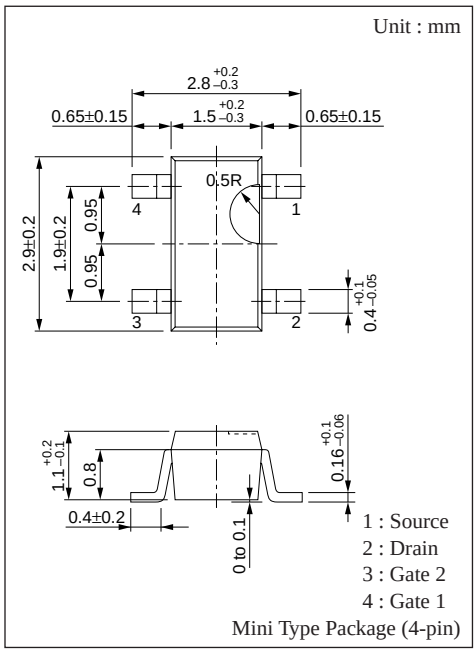
3SK144

Silicon N-Channel 4-pin MOS

For VHF high-gain low-noise amplification



■ Features

- Low noise-figure (NF)
- Large power gain PG
- Downsizing of sets by mini power package and automatic insertion by taping/magazine packing are available.

■ Absolute Maximum Ratings (Ta = 25˚C)

Parameter	Symbol	Rating	Unit
Drain-Source voltage	V_{DS}	15	V
Gate 1-Source voltage	V_{G1S}	± 8	V
Gate 2-Source voltage	V_{G2S}	± 8	V
Drain current	I_D	± 30	mA
Allowable power dissipation	P_D	150	mW
Channel temperature	T_{ch}	150	˚C
Storage temperature	T_{stg}	– 55 to +150	˚C

■ Electrical Characteristics (Ta = 25˚C)

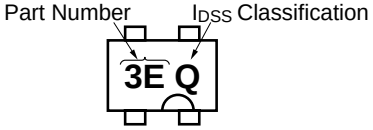
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain current	I_{DSS} *2	V_{DS}=10V, V_{G1S}= 0, V_{G2S}= 4V	0.8		15	mA
Gate 1 cut-off current	I_{G1SS}	V_{DS}=V_{G2S}, 0, V_{G1S}= ± 8V			– 20	nA
Gate 2 cut-off current	I_{G2SS}	V_{DS}= V_{G1S}= 0, V_{G2S}= ± 8V			– 20	nA
Drain-Source voltage	V_{DSX}	I_D= 50µA, V_{G1S}= –5V, V_{G2S}= 0, R_D=56Ω, R_S= 270Ω	15			V
Gate 1-Source cut-off voltage	V_{G1SC}	V_{DS}=10V, V_{G2S}= 4V, I_D=100µA		– 0.6	– 3	V
Gate 2-Source cut-off voltage	V_{G2SC}	V_{DS}=10V, V_{G1S}= 4V, I_D=100µA		– 0.4	– 3	V
Forward transadmittance	$\|Y_{fs}\|$	V_{DS}=10V, I_D=10mA, V_{G2S}= 4V, f=1kHz	17	23		mS
Input capacitance	C_{iss}	V_{DS}=10V, V_{G1S}=V_{G2S}= – 5V, f=1MHz	2.7	3.8	5.3	pF
Output capacitance	C_{oss}		1	1.4	2.2	pF
Feedback capacitance	C_{rss}			0.02		pF
Power gain	PG_1	V_{DS}= 8V, I_D= 8mA, V_{G2S}= 3V, f=195 to 205MHz(Sweep)	20	23	25	dB
	PG_2	V_{DS}= 8V, I_D= 8mA, V_{G2S}= 3V, f= 45 to 55MHz(Sweep)	20	23	25	dB
Noise figure	NF_1 *1	V_{DS}= 8V, I_D= 8mA, V_{G2S}= 3V, f=195 to 205MHz(Sweep)		2	3.2	dB
	NF_2 *1	V_{DS}= 8V, I_D= 8mA, V_{G2S}= 3V, f= 45 to 55MHz(Sweep)		2.8	3.5	dB

*1 Min value of NF at max PG.

