2SJ76, 2SJ77, 2SJ78, 2SJ79

Silicon P-Channel MOS FET

HITACHI

Application

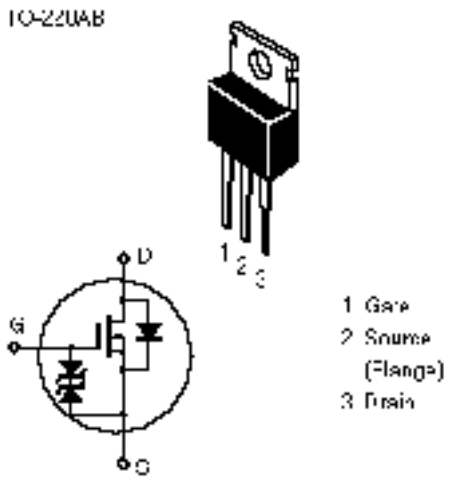
High frequency and low frequency power amplifier, high speed power switching

Complementary pair with 2SK213, 2SK214, 2SK215, 2SK216

Features

- Suitable for direct mounting
- High forward transfer admittance
- Excellent frequency response
- Enhancement-mode

Outline



Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

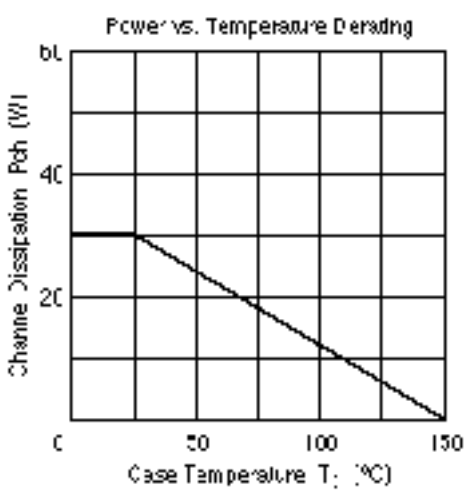
Item		Symbol	Ratings	Unit
Drain to source voltage	2SJ76	V_{DSX}	–140	V
	2SJ77		–160	
	2SJ78		–180	
	2SJ79		–200	
Gate to source voltage		V_{GSS}	±15	V
Drain current		I_D	–500	mA
Body to drain diode reverse drain current		I_{DR}	–500	mA
Channel dissipation		Pch	1.75	W
		Pch*[1]	30	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	–45 to +150	°C

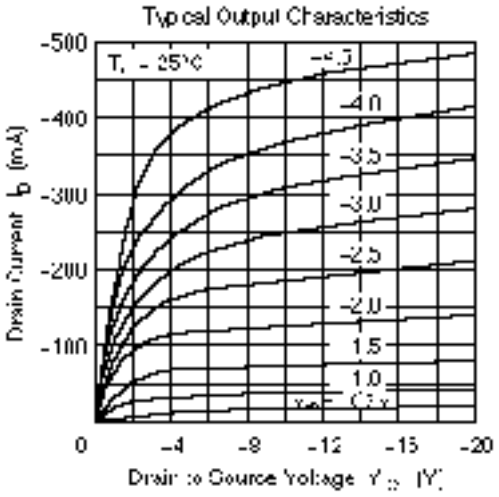
Note: 1. Value at T_C = 25°C

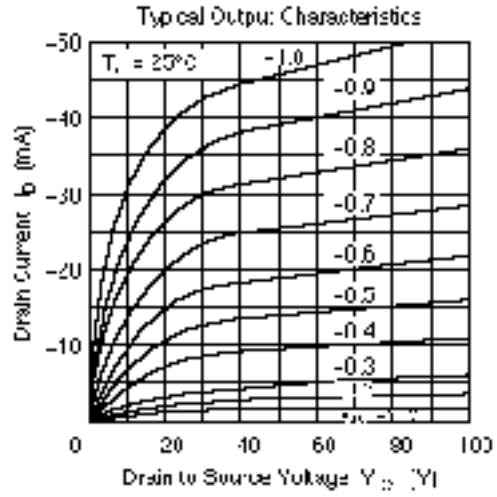
Electrical Characteristics (Ta = 25°C)

