

SSM3K7002F

High-Speed Switching Applications

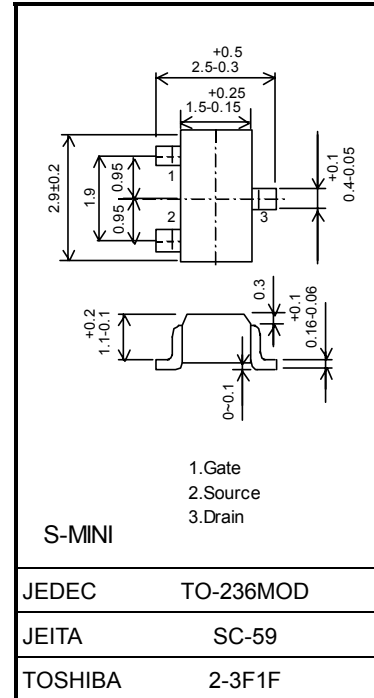
Analog Switch Applications

Unit: mm

- Small package
- Low ON-resistance : $R_{ON} = 3.3\ \Omega$ (max) (@ $V_{GS} = 4.5\text{ V}$)
: $R_{ON} = 3.2\ \Omega$ (max) (@ $V_{GS} = 5\text{ V}$)
: $R_{ON} = 3.0\ \Omega$ (max) (@ $V_{GS} = 10\text{ V}$)

Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Drain-source voltage		V_{DS}	60	V
Gate-source voltage		V_{GSS}	± 20	V
Drain current	DC	I_D	200	mA
	Pulse	I_{DP}	800	
Drain power dissipation (Ta = 25°C)		P_D	200	mW
Channel temperature		T_{ch}	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C



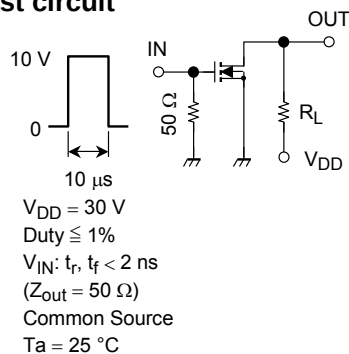
Weight: 0.012 g (typ.)

Electrical Characteristics (Ta = 25°C)

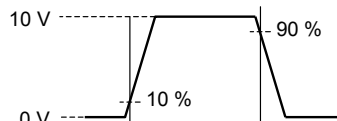
Characteristics		Symbol	Test Condition	Min	Typ	Max	Unit
Gate leakage current		I _{GSS}	V _{GS} = ± 20 V, V _{DS} = 0	—	—	± 10	μA
Drain-source breakdown voltage		V (BR) DSS	I _D = 0.1 mA, V _{GS} = 0	60	—	—	V
Drain cutoff current		I _{DSS}	V _{DS} = 60 V, V _{GS} = 0	—	—	1	μA
Gate threshold voltage		V _{th}	V _{DS} = 10 V, I _D = 0.25 mA	1.0	—	2.5	V
Forward transfer admittance		Y _{fs}	V _{DS} = 10 V, I _D = 200 mA	170	—	—	mS
Drain-source ON-resistance		R _{DS (ON)}	I _D = 500 mA, V _{GS} = 10 V	—	2.0	3.0	Ω
			I _D = 100 mA, V _{GS} = 5 V	—	2.1	3.2	
			I _D = 100 mA, V _{GS} = 4.5 V	—	2.2	3.3	
Input capacitance		C _{iss}	V _{DS} = 25 V, V _{GS} = 0, f = 1 MHz	—	17	—	pF
Reverse transfer capacitance		C _{rss}		—	1.4	—	pF
Output capacitance		C _{oss}		—	5.8	—	pF
Switching time	Turn-on delay time	td(on)	V _{DD} = 30 V , I _D = 200 mA , V _{GS} = 0 to 10 V	—	2.4	4.0	ns
	Turn-off delay time	td(off)		—	26	40	