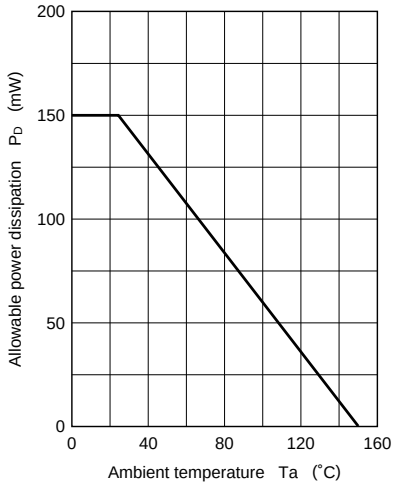
*2 I_{DSS} rank classification

Rank	Q	R
I_{DSS}(mA)	0.8 to 7	4 to 15
Part number symbol	3EQ	3ER

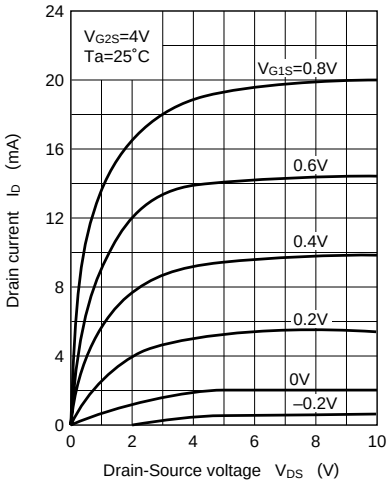
■ Marking (Example)



