Ordering number: EN4502

SANYO

No.4502

2SK1961

N-Channel Junction Silicon FET

High-Frequency Low-Noise Amp Applications

Applications

· High-frequency low-noise amp applications.

Features

· Adoption of FBET process
· Large $|y_{fs}|$
· Small Ciss
· Very low noise figure

Absolute Maximum Ratings at Ta = 25°C

			unit
Drain-to-Source Voltage	V_{DSX}	15	V
Gate-to-Drain Voltage	V_{GDS}	−15	V
Gate Current	I_G	10	mA
Drain Current	I_D	100	mA
Allowable Power Dissipation	P_D	500	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 to +150	°C

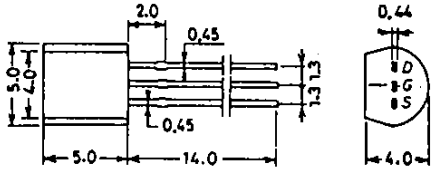
Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
G-D Breakdown Voltage	$V_{(BR)GDS}$	$I_G = -10\mu A, V_{DS} = 0$	−15			V
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = -10V, V_{DS} = 0$			−1.0	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 5V, I_D = 100\mu A$	−1.2	−2.6	−4.5	V
Drain Current	I_{DSS}	$V_{DS} = 5V, V_{GS} = 0$	40※		75※	mA
Forward Transfer Admittance	$\|y_{fs}\|$ (1)	$V_{DS} = 5V, I_D = 10mA, f = 1kHz$	15	19		mS
	$\|y_{fs}\|$ (2)	$V_{DS} = 5V, V_{GS} = 0, f = 1kHz$	24	32		mS
Input Capacitance	Ciss	$V_{DS} = 5V, V_{GS} = 0, f = 1MHz$		5.5		pF
Reverse Transfer Capacitance	Crss	$V_{DS} = 5V, V_{GS} = 0, f = 1MHz$		1.6		pF
Noise Figure	NF	$V_{DS} = 5V, Rg = 1k\Omega, I_D = 5mA, f = 1kHz$		1.3		dB
Static Drain-to-Source on State Resistance	$R_{DS(on)}$	$I_D = 10mA, V_{GS} = 0$		24		Ω

※ : The 2SK1961 is classified by I_{DSS} as follows (unit : mA)

40	Y3	52	48	Y4	63	57	Y5	75

Package Dimensions 2019A
(unit: mm)



JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

D: Drain
G: Gate
S: Source

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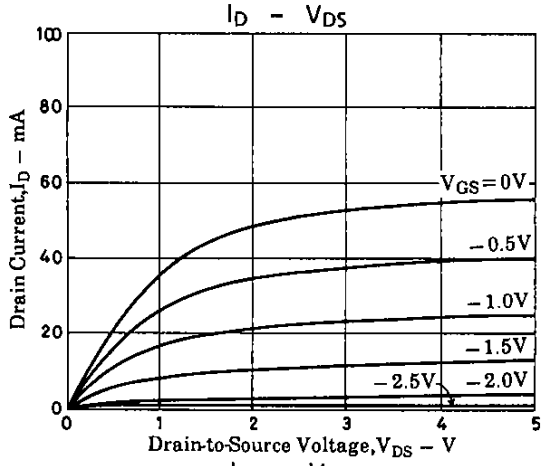
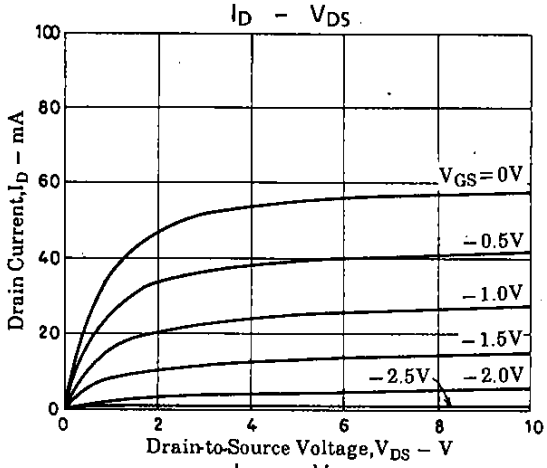
TOKYO OFFICE Tokyo Bldg., 1-10,1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