Switching Time Test Circuit

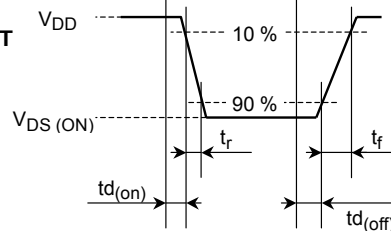
(a) Test circuit



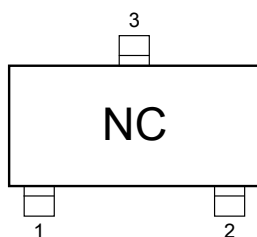
(b) V_{IN}



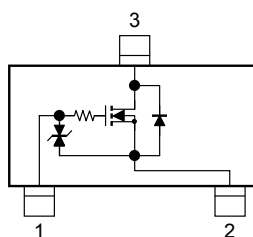
(c) V_{OUT}



Marking



Equivalent Circuit (top view)



Precaution

V_{th} can be expressed as the voltage between gate and source when the low operating current value is $I_D = 0.25\text{ mA}$ for this product. For normal switching operation, $V_{GS(ON)}$ requires a higher voltage than V_{th} , and $V_{GS(OFF)}$ requires a lower voltage than V_{th} .

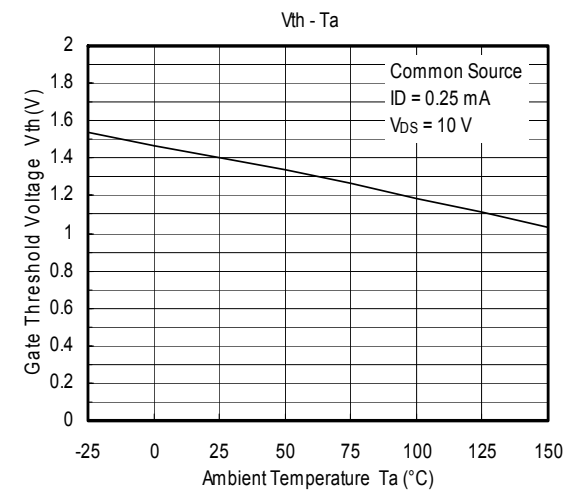
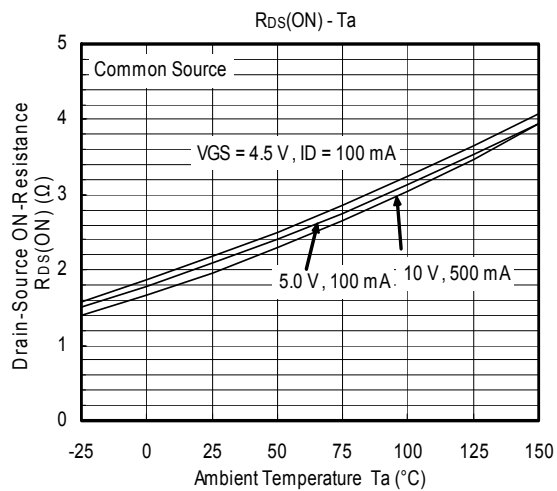
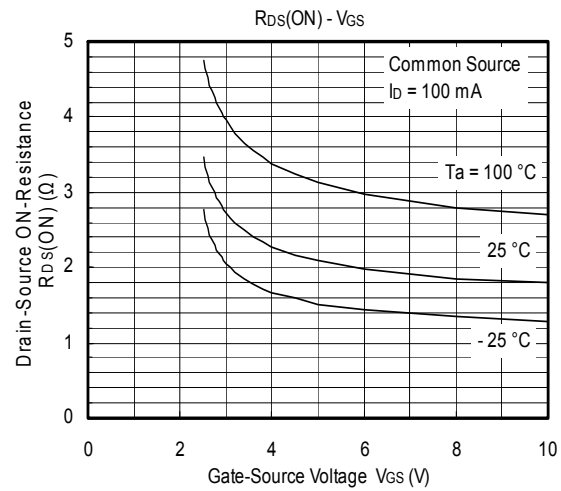
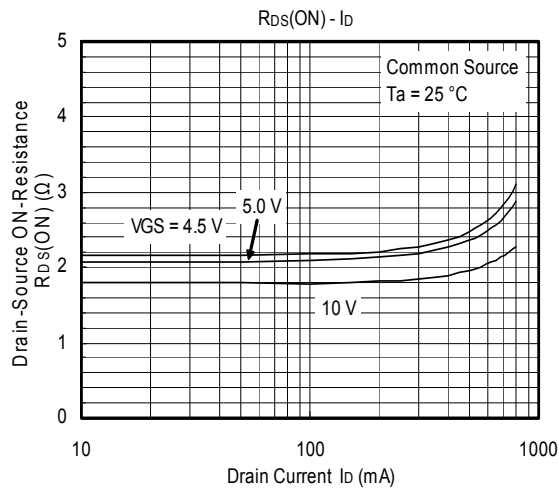
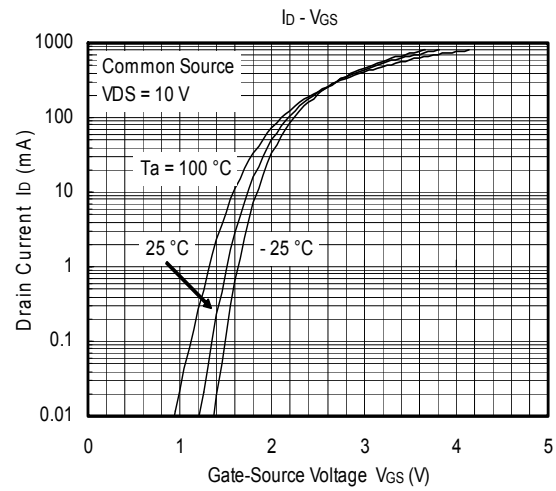
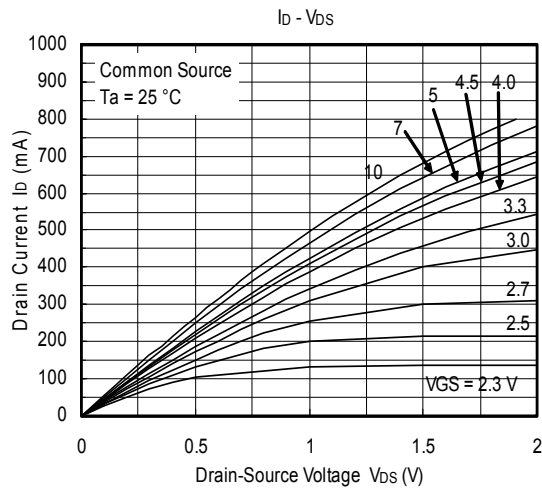
(The relationship can be established as follows: $V_{GS(OFF)} < V_{th} < V_{GS(ON)}$.)