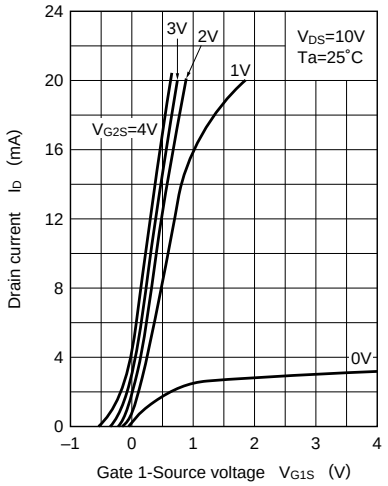
$P_D - Ta$



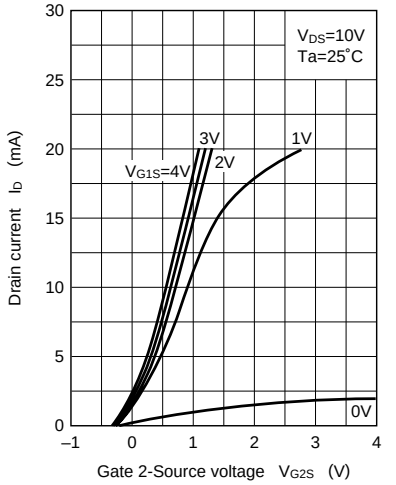
$I_D - V_{DS}$



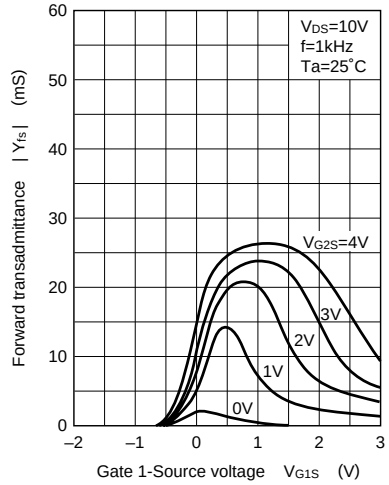
$I_D - V_{G1S}$



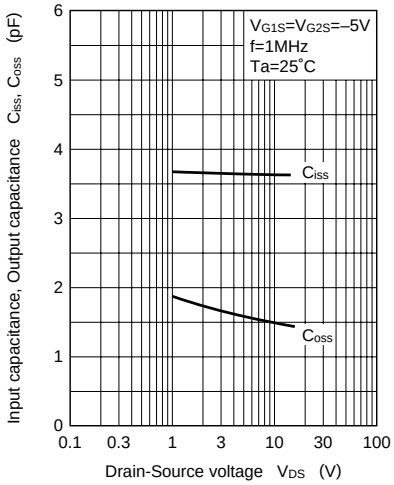
$I_D - V_{G2S}$



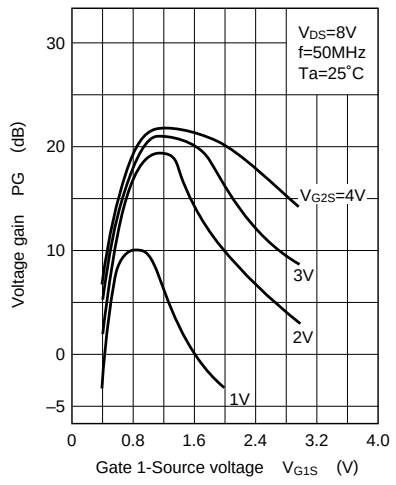
$|Y_{fs}| - V_{G1S}$



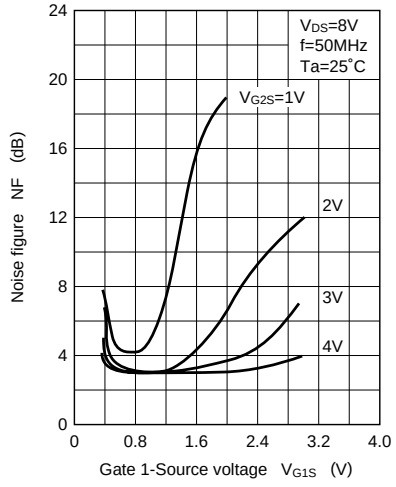
$C_{iss}, C_{oss} - V_{DS}$



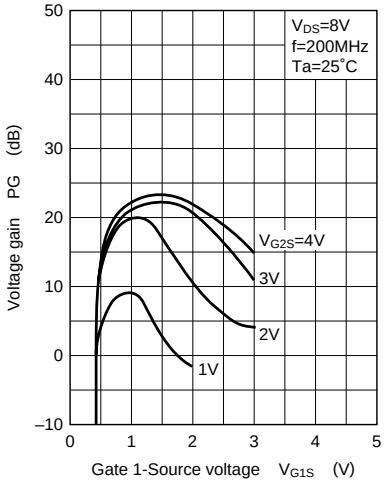
$PG - V_{G1S}$



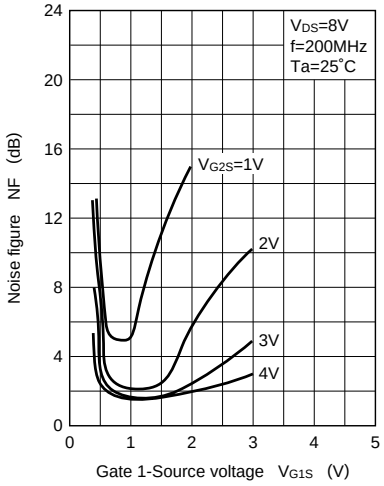
$NF - V_{G1S}$



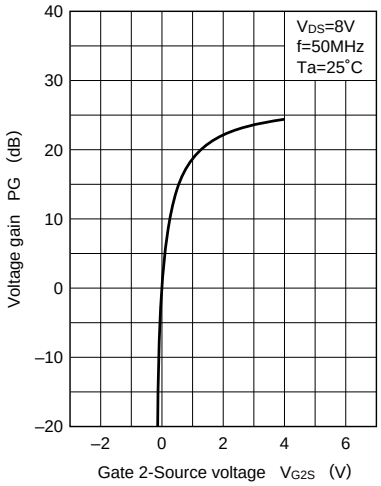
$PG - V_{G1S}$



$NF - V_{G1S}$



$PG - V_{G2S}$



$I_D - V_{G1S}$