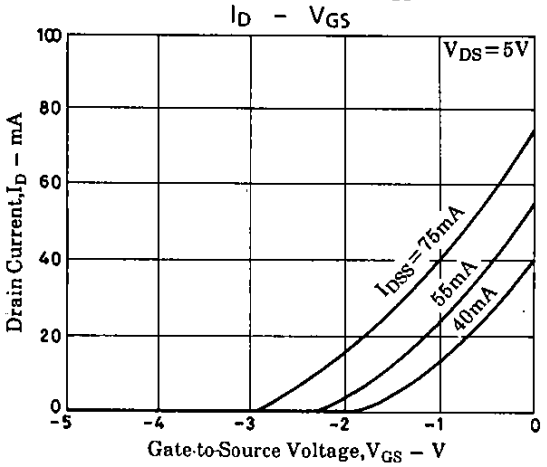
I_D – V_{DS}



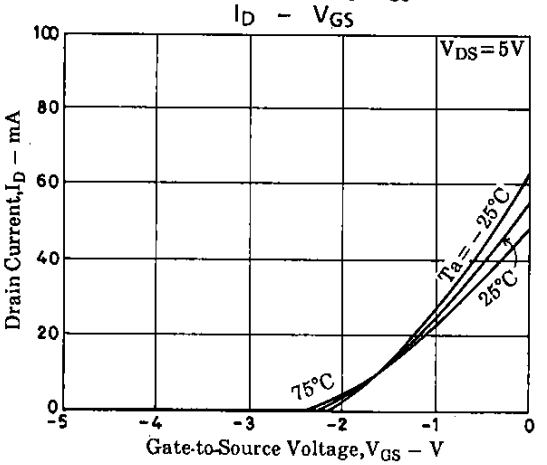
I_D – V_{DS}



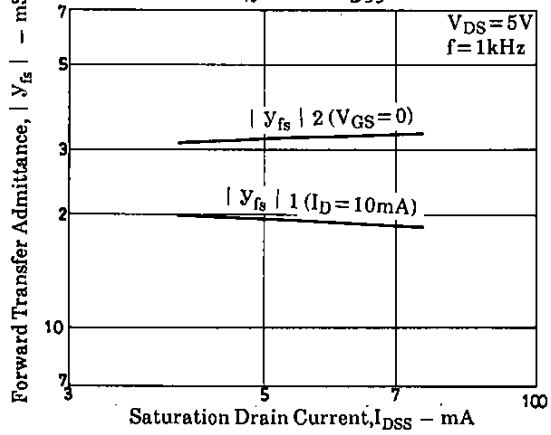
I_D – V_{GS}



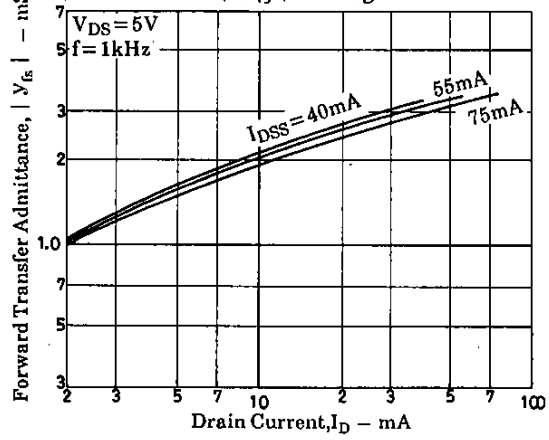
I_D – V_{GS}



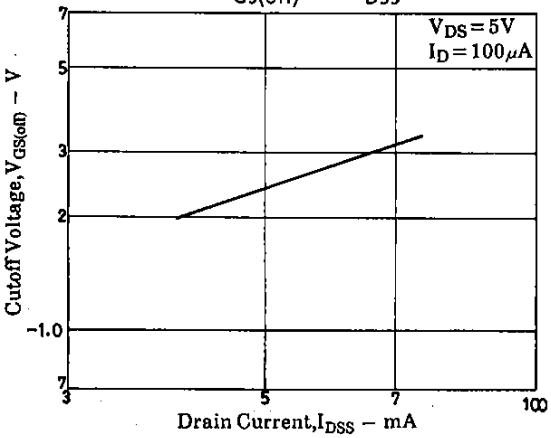
$|y_{fs}|$ – I_{DSS}



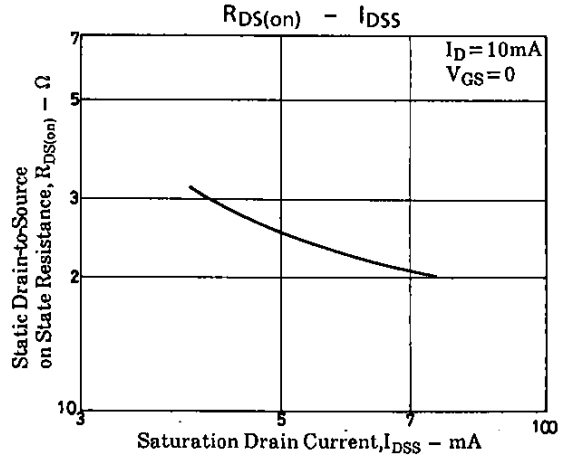
$|y_{fs}|$ – I_D



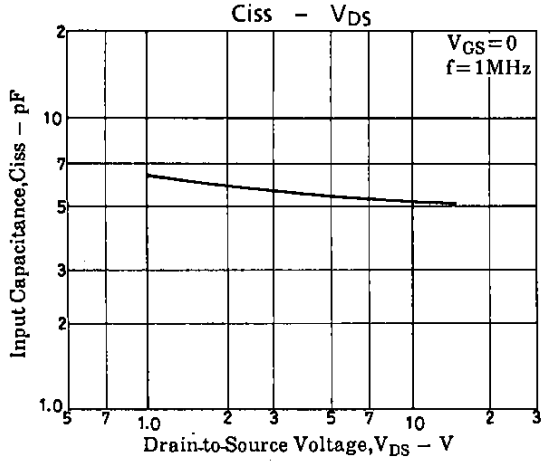
