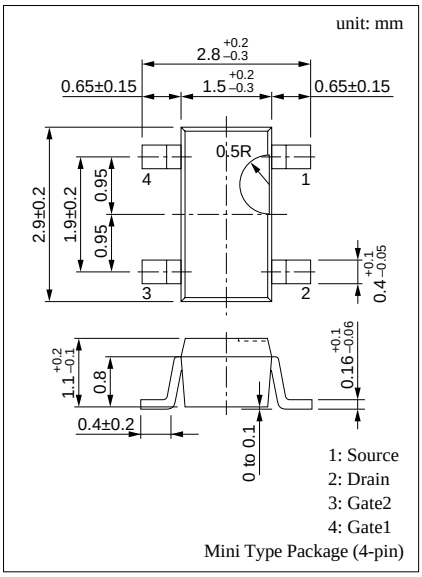
3SK241

GaAs N-Channel MES FET

For VHF-UHF amplification



Marking Symbol: DU

■ Features

- Low noise-figure (NF)
- Large power gain PG
- Mini-type package, allowing downsizing of the sets and automatic insertion through the tape/magazine packing.

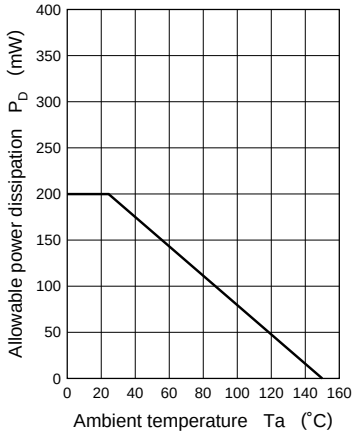
■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Drain to Source voltage	V_{DS}	13	V
Gate 1 to Source voltage	V_{G1S}	−6	V
Gate 2 to Source voltage	V_{G2S}	−6	V
Drain current	I_D	50	mA
Gate 1 current	I_{G1}	1	mA
Gate 2 current	I_{G2}	1	mA
Allowable power dissipation	P_D	200	mW
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

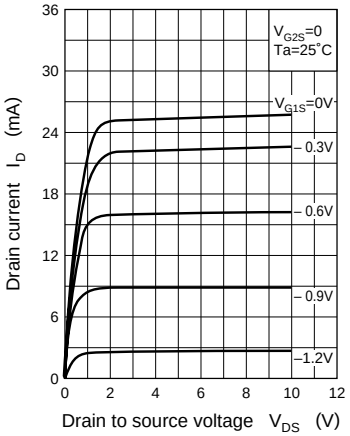
■ Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I_{DSS}	V_{DS} = 5V, V_{G1S} = 0, V_{G2S} = 0	8.5		35	mA
Gate 2 to Drain current	I_{G2DO}	V_{G2D} = −13V (G1, S = Open)			50	µA
Gate 1 cut-off current	I_{G1SS}	V_{DS} = V_{G2S} = 0, V_{G1S} = −6V			−20	µA
Gate 2 cut-off current	I_{G2SS}	V_{DS} = V_{G1S} = 0, V_{G2S} = −6V			−20	µA
Drain cut-off current	I_{DSX}	V_{DS} = 13V, V_{G1S} = −3.5V, V_{G2S} = 0			50	µA
Gate 1 to Source cut-off voltage	V_{G1SC}	V_{DS} = 5V, V_{G2S} = 0, I_D = 200µA			−3.5	V
Gate 2 to Source cut-off voltage	V_{G2SC}	V_{DS} = 5V, V_{G1S} = 0, I_D = 200µA			−3.5	V
Forward transfer admittance	$\|Y_{fs}\|$	V_{DS} = 5V, I_D = 10mA, V_{G2S} = 1.5V, f = 1kHz	18	23		mS
Input capacitance (Common Source)	C_{iss}	V_{DS} = 5V, V_{G1S} = V_{G2S} = −6V, f = 1MHz		0.4	2	pF
Output capacitance (Common Source)	C_{oss}			0.3	1.2	pF
Reverse transfer capacitance (Common Source)	C_{rss}			0.02	0.04	pF
Power gain	PG	V_{DS} = 5V, I_D = 10mA	13	19		dB
Noise figure	NF	V_{G2S} = 1.5V, f = 800MHz		1.5	2.5	dB
Gain reduction	G_R	V_{DS} = 5V, V_{AGC} = 1.5V/−3.5V, f = 800MHz	37	45		dB

