SST4091 SERIES

Siliconix incorporated

T-35-25

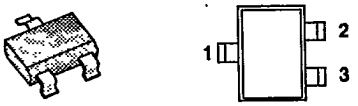
N-Channel JFET

The SST4091 Series is the surface mount equivalent of our popular 2N4091 device types. Its low cost and $r_{DS(on)}$ make it a good choice for an all-purpose analog switch, while its high g_{fs} and good high-frequency response also make this product useful in a high-gain amplifier mode. Like all SOT-23 products available from Siliconix, tape and reel capabilities exist for automated assembly. (See Section 8.)

For further design information please consult the typical performance curves NCB which are located in Section 7.

PART NUMBER	$V_{GS(OFF)}$ MAX (V)	$r_{ds(ON)}$ MAX (Ω)	$I_{D(OFF)}$ TYP (pA)	t_{ON} TYP (ns)
SST4091	-10	30	5	4
SST4092	-7	50	5	4
SST4093	-5	80	5	4

SOT-23 TOP VIEW



1 GATE
2 DRAIN
3 SOURCE

SIMILAR PRODUCTS

- TO-18, See 2N4091 Series
- TO-92, See PN4091 Series
- Duals, See 2N5564 Series
- Chips, Order 2N409XCHP

PRODUCT MARKING	
SST4091	C41
SST4092	C42
SST4093	C43

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMIT	UNITS
Gate-Drain Voltage	V_{GD}	-35	V
Gate-Source Voltage	V_{GS}	-35	
Gate Current	I_G	10	mA
Power Dissipation	P_D	350	mW
Power Derating		2.8	mW/°C
Operating Junction Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{stg}	-55 to 150	
Lead Temperature (1/16" from case for 10 seconds)	T_L	300	

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ELECTRICAL CHARACTERISTICS [1]			LIMITS							
				SST4091		SST4092		SST4093		
PARAMETER	SYMBOL	TEST CONDITIONS	TYP[2]	MIN	MAX	MIN	MAX	MIN	MAX	UNIT
STATIC										
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G = -1 µA, V_{DS} = 0 V	-55	-35		-35		-35		V
Gate-Source Cutoff Voltage	$V_{GS(OFF)}$	V_{DS} = 20 V, I_D = 10 nA		-5	-10	-2	-7	-1	-5	V
Saturation Drain Current[3]	I_{DSS}	V_{DS} = 20 V, V_{GS} = 0 V		30		15		8		mA
Gate Reverse Current	I_{GSS}	V_{GS} = -15 V, V_{DS} = 0 V	-0.005		-1		-1		-1	nA
		T_A = 125°C	-3							
Gate Operating Current	I_G	V_{DG} = 15 V, I_D = 10 mA	-5							pA
Drain Cutoff Current	$I_{D(OFF)}$	V_{DS} = 10 V, V_{GS} = -10 V	0.005		1		1		1	nA
		V_{DS} = 10 V, V_{GS} = -10 V, T_A = 125°C	3							
Drain-Source On-Voltage	$V_{DS(ON)}$	V_{GS} = 0 V, I_D = 6.6 mA	0.15		0.2					V
		I_D = 4 mA	0.15				0.2			
		I_D = 2.5 mA	0.15						0.2	
Drain-Source On-Resistance	$r_{DS(ON)}$	V_{GS} = 0 V, I_D = 1 mA			30		50		80	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} = 10 V, I_D = 1 mA, f = 1 kHz	6							mS
Common-Source Output Conductance	g_{os}		25							µS
Drain-Source On-Resistance	$r_{ds(ON)}$	V_{GS} = 0 V, I_D = 0 V, f = 1 kHz			30		50		80	Ω
Common-Source Input Capacitance	C_{iss}	V_{DS} = 20 V, V_{GS} = 0 V, f = 1 MHz	12		16		16		16	pF
Common-Source Reverse Transfer Capacitance	C_{rss}	V_{DS} = 0 V, V_{GS} = -20 V, f = 1 MHz	3.5		5		5		5	
Equivalent Input Noise Voltage	$\bar{e}_n$	V_{DG} = 10 V, I_D = 10 mA, f = 1 kHz	3.0							nV/√Hz
SWITCHING										
Turn-on Time	$t_{d(ON)}$	V_{DD} = 5 V, $V_{GS(ON)}$ = 0 V	2							ns
	t_r	P/N $I_{D(ON)}$ $V_{GS(OFF)}$ R_L	2							
Turn-off Time	$t_{d(OFF)}$	SST4091 6.6 mA -12 V 425 Ω	6							
	t_f	SST4092 4 mA -8 V 700 Ω SST4093 2.5 mA -6 V 1120 Ω	13							

NOTES: 1. T_A = 25 °C unless otherwise noted.
2. For design aid only, not subject to production testing.
3. Pulse test; PW = 300 µS, duty cycle ≤ 3%.

4