$V_{GS(off)}$ – I_{DSS}



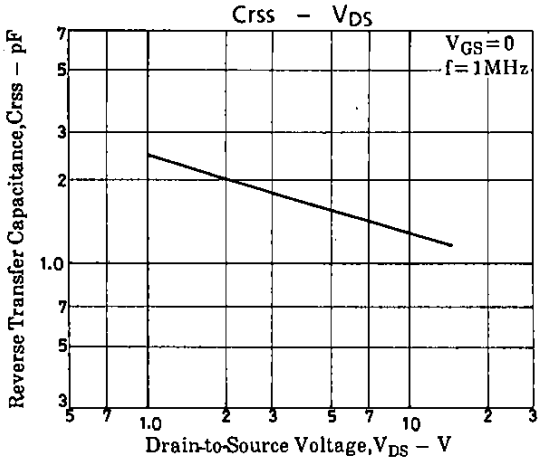
$R_{DS(on)}$ – I_{DSS}



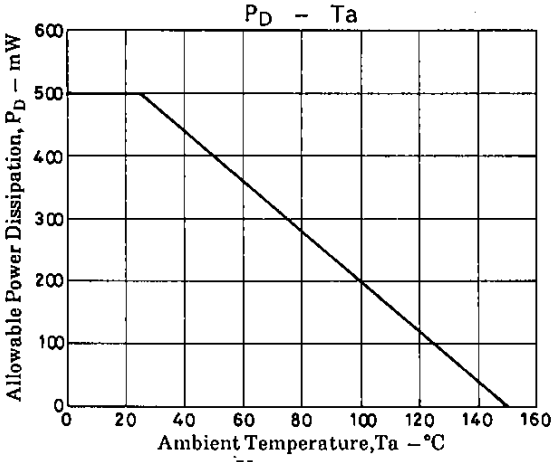
Ciss – V_{DS}



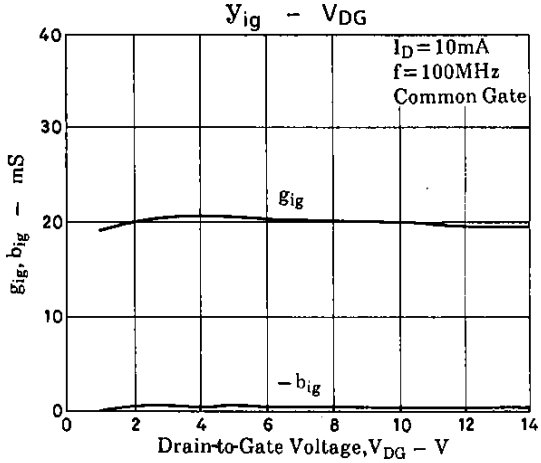
Crss – V_{DS}



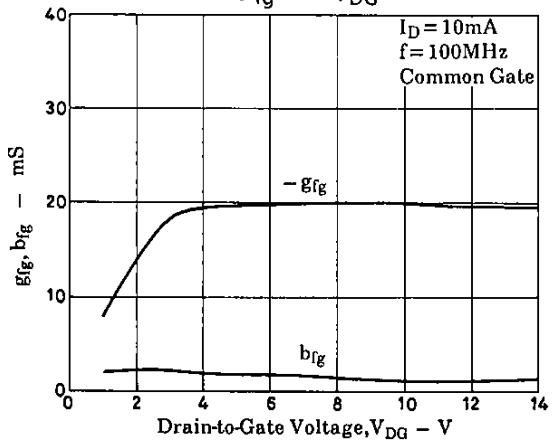
P_D – Ta



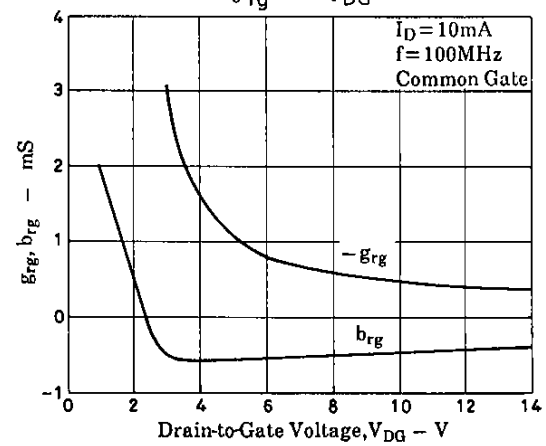
y_{ig} – V_{DG}



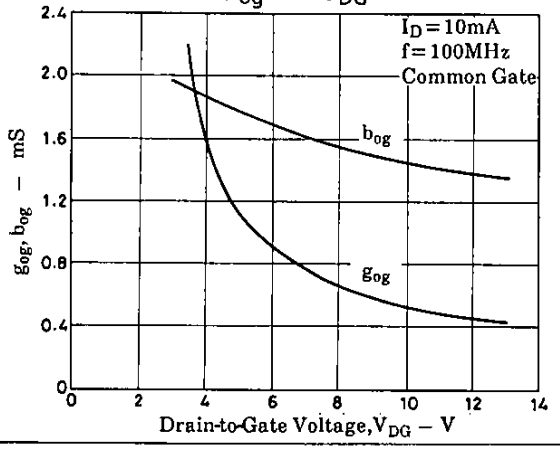
y_{fg} – V_{DG}



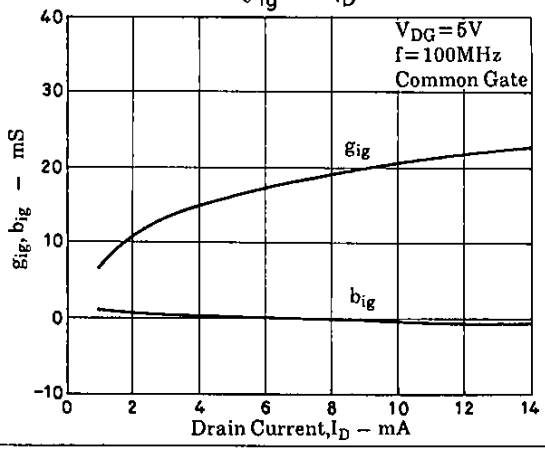
