

Field-Effect Transistor Silicon N-Channel MOS Type

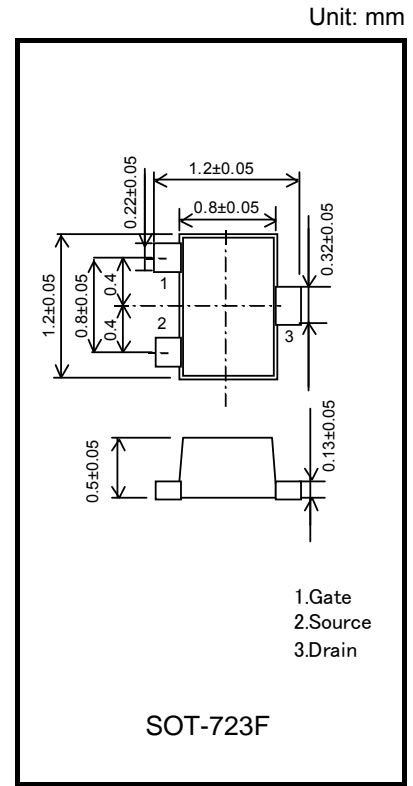
- High-Speed Switching Applications
- Analog Switch Applications

- 1.2 V drive
- Low ON-resistance : $R_{on} = 20 \Omega$ (max) (@ $V_{GS} = 1.2 V$)
 : $R_{on} = 8 \Omega$ (max) (@ $V_{GS} = 1.5 V$)
 : $R_{on} = 4 \Omega$ (max) (@ $V_{GS} = 2.5 V$)
 : $R_{on} = 3 \Omega$ (max) (@ $V_{GS} = 4.0 V$)

Absolute Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
Drain-source voltage		V_{DSS}	20	V
Gate-source voltage		V_{GSS}	± 10	V
Drain current	DC	I_D	180	mA
	Pulse	I_{DP}	360	
Drain power dissipation		P_D (Note 1)	150	mW
Channel temperature		T_{ch}	150	°C
Storage temperature		T_{stg}	-55~150	°C

Note 1: Mounted on an FR4 board
 (25.4 mm × 25.4 mm × 1.6 t, Cu Pad: 0.585 mm²)



Weight: 1.5 mg (typ.)

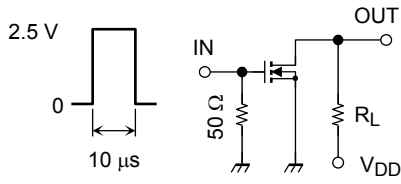
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GSS}	$V_{GS} = \pm 10 V, V_{DS} = 0 V$	—	—	± 10	μA
Drain-source breakdown voltage		$V_{(BR)DSS}$	$I_D = 0.1 mA, V_{GS} = 0 V$	20	—	—	V
Drain cutoff current		I_{DSS}	$V_{DS} = 20 V, V_{GS} = 0 V$	—	—	1	μA
Gate threshold voltage		V_{th}	$V_{DS} = 3 V, I_D = 1 mA$	0.4	—	1.0	V
Forward transfer admittance		$ Y_{fs} $	$V_{DS} = 3 V, I_D = 50 mA$ (Note 2)	115	—	—	mS
Drain-source ON-resistance	$R_{DS(ON)}$		$I_D = 50 mA, V_{GS} = 4 V$ (Note 2)	—	1.5	3	Ω
			$I_D = 50 mA, V_{GS} = 2.5 V$ (Note 2)	—	2	4	
			$I_D = 5 mA, V_{GS} = 1.5 V$ (Note 2)	—	3	8	
			$I_D = 5 mA, V_{GS} = 1.2 V$ (Note 2)	—	5	20	
Input capacitance		C_{iss}	$V_{DS} = 3 V, V_{GS} = 0 V, f = 1 MHz$	—	9.5	—	pF
Reverse transfer capacitance		C_{rss}		—	4.1	—	
Output capacitance		C_{oss}		—	9.5	—	
Switching time	Turn-on time	t_{on}	$V_{DD} = 3 V, I_D = 50 mA, V_{GS} = 0 \text{ to } 2.5 V$	—	115	—	ns
	Turn-off time	t_{off}		—	300	—	
Drain-source forward voltage		V_{DSF}	$I_D = -180 mA, V_{GS} = 0 V$ (Note 2)	—	-0.9	-1.2	V

Note 2: Pulse test

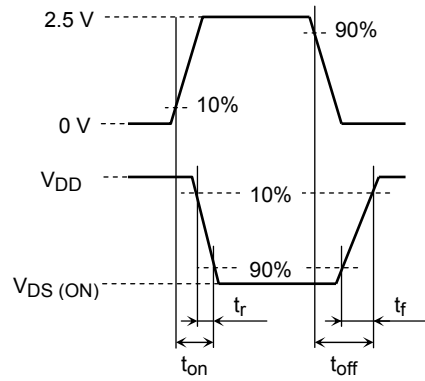
Switching Time Test Circuit

(a) Test Circuit



$V_{DD} = 3\text{ V}$
 $D.U. \leq 1\%$
 $V_{IN}: t_r, t_f < 5\text{ ns}$
 $(Z_{out} = 50\ \Omega)$
 Common Source
 $T_a = 25^\circ\text{C}$

(b) V_{IN}



(c) V_{OUT}

Equivalent Circuit (top view)