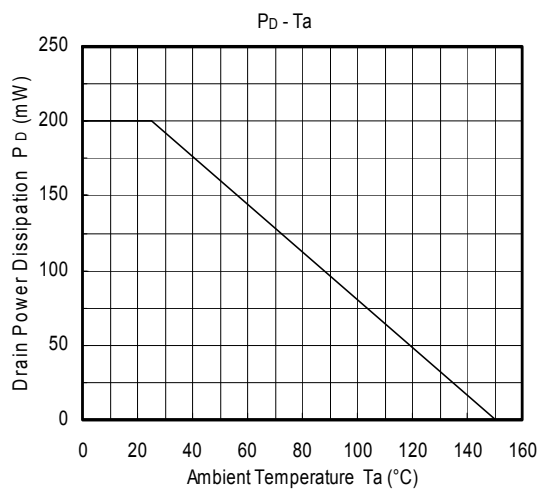
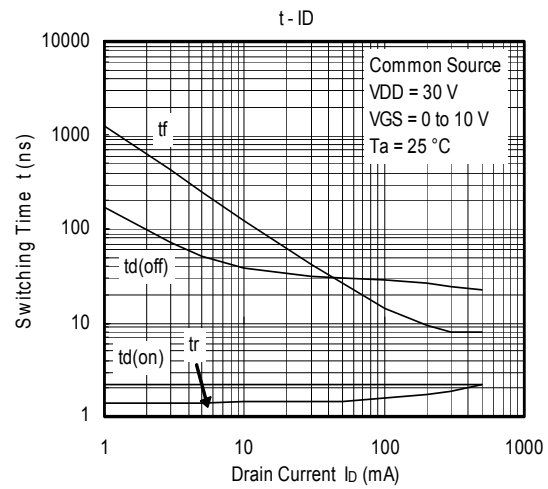
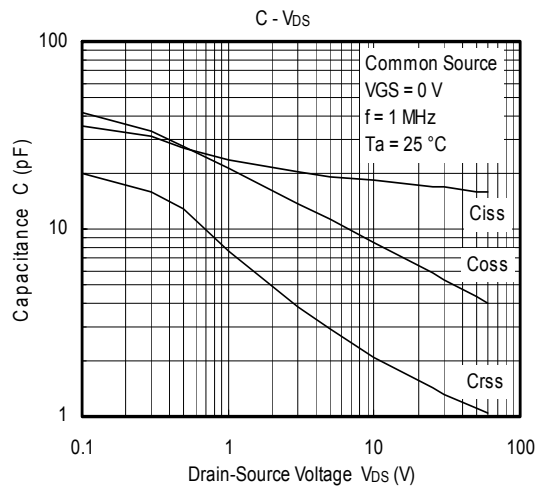
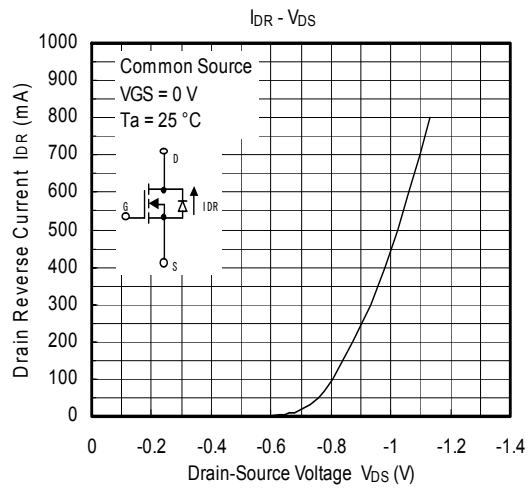
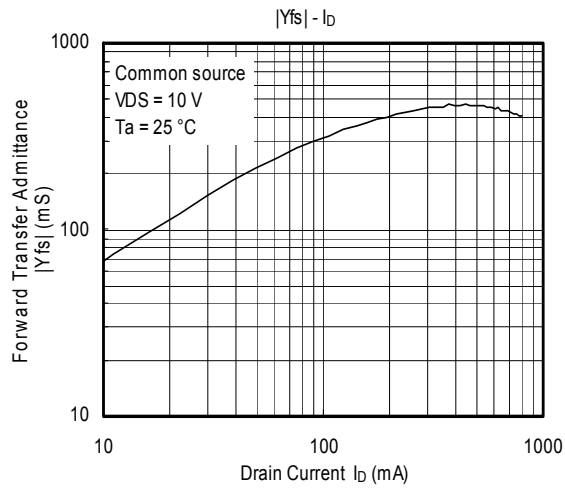
Take this into consideration when using the device.

The recommended V_{GS} voltage for turning on this product is 4.5 V or higher.

Handling Precaution

When handling individual devices that are not yet mounted on a circuit board, make sure that the environment is protected against electrostatic discharge. Operators should wear antistatic clothing, and containers and other objects that come into direct contact with devices should be made of antistatic materials.





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