2SK213, 2SK214, 2SK215, 2SK216

Silicon N-Channel MOS FET

Application

High frequency and low frequency power amplifier, high speed switching.
Complementary pair with 2SJ76, J77, J78, J79

Features

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

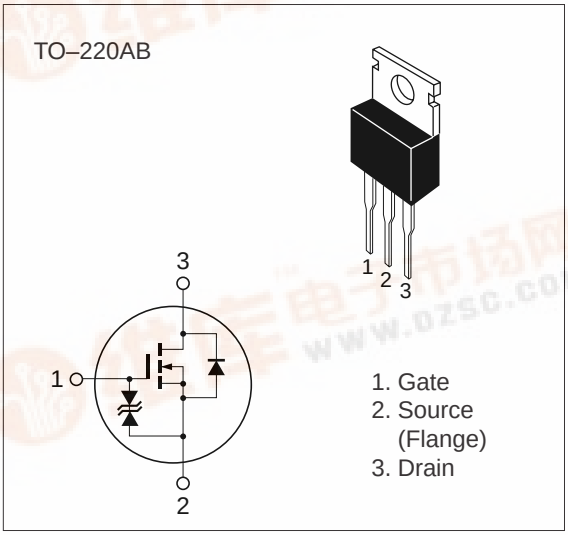


Table 1 Absolute Maximum Ratings (Ta = 25°C)

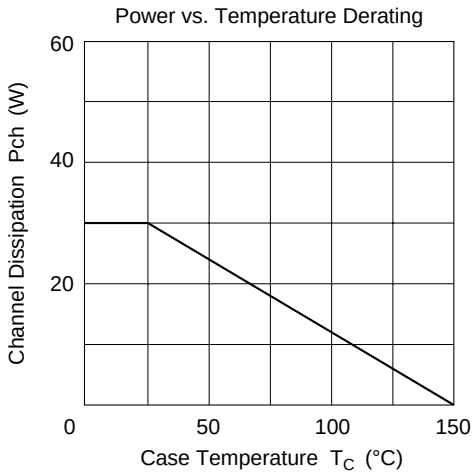
Item		Symbol	Ratings	Unit
Drain to source voltage	2SK213	V_{DSX}	140	V
	2SK214		160	
	2SK215		180	
	2SK216		200	
Gate to source voltage		V_{GSS}	±15	V
Drain current		I_D	500	mA
Body to drain diode reverse drain current		I_{DR}	500	mA
Channel dissipation		Pch	1.75	W
		Pch*	30	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	–45 to +150	°C

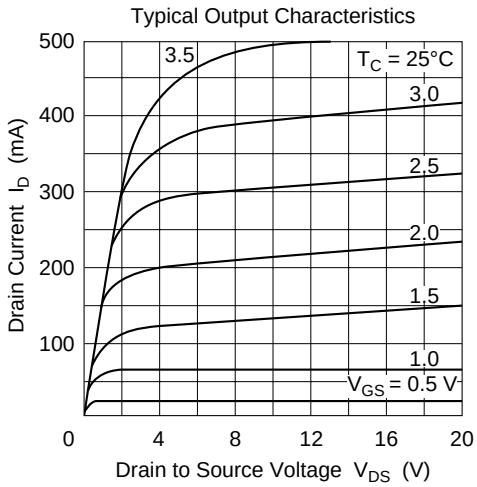
* Value at T_C = 25 °C

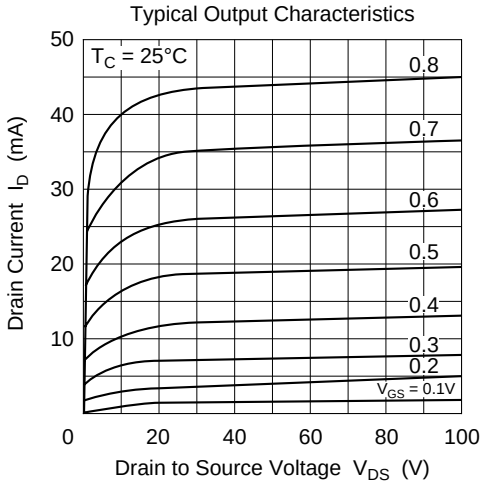
Table 2 Electrical Characteristics (Ta = 25°C)