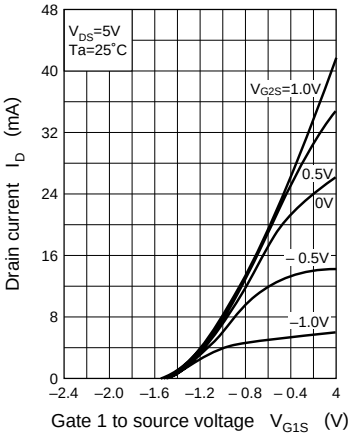
P_D — Ta



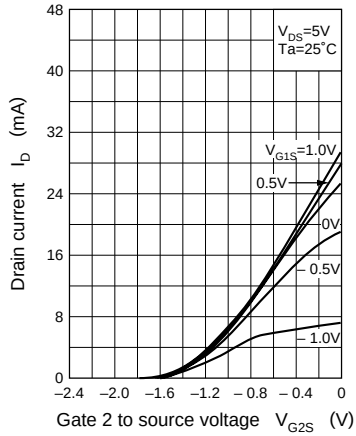
I_D — V_{DS}



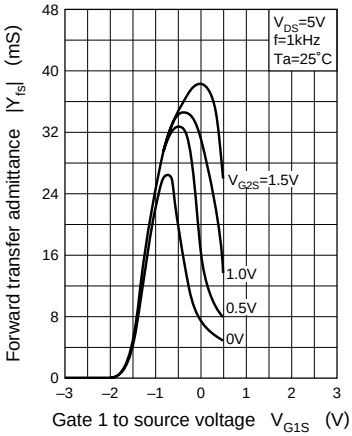
I_D — V_{G1S}



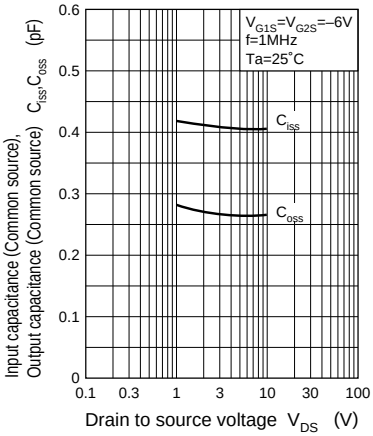
I_D — V_{G2S}



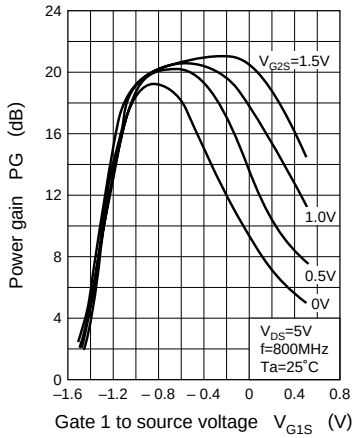
$|Y_{fs}|$ — V_{G1S}



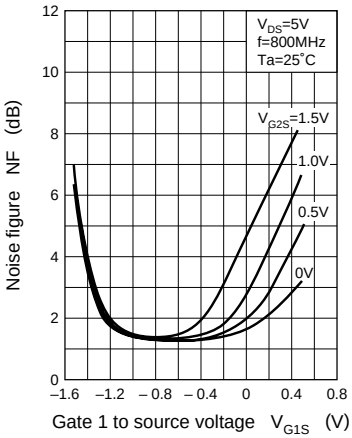
C_{iss}, C_{oss} — V_{DS}



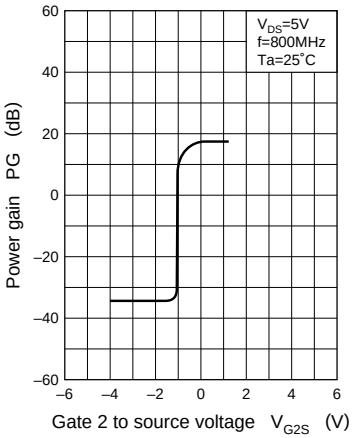
PG — V_{G1S}



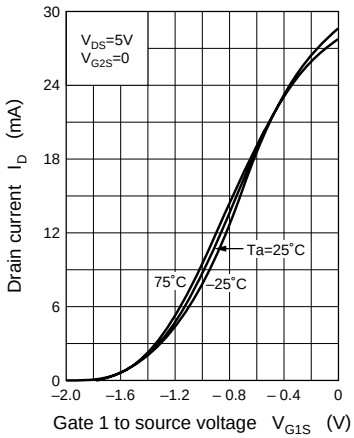
NF — V_{G1S}



PG — V_{G2S}



I_D — V_{G1S}


30
24
18
12
6
0
V_{DS}=5V
V_{G2S}=0
Ta=25˚C
75˚C
–25˚C
–2.0
–1.6
–1.2
– 0.8
– 0.4
0
Drain current I_D (mA)
Gate 1 to source voltage V_{G1S} (V)