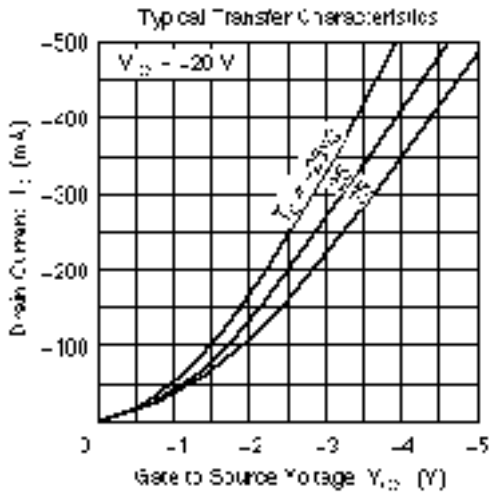
Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SJ76	$V_{(BR)DSX}$	–140	—	—	V	V_{GS} = 2 V, I_D = –1 mA
	2SJ77		–160	—	—	V	
	2SJ78		–180	—	—	V	
	2SJ79		–200	—	—	V	
Gate to source breakdown voltage		$V_{(BR)GSS}$	±15	—	—	V	I_G = ±10 µA, V_{DS} = 0
Gate to source voltage		$V_{GS(on)}$	–0.2	—	–1.5	V	I_D = –10 mA, V_{DS} = –10 V*[1]
Drain to source saturation voltage		$V_{DS(sat)}$	—	—	–2.0	V	I_D = –10 mA, V_{GD} = 0 *[1]
Forward transfer admittance		$\|y_{fs}\|$	20	35	—	mS	I_D = –10 mA, V_{DS} = –20 V*[1]
Input capacitance		Ciss	—	120	—	pF	V_{DS} = –10 V, I_D = –10 mA,
Reverse transfer capacitance		Crss	—	4.8	—	pF	f = 1 MHz

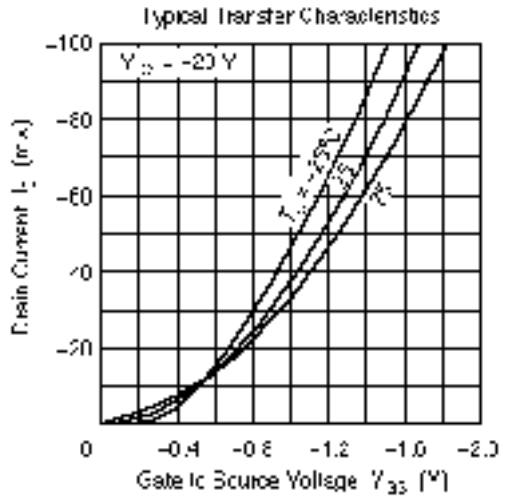
Note: 1. Pulse test

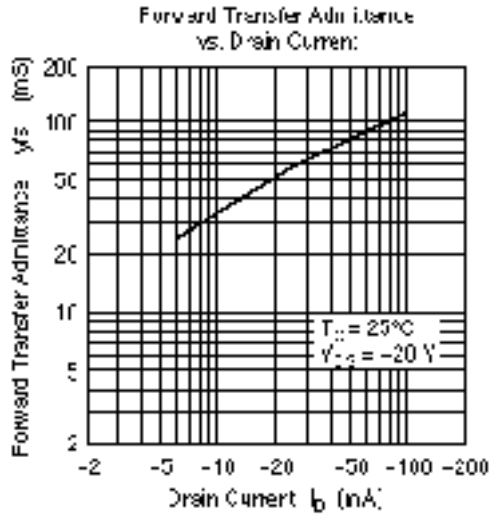

Power vs. Temperature Derating
Channe Dissipation Pch (W)
60
40
20
0
50
100
150
Case Temperature T_C (°C)