y_{rg} – V_{DG}



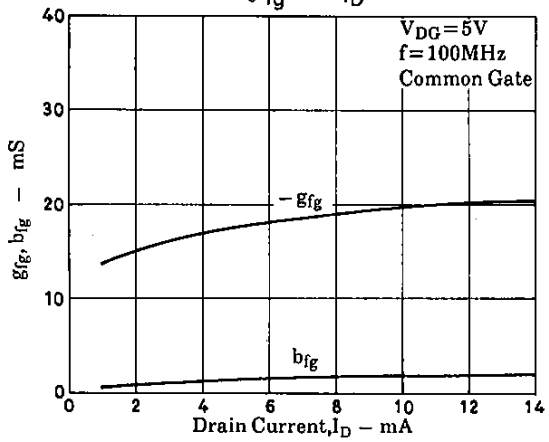
y_{og} – V_{DG}



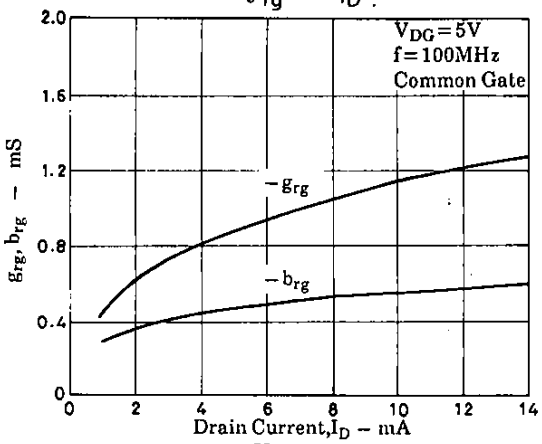
y_{ig} – I_D



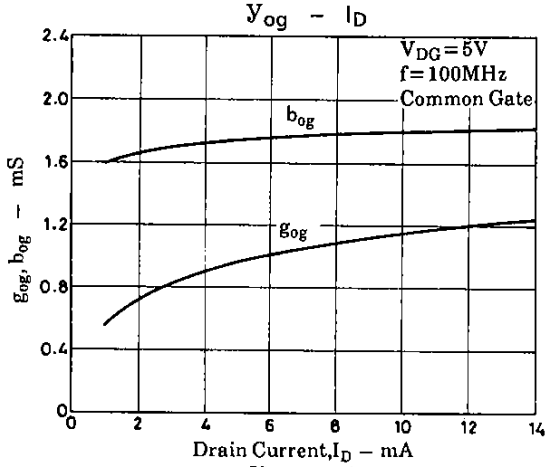
y_{fg} – I_D



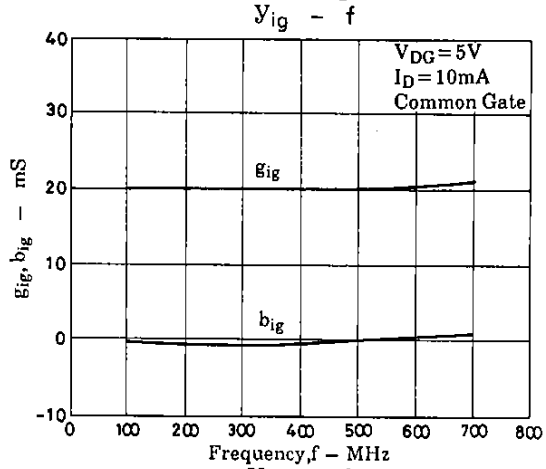
y_{rg} – I_D



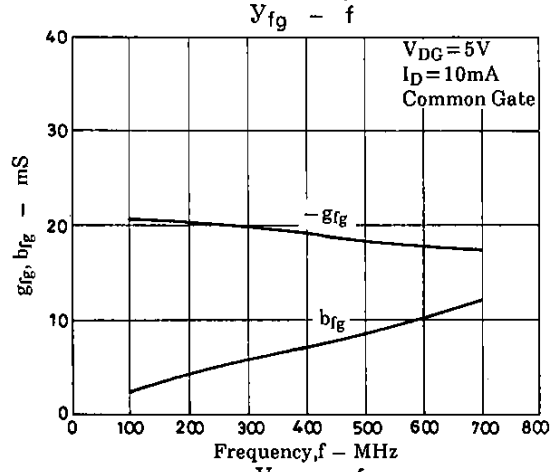
y_{og} – I_D



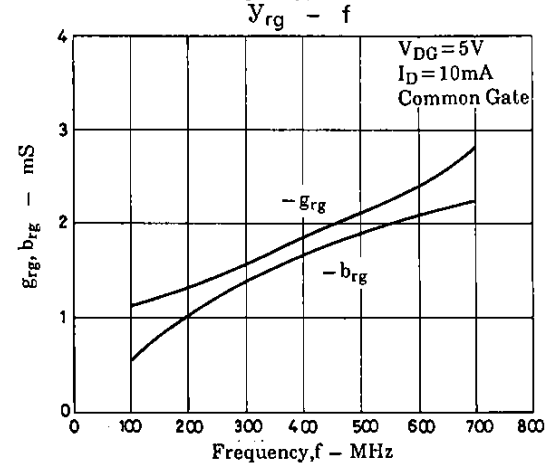
y_{ig} – f



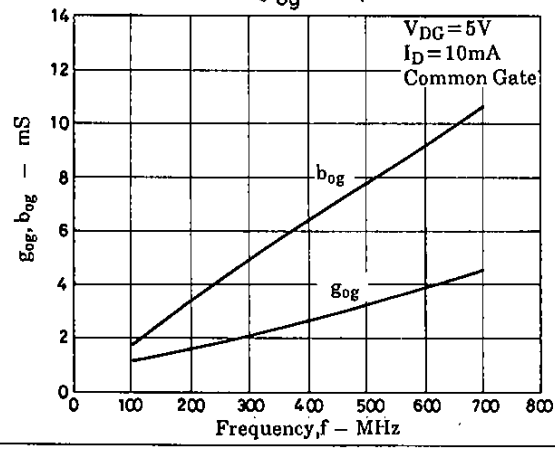
