SILICON N CHANNEL JUNCTION TYPE
(INDUSTRIAL APPLICATIONS)

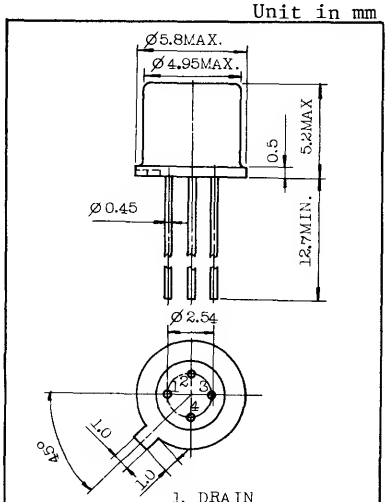
3SK28

VIDEO PRE-AMPLIFIER APPLICATIONS.
VHF BAND AMPLIFIER APPLICATIONS.

FEATURES:

- High Gain : $|y_{fs}|$=4.5∿13mS
- High Power Gain : G_{ps}=17dB (Min.) at f=100MHz
- Low Reverse Transfer Capacitance : C_{rss}=0.6pF (Max.)
- Low Noise : NF=2.5dB (Max.) at f=100MHz
  NF=3.0dB (Max.) at f=30Hz

Unit in mm



1. DRAIN
2. SOURCE
3. GATE 1
4. GATE 2 (CASE)

JEDEC	TO — 72
EIAJ	TC — 7, TB — 9C
TOSHIBA	2 — 5C1C

Weight : 0.35g

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate.1-Drain Voltage	V_{G1DS}	-18	V
Gate.2-Drain Voltage	V_{G2DS}	-18	V
Gate.1 Current	I_{G1}	10	mA
Gate.2 Current	I_{G2}	10	mA
Drain Power Dissipation	P_D	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-65∿150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	I_{GSS}	V_{G1S}=-15V, V_{G2S}=0, V_{DS}=0	-	-	-10	nA
Gate.1-Drain Breakdown Voltage	$V_{(BR)G1DS}$	I_{G1}=-100μA, I_{G2}=0, V_{DS}=0 (Note 2)	-18	-	-	V
Gate.2-Drain Breakdown Voltage	$V_{(BR)G2DS}$	I_{G2}=-100μA, I_{G1}=0, V_{DS}=0 (Note 3)	-18	-	-	V
Drain Current	I_{DSS} (Note 1)	V_{DS}=10V, V_{G1S}=V_{G2S}=0	3.7	-	22	mA
Gate.1-Source Cut-off Voltage	$V_{G1S(OFF)}$	V_{DS}=10V, I_D=1μA, V_{G2S}=0 (Note 2)	-1.2	-	-5.5	V

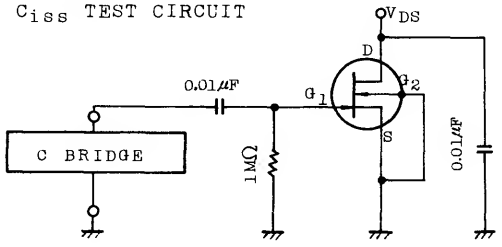
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate.2-Source Cut-off Voltage	$V_{G2S(OFF)}$	V_{DS}=10V, I_D=1μA V_{G1S}=0 (Note 3)	-3	-	-20	V
Forward Transfer Admittance	$\|y_{fs1}\|$	V_{DS}=10V, f=1kHz V_{G1S}=V_{G2S}=0	4.5	-	13	ms
Forward Transfer Admittance	$\|y_{fs1}\|$	V_{DS}=10V, f=100MHz V_{G1S}=V_{G2S}=0	4.5	-	-	ms
Input Capacitance	C_{iss}	V_{DS}=10V, f=1MHz V_{G2S}=0 (Fig. 1)	-	-	6.0	pF
Reverse Transfer Capacitance	C_{rss}	V_{G1D}=-10V, f=1MHz (Fig. 2)	-	-	0.6	pF
Power Gain	G_{PS}	V_{DD}=10V, V_{G2S}=0, f=100MHz (Fig. 3)	17	-	-	dB
Noise Figure	NF	V_{DD}=10V, V_{G2S}=0, f=100MHz (Fig. 3)	-	-	2.5	dB
		V_{DS}=10V, V_{G1S}=V_{G2S}=0 f=1kHz, R_g=1MΩ	-	-	2.5	dB
		V_{DS}=10V, V_{G1S}=V_{G2S}=0 f=30Hz, R_g=1MΩ	-	-	3.0	dB