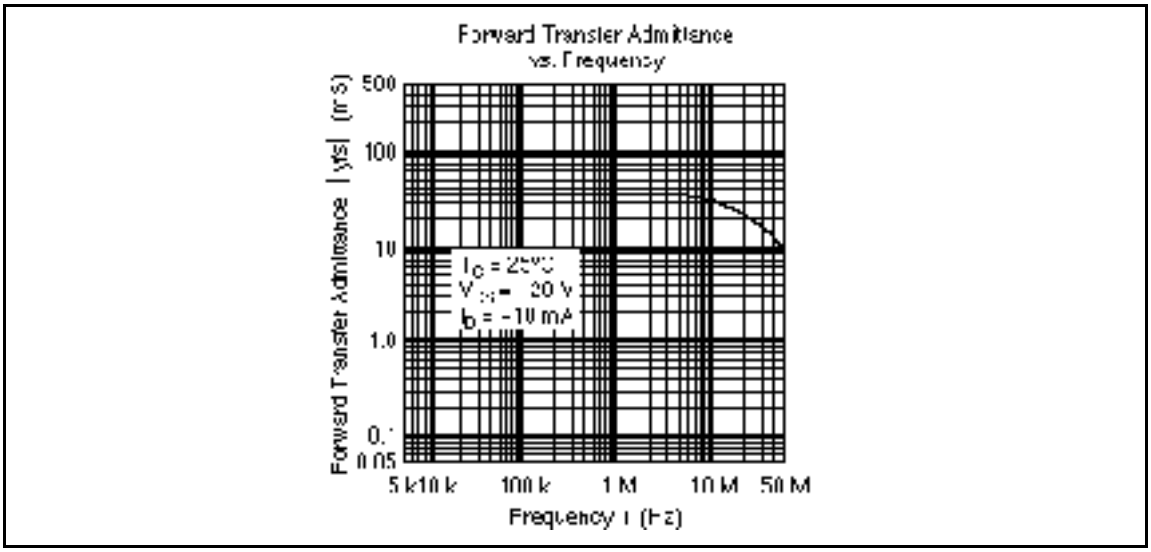

Typical Output Characteristics
T_a = 25°C
-5.0
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
V_GS = 0 V
Drain Current I_D (mA)
-500
-400
-300
-200
-100
0
-4
-8
-12
-16
-20
Drain to Source Voltage V_DS (V)


Typical Output Characteristics
T_a = 25°C
-1.0
-0.9
-0.8
-0.7
-0.6
-0.5
-0.4
-0.3
Drain Current I_D (mA)
-50
-40
-30
-20
-10
0
20
40
60
80
100
Drain to Source Voltage V_DS (V)


Typical Transfer Characteristics
V_DS = -20 V
Drain Current I_D (mA)
-500
-400
-300
-200
-100
0
-1
-2
-3
-4
-5
Gate to Source Voltage V_GS (V)


Typical Transfer Characteristics
V_DS = -20 V
Drain Current I_D (mA)
-100
-80
-60
-40
-20
0
-0.4
-0.8
-1.2
-1.6
-2.0
Gate to Source Voltage V_GS (V)


Forward Transfer Admittance
vs. Drain Current
Forward Transfer Admittance |yfs| (mS)
200
100
50
20
10
5
2
T_C = 25°C
V_DS = -20 V
-2
-5
-10
-20
-50
-100
-200
Drain Current I_D (mA)


Forward Transfer Admittance
vs. Frequency
Forward Transfer Admittance |yfs| (mS)
500
100
10
1.0
0.1
0.05
5 k
10 k
100 k
1 M
10 M
50 M
Frequency f (Hz)

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, Ohte-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
Brisbane, CA. 94005-1835
U.S.A.
Tel: 415-589-8300
Fax: 415-583-4207

Hitachi Europe GmbH
Electronic Components Group
Continental Europe
Dornacher Straße 3
D-85622 Feldkirchen
München
Tel: 089-9 91 80-0
Fax: 089-9 29 30 00

Hitachi Europe Ltd.
Electronic Components Div.
Northern Europe Headquarters
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA
United Kingdom
Tel: 0628-585000
Fax: 0628-778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 0104
Tel: 535-2100
Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd.
Unit 706, North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon
Hong Kong
Tel: 27359218
Fax: 27306071