y_{fg} – f



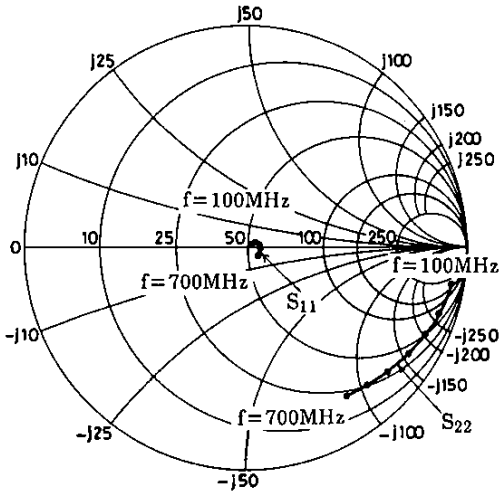
y_{rg} – f



y_{og} – f



S Parameter Frequency Characteristic
(Common Gate) (V_{DG}=5V, I_D=10mA)



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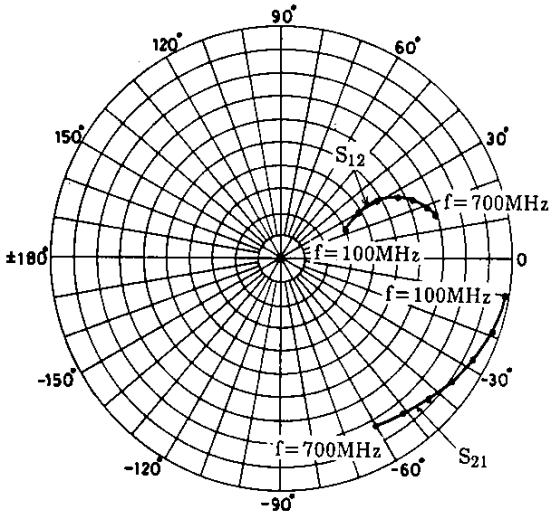

S Parameter (Common Gate)
V_{DG}=5V, I_D=10mA, Zo=50Ω

Freg (MHz)	$\|S_{11}\|$	$\angle S_{11}$	$\|S_{21}\|$	$\angle S_{21}$	$\|S_{12}\|$	$\angle S_{12}$	$\|S_{22}\|$	$\angle S_{22}$
100	0.024	54.7	0.985	−9.7	0.059	21.9	0.942	−9.0
200	0.038	48.5	0.963	−18.8	0.078	30.1	0.918	−17.3
300	0.054	32.4	0.932	−27.3	0.097	30.2	0.896	−25.4
400	0.055	20.5	0.903	−35.4	0.113	27.3	0.870	−33.0
500	0.060	1.8	0.875	−43.6	0.124	23.4	0.847	−40.5
600	0.055	−19.1	0.849	−51.4	0.132	19.0	0.826	−48.2
700	0.053	−41.6	0.826	−60.1	0.137	15.0	0.811	−56.0