Note 1 : I_{DSS} Classification Y : 3.7∿7.5, GR : 6.5∿13.0, BL : 11.0∿22.0

Note 2: V_{G1S} should not exceed $V_{G1S(OFF)}$ when gate 2 connected to source.

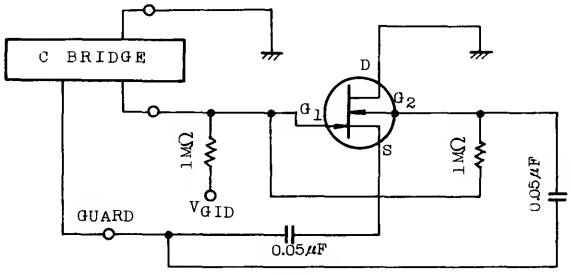
Note 3: V_{G2S} should not exceed $V_{G2S(OFF)}$ when gate 1 connected to source.

Fig.1 C_{iss} TEST CIRCUIT



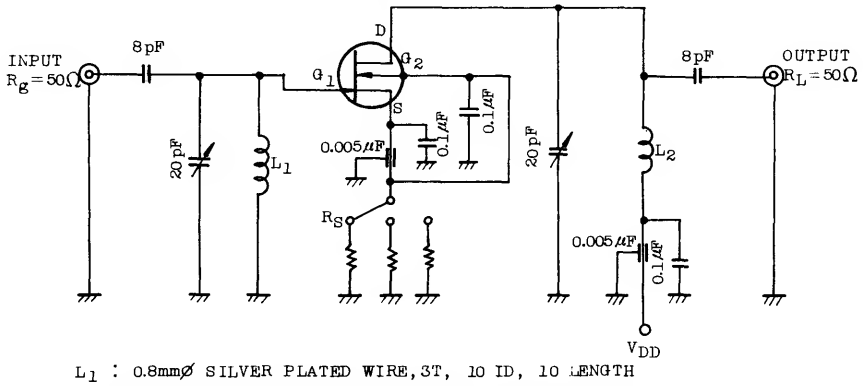
C BRIDGE : BOONTON C BRIDGE

Fig.2 C_{rss} TEST CIRCUIT



C BRIDGE :
BOONTON C BRIDGE

Fig.3 100 MHz G_{ps} & NF TEST CIRCUIT



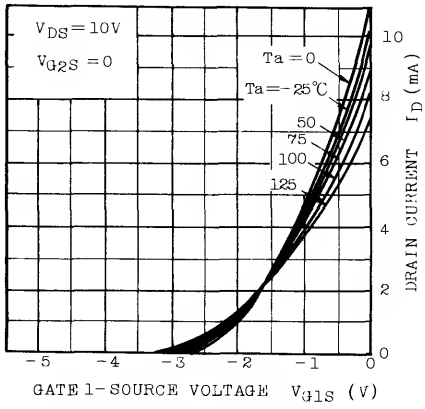
L_1 : 0.8mmØ SILVER PLATED WIRE, 3T, 10 ID, 10 LENGTH

L_2 : 0.8mmØ SILVER PLATED WIRE, 3.5T, 10 ID, 10 LENGTH

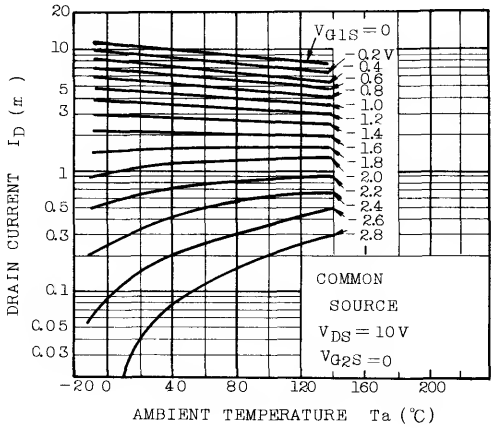
In the test R_S must be selected according to the I_{DSS} classification.

