{ MHz}$
Reverse transfer capacitance	Crss	—	0.03	—	pF	
Output capacitance	Coss	—	1.8	—	pF	$V_{DS} = 5 V, V_{GS} = 0, f = 1 \text{ MHz}$
Power gain	PG	—	30	—	dB	$V_{DS} = 10 V, V_{GS} = 0, f = 100 \text{ MHz}$
Noise figure	NF	—	2.0	—	dB	

Note: 1. The 2SK439 is grouped by  $I_{DSS}$  as follows.

Grade	D	E	F
$I_{DSS}$	4 to 8	6 to 10	8 to 12

See characteristic curves of 2SK359.



---

## 2SK439

---

When using this document, keep the following in mind:

1. This document may, wholly or partially, be subject to change without notice.
2. All rights are reserved: No one is permitted to reproduce or duplicate, in any form, the whole or part of this document without Hitachi's permission.
3. Hitachi will not be held responsible for any damage to the user that may result from accidents or any other reasons during operation of the user's unit according to this document.
4. Circuitry and other examples described herein are meant merely to indicate the characteristics and performance of Hitachi's semiconductor products. Hitachi assumes no responsibility for any intellectual property claims or other problems that may result from applications based on the examples described herein.
5. No license is granted by implication or otherwise under any patents or other rights of any third party or Hitachi, Ltd.
6. **MEDICAL APPLICATIONS:** Hitachi's products are not authorized for use in **MEDICAL APPLICATIONS** without the written consent of the appropriate officer of Hitachi's sales company. Such use includes, but is not limited to, use in life support systems. Buyers of Hitachi's products are requested to notify the relevant Hitachi sales offices when planning to use the products in **MEDICAL APPLICATIONS**.

---

# HITACHI

## Hitachi, Ltd.

Semiconductor & IC Div.

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

Tel: Tokyo (03) 3270-2111

Fax: (03) 3270-5109

For further information write to:

Hitachi America, Ltd.  
Semiconductor & IC Div.

2000 Sierra Point Parkway

Brabens, CA 94005-4835

U.S.A.

Tel: 415-589-8300

Fax: 415-589-4207

Hitachi Europe GmbH  
Electronic Components Group

Continental Europe

Dornacher Straße 3

D-95522 Feldkirchen

München

Tel: 089-9 24 80-0

Fax: 089-9 29 30 00

Hitachi Europe Ltd.

Electronic Components Div.

Northern Europe Headquarters

Willisbrook Park

Lower Cookham Road

Uxbridge

Berkshire SL6 6YU

United Kingdom

Tel: 0628-585000

Fax: 0628-778322

Hitachi Asia Pte. Ltd.

45 Collyer Quay #20-00

Hitachi Tower

Singapore 0104

Tel: 535-2100

Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd.

Unit 705, North Tower,

World Finance Centre

Harbour City, Canton Road

Tsim Sha Tsui, Kowloon

Hong Kong

Tel: 27389218

Fax: 27308074

**HITACHI**