Siliconix incorporated

SST304 SERIES
N-Channel JFETs

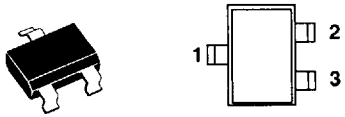
T-31-25

The SST304 Series of n-channel JFETs is designed to provide high-performance amplification, especially at high-frequency. These parts feature low noise, high gain and provide wide bandwidth.

PART NUMBER	$V_{GS(OFF)}$ MAX (V)	$V_{(BR)GSS}$ MIN (V)	g_{fs} MIN (mS)	I_{DSS} MAX (mA)
SST304	-6	-30	4.5	15
SST305	-3	-30	3	8

For additional design information please see performance curves NH.

SOT-23 TOP VIEW



1 DRAIN
2 SOURCE
3 GATE

SIMILAR PRODUCTS

- TO-92, See J304 Series
- Chips, See NH Series Die

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS	UNITS
Gate-Drain Voltage	V_{GD}	-30	V
Gate-Source Voltage	V_{GS}	-30	
Gate Current	I_G	10	mA
Power Dissipation	P_D	360	mW
Power Derating		3.27	mW/°C
Operating Junction Temperature Range	T_J	-55 to 135	°C
Storage Temperature Range	T_{stg}	-55 to 150	
Lead Temperature ($^1/_{16}$" from case for 10 sec.)	T_L	300	

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SPECIFICATIONS[a]			LIMITS					
				SST304		SST305		
PARAMETER	SYMBOL	TEST CONDITIONS	TYP[b]	MIN	MAX	MIN	MAX	UNIT
STATIC								
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G = −1 µA, V_{DS} = 0 V	−35	−30		−30		V
Gate-Source Cutoff Voltage	$V_{GS(OFF)}$	V_{DS} = 15 V, I_D = 1 nA		−2	−6	−0.5	−3	
Saturation Drain Current[c]	I_{DSS}	V_{DS} = 15 V, V_{GS} = 0 V		5	15	1	8	mA
Gate Reverse Current	I_{GSS}	V_{GS} = −20 V, V_{DS} = 0 V	−2		−250		−250	pA
		T_A = 100°C	−0.2					nA
Gate Operating Current	I_G	V_{DG} = 10 V, I_D = 1 mA	−20					pA
Drain Cutoff Current	$I_{D(OFF)}$	V_{DS} = 10 V, V_{GS} = −6 V	2					
Drain-Source On-Resistance	$r_{DS(ON)}$	V_{GS} = 1 V, I_D = 1 mA	200					Ω
Gate-Source Forward Voltage	$V_{GS(F)}$	I_G = 1 mA, V_{DS} = 0 V	0.7					V
DYNAMIC								
Common-Source Forward Transconductance	g_{fs}	V_{DG} = 15 V, V_{GS} = 0 V f = 1 kHz		4.5	7.5	3		mS
Common-Source Output Conductance	g_{os}				50		50	µS
Common-Source Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V f = 1 MHz	2 2					pF
Common-Source Reverse Transfer Capacitance	C_{rss}		0.7					
Common-Source Output Capacitance	C_{oss}		1					
Equivalent Input Noise Voltage	$\bar{e}_n$	V_{DS} = 10 V, V_{GS} = 0 V f = 100 Hz	10					$nV/\sqrt{Hz}$

SPECIFICATIONS[a]			LIMITS (Typical)				
			SST304		SST305		
PARAMETER	SYMBOL	TEST CONDITIONS	100 MHz	400 MHz	100 MHz	400 MHz	UNIT
HIGH-FREQUENCY							
Common-Source Input Conductance	g_{iss}	V_{DS} = 15 V, V_{GS} = 0 V	80	800	80		µS
Common-Source Input Susceptance	b_{iss}		2	7 5	2		mS
Common-Source Output Conductance	g_{oss}		60	80	60		µS
Common-Source Output Susceptance	b_{oss}		0.8	3.6	0 8		mS
Common-Source Forward Transconductance	g_{fs}			4 2	3		
Common-Source Power Gain	G_{ps}	V_{DS} = 15 V, I_G = 5 mA	20	11			dB
Noise Figure	NF	R_G = 1 kΩ	1 7	3 8			

NOTES:
a T_A = 25°C unless otherwise noted.
b. For design aid only, not subject to production testing
c. Pulse test, PW = 300 µS, duty cycle ≤ 2%