CLASSIFICATION	R_S
3SK28 — Y	33Ω ± 5%
3SK28 — GR	82Ω ± 5%
3SK28 — BL	180Ω ± 5%

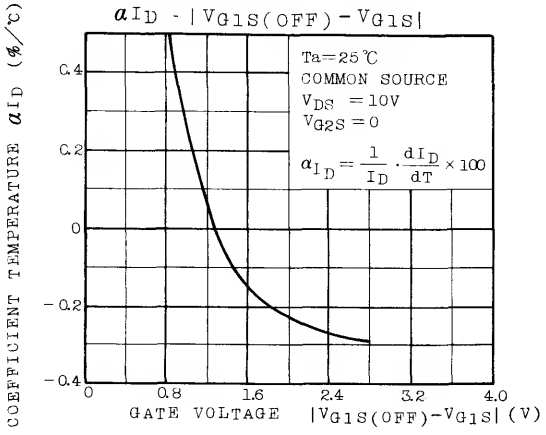
I_D - V_{G1S}



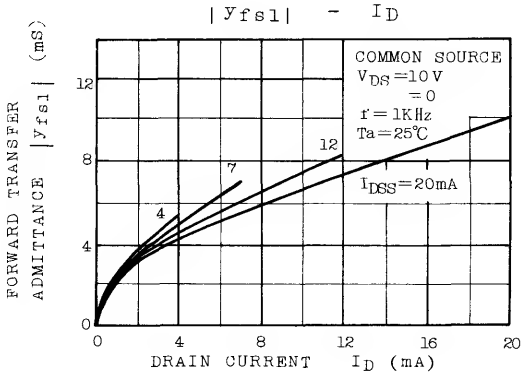
I_D - Ta



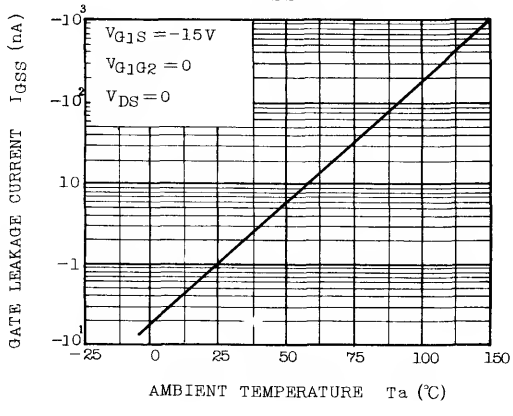
αI_D - $|V_{G1S(OFF)} - V_{G1S}|$



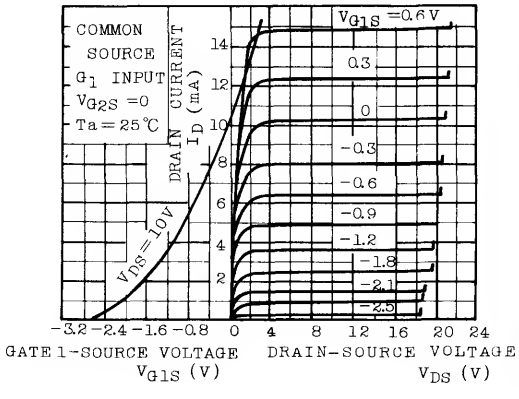
$|y_{fs1}|$ - I_D



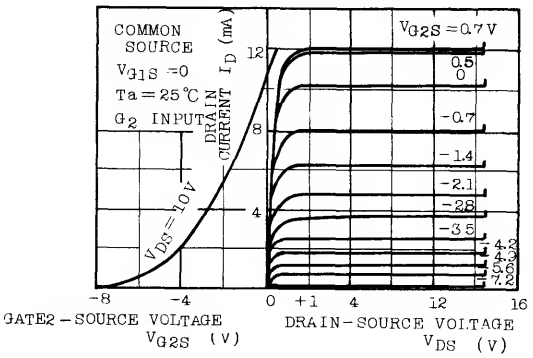
I_{GSS} - Ta



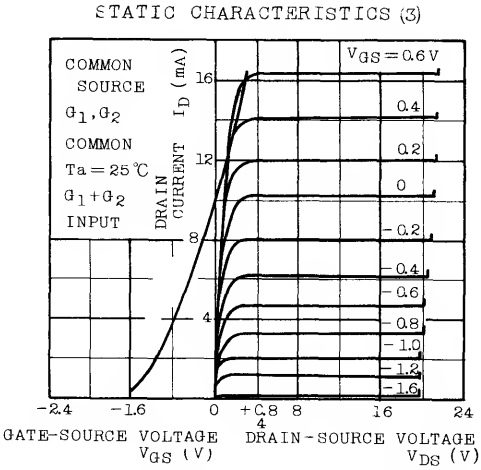
STATIC CHARACTERISTICS (1)



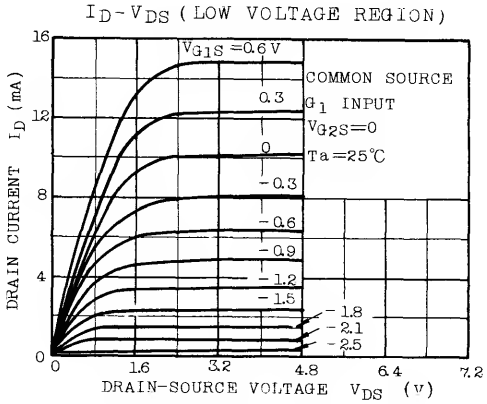
STATIC CHARACTERISTICS (2)



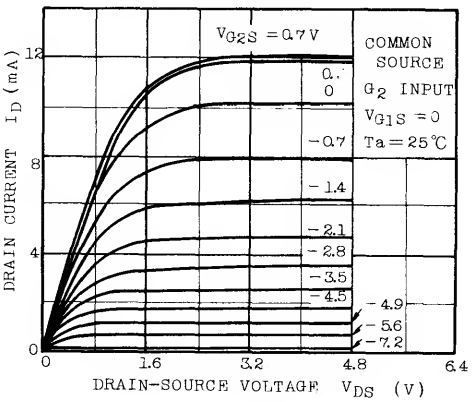
STATIC CHARACTERISTICS (3)



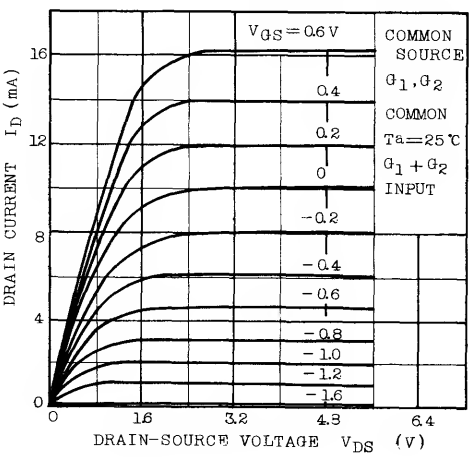
I_D - V_{DS} (LOW VOLTAGE REGION)



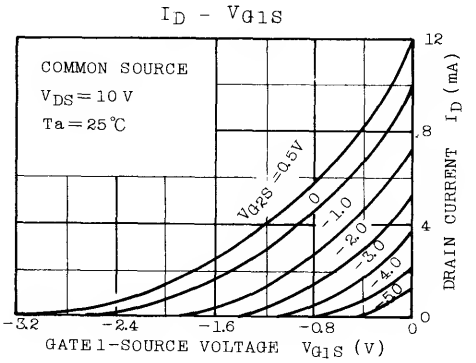
I_D - V_{DS} (LOW VOLTAGE REGION)



