

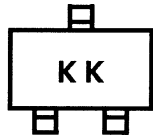
TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

# 2SK2823

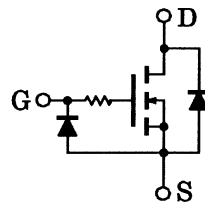
For Portable Equipment  
 High Speed Switch Applications  
 Analog Switch Applications

- High input impedance
- 1.5 V gate drive
- Low gate threshold voltage:  $V_{th} = 0.5 \sim 1.0$  V
- Small package

**Marking**



**Equivalent Circuit**



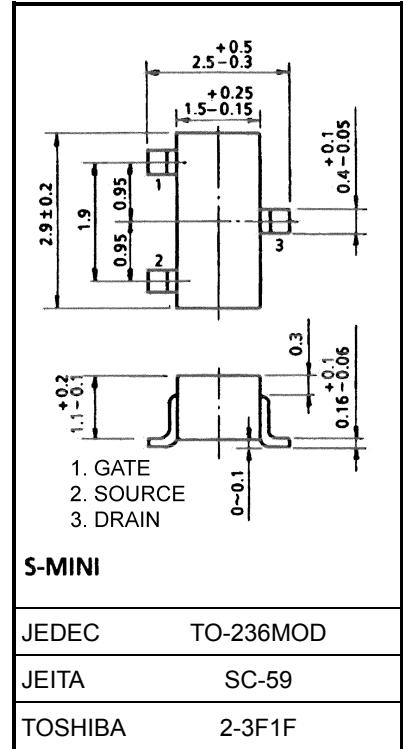
**Maximum Ratings (Ta = 25°C)**

Characteristics	Symbol	Rating	Unit
Drain-source voltage	$V_{DS}$	20	V
Gate-source voltage	$V_{GSS}$	10	V
DC drain current	$I_D$	100	mA
Drain power dissipation	$P_D$	200	mW
Channel temperature	$T_{ch}$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°C

Note: This transistor is electrostatic sensitive device.

Please handle with caution.

Unit: mm



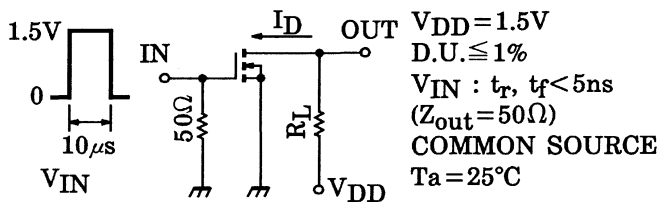
Weight: 0.012 g (typ.)

## Electrical Characteristics (Ta = 25°C)

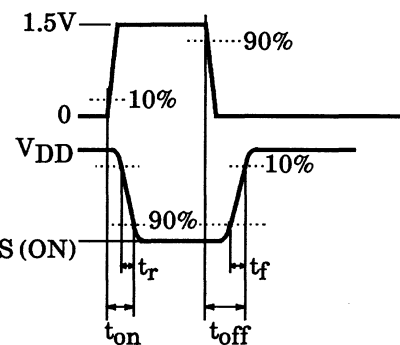
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		$I_{GSS}$	$V_{GS} = 10\text{ V}, V_{DS} = 0$	—	—	1	$\mu\text{A}$
Drain-source breakdown voltage		$V_{(BR)DSS}$	$I_D = 100\ \mu\text{A}, V_{GS} = 0$	20	—	—	V
Drain cut-off current		$I_{DSS}$	$V_{DS} = 20\text{ V}, V_{GS} = 0$	—	—	1	$\mu\text{A}$
Gate threshold voltage		$V_{th}$	$V_{DS} = 1.5\text{ V}, I_D = 0.1\text{ mA}$	0.5	—	1.0	V
Forward transfer admittance		$ Y_{fs} $	$V_{DS} = 1.5\text{ V}, I_D = 10\text{ mA}$	35	70	—	mS
Drain-source ON resistance 1		$R_{DS(ON)1}$	$I_D = 1\text{ mA}, V_{GS} = 1.2\text{ V}$	—	15	50	$\Omega$
Drain-source ON resistance 2		$R_{DS(ON)2}$	$I_D = 10\text{ mA}, V_{GS} = 1.5\text{ V}$	—	10	40	$\Omega$
Drain-source ON resistance 3		$R_{DS(ON)3}$	$I_D = 10\text{ mA}, V_{GS} = 2.5\text{ V}$	—	7	28	$\Omega$
Input capacitance		$C_{iss}$	$V_{DS} = 1.5\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	12	—	pF
Reverse transfer capacitance		$C_{rss}$	$V_{DS} = 1.5\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	3.4	—	pF
Output capacitance		$C_{oss}$	$V_{DS} = 1.5\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	12	—	pF
Switching time	Turn-on time	$t_{on}$	$V_{DD} = 1.5\text{ V}, I_D = 10\text{ mA},$ $V_{GS} = 0 \sim 1.5\text{ V}$	—	0.35	—	$\mu\text{s}$
	Turn-off time	$t_{off}$		—	0.2	—	

## Switching Time Test Circuit

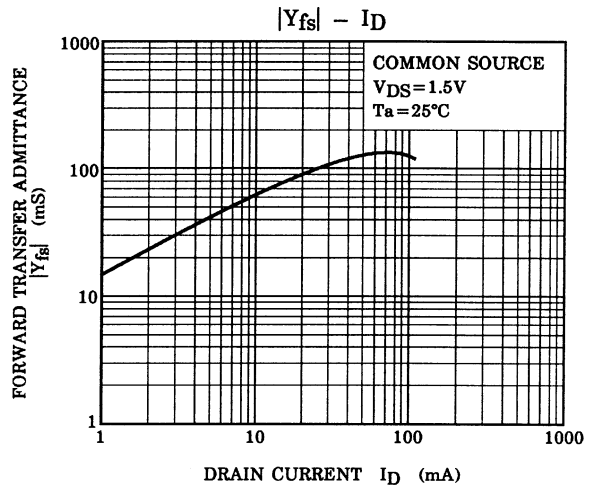
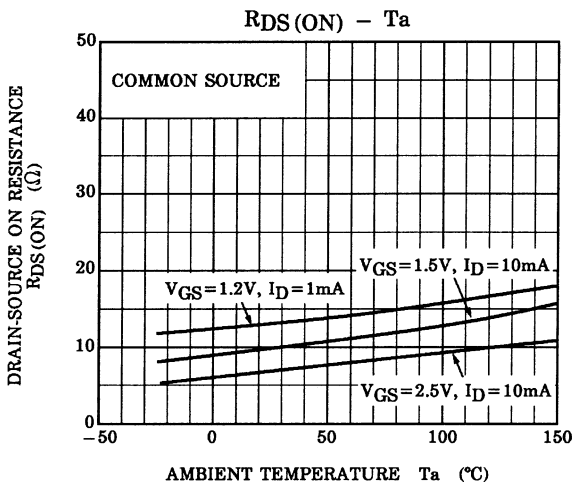