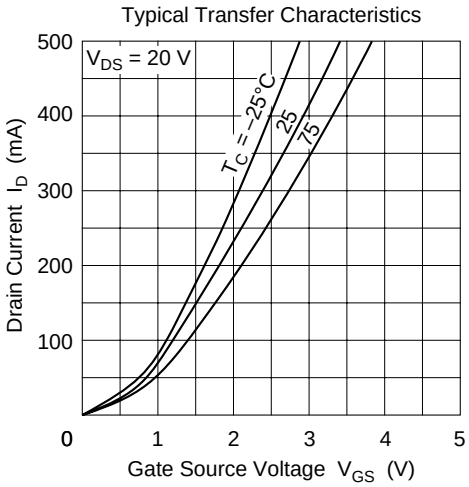
Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK213	$V_{(BR)DSX}$	140	—	—	V	I_D = 1 mA, V_{GS} = –2 V
	2SK214		160	—	—	V	
	2SK215		180	—	—	V	
	2SK216		200	—	—	V	
Gate to source breakdown voltage		$V_{(BR)GSS}$	±15	—	—	V	I_G = ±10 µA, V_{DS} = 0
Gate to source voltage		$V_{GS(on)}$	0.2	—	1.5	V	I_D = 10 mA, V_{DS} = 10 V *
Drain to source saturation voltage		$V_{DS(sat)}$	—	—	2.0	V	I_D = 10 mA, V_{GD} = 0 *
Forward transfer admittance		$\|y_{fs}\|$	20	40	—	mS	I_D = 10 mA, V_{DS} = 20 V *
Input capacitance		Ciss	—	90	—	pF	I_D = 10 mA, V_{DS} = 10 V,
Reverse transfer capacitance		Crss	—	2.2	—	pF	f = 1 MHz

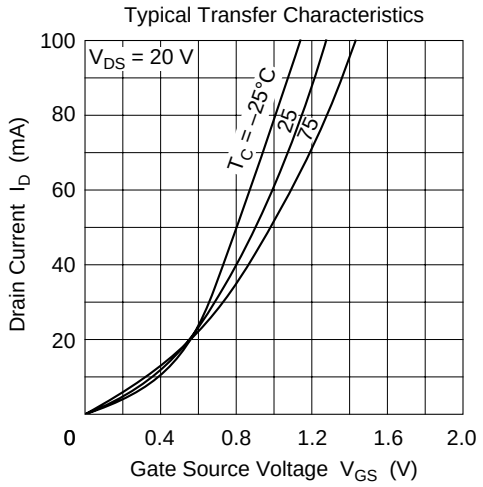
* Pulse Test

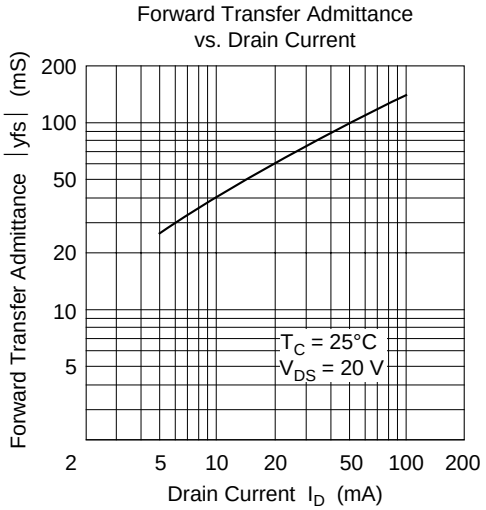

Power vs. Temperature Derating
Channel Dissipation Pch (W)
60
40
20
0
50
100
150
Case Temperature T_C (°C)

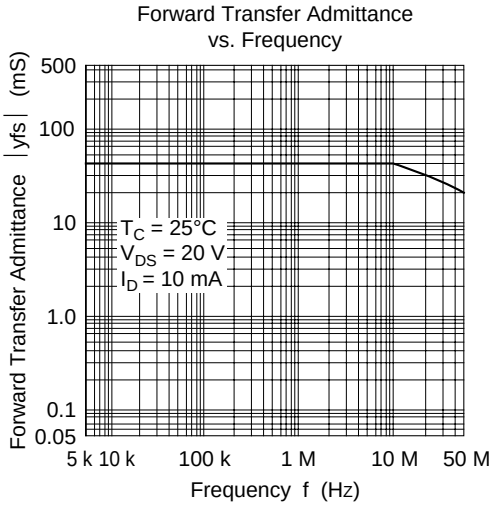

Typical Output Characteristics
Drain Current I_D (mA)
500
400
300
200
100
0
4
8
12
16
20
Drain to Source Voltage V_{DS} (V)
T_C = 25°C
3.5
3.0
2.5
2.0
1.5
1.0
V_{GS} = 0.5 V


Typical Output Characteristics
Drain Current I_D (mA)
50
40
30
20
10
0
20
40
60
80
100
Drain to Source Voltage V_{DS} (V)
T_C = 25°C
0.8
0.7
0.6
0.5
0.4
0.3
0.2
V_{GS} = 0.1V


Typical Transfer Characteristics
Drain Current I_D (mA)
500
400
300
200
100
0
1
2
3
4
5
Gate Source Voltage V_{GS} (V)
V_{DS} = 20 V
T_C = −25°C
25
75


Typical Transfer Characteristics
V_{DS} = 20 V
T_C = −25°C
25
75
Drain Current I_D (mA)
100
80
60
40
20
0
0.4
0.8
1.2
1.6
2.0
Gate 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
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
T_C = 25°C
V_{DS} = 20 V
I_D = 10 mA
5 k
10 k
100 k
1 M
10 M
50 M
Frequency f (Hz)