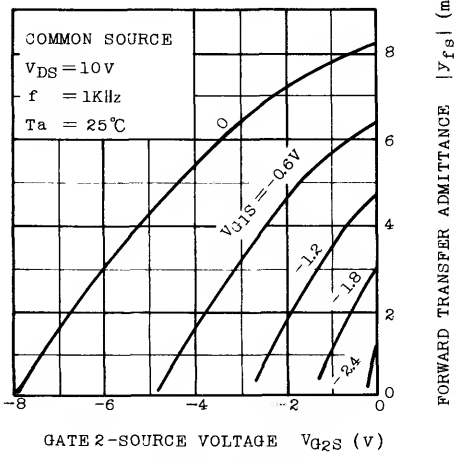
I_D - V_{DS} (LOW VOLTAGE REGION)



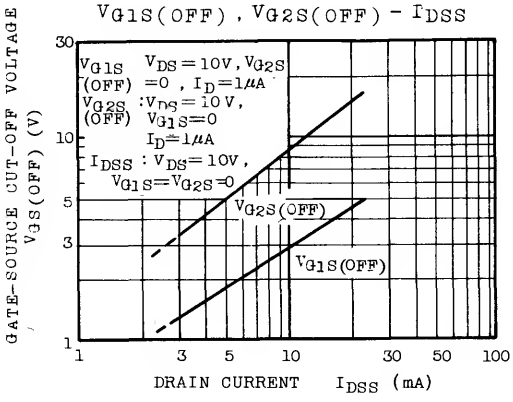
I_D - V_{G1S}



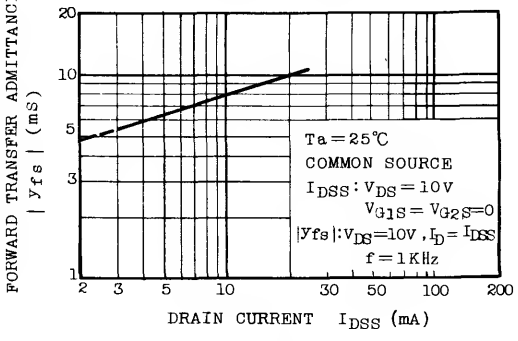
$|y_{fs}|$ – V_{G2S}



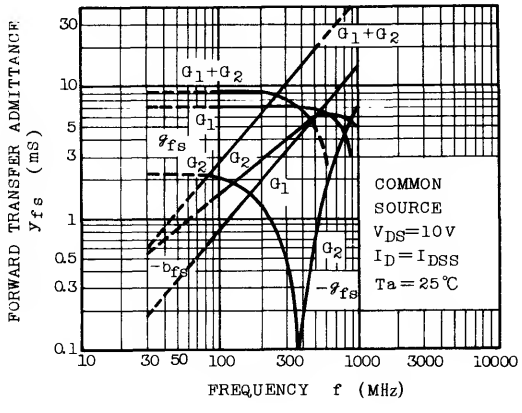
$V_{G1S(OFF)}$, $V_{G2S(OFF)}$ – I_{DSS}



