

Field Effect Transistor Silicon P Channel MOS Type

○ Power Management Switches

- 1.5-V drive
- Low ON-resistance: $R_{on} = 3.60 \Omega$ (max) (@ $V_{GS} = -1.5 V$)
 : $R_{on} = 2.70 \Omega$ (max) (@ $V_{GS} = -1.8 V$)
 : $R_{on} = 1.60 \Omega$ (max) (@ $V_{GS} = -2.8 V$)
 : $R_{on} = 1.31 \Omega$ (max) (@ $V_{GS} = -4.5 V$)

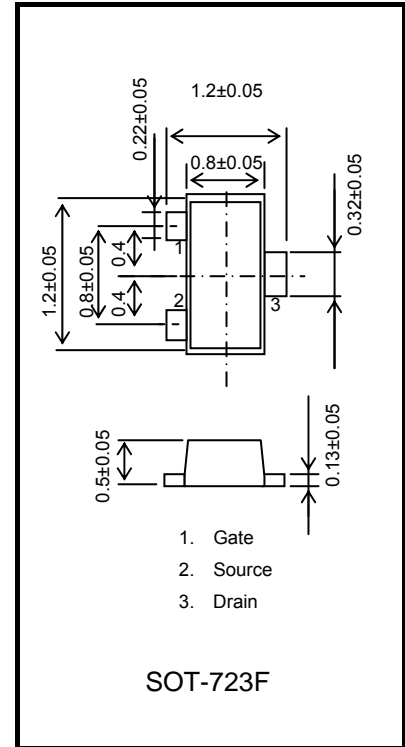
Absolute Maximum Ratings (Ta = 25 °C)

Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DSS}	-20	V
Gate-source voltage	V_{GSS}	± 8	V
Drain current	DC	I_D	-330
	Pulse	I_{DP}	-660
Drain power dissipation	P_D (Note1)	150	mW
Channel temperature	T_{ch}	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

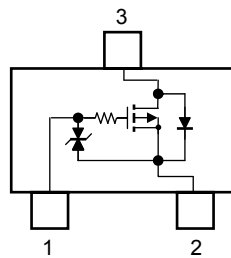
Note1: Mounted on an FR4 board
(25.4 mm × 25.4 mm × 1.6 mm, Cu Pad: 0.585 mm²)

Unit: mm



Weight: 1.5 mg (typ.)

Equivalent Circuit (top view)



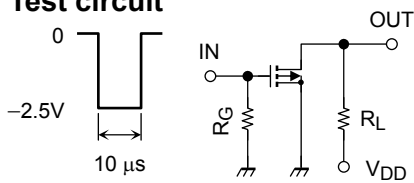
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Conditions	Min	Typ.	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = -1\text{ mA}, V_{GS} = 0\text{ V}$	-20	—	—	V
	$V_{(BR)DSX}$	$I_D = -1\text{ mA}, V_{GS} = 8\text{ V}$	-12	—	—	
Drain cutoff current	I_{DSS}	$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}$	—	—	-10	μA
Gate leakage current	I_{GSS}	$V_{GS} = \pm 8\text{ V}, V_{DS} = 0\text{ V}$	—	—	± 1	μA
Gate threshold voltage	V_{th}	$V_{DS} = -3\text{ V}, I_D = -1\text{ mA}$	-0.3	—	-1.0	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = -3\text{ V}, I_D = -100\text{ mA}$ (Note2)	190	—	—	mS
Drain-source ON-resistance	$R_{DS(ON)}$	$I_D = -100\text{ mA}, V_{GS} = -4.5\text{ V}$ (Note2)	—	0.95	1.31	Ω
		$I_D = -80\text{ mA}, V_{GS} = -2.8\text{ V}$ (Note2)	—	1.22	1.60	
		$I_D = -40\text{ mA}, V_{GS} = -1.8\text{ V}$ (Note2)	—	1.80	2.70	
		$I_D = -30\text{ mA}, V_{GS} = -1.5\text{ V}$ (Note2)	—	2.23	3.60	
Input capacitance	C_{iss}	$V_{DS} = -10\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$	—	43	—	pF
Output capacitance	C_{oss}					
Reverse transfer capacitance	C_{rss}					
Total Gate Charge	Q_g	$V_{DS} = -10\text{ V}, I_{DS} = -330\text{ mA}$ $V_{GS} = -4\text{ V}$	—	1.2	—	nC
Gate-Source Charge	Q_{gs}					
Gate-Drain Charge	Q_{gd}					
Switching time	Turn-on time	t_{on}	$V_{DD} = -10\text{ V}, I_D = -100\text{ mA}$ $V_{GS} = 0\text{ to }-2.5\text{ V}, R_G = 50\Omega$	—	90	ns
	Turn-off time	t_{off}				
Drain-source forward voltage	V_{DSF}	$I_D = 330\text{ mA}, V_{GS} = 0\text{ V}$ (Note2)	—	0.88	1.2	V

Note2: Pulse test

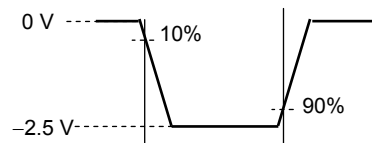
Switching Time Test Circuit

(a) Test circuit



$V_{DD} = -10\text{ V}$
 Duty $\leq 1\%$
 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}