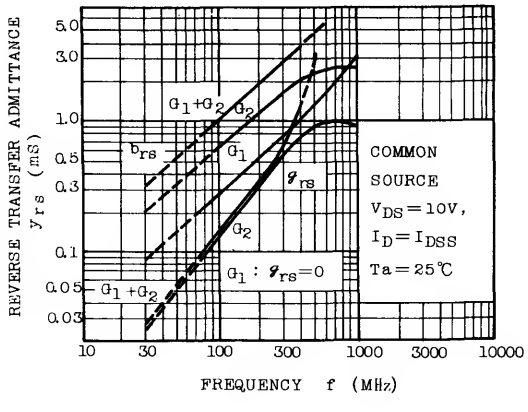
$|y_{fs}|$ – I_{DSS}



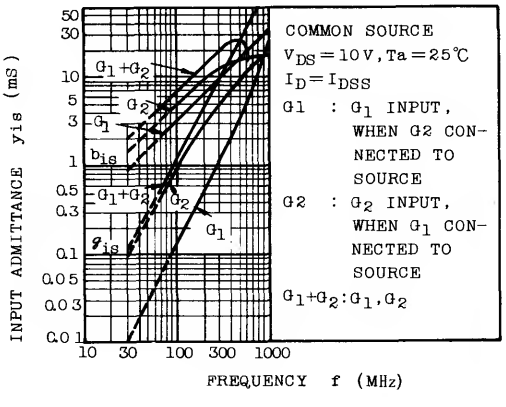
y_{fs} – f



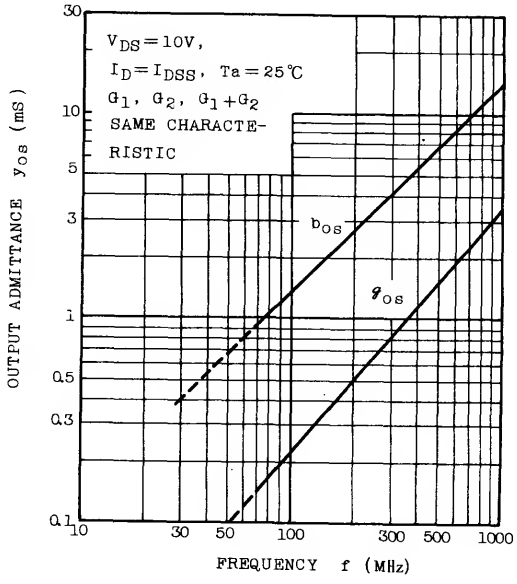
y_{rs} – f



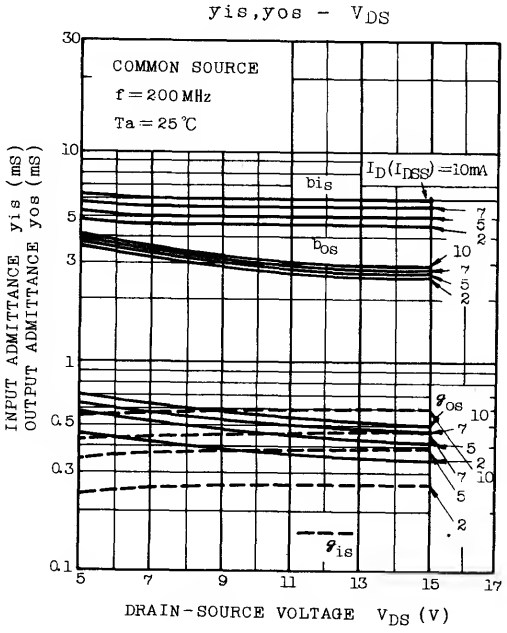
y_{is} – f



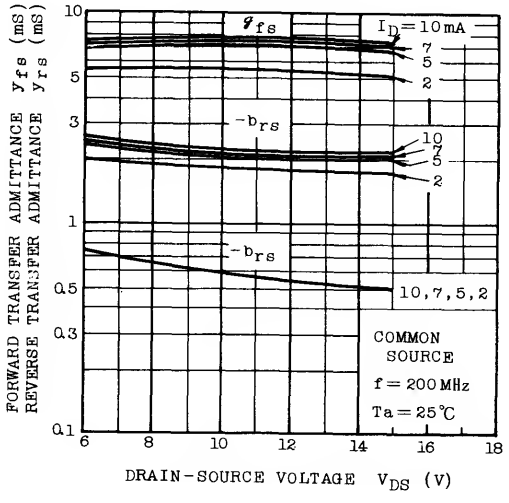
y_{os} - f



yis,yos - V_{DS}



y_{fs}, y_{re} - V_{DS}



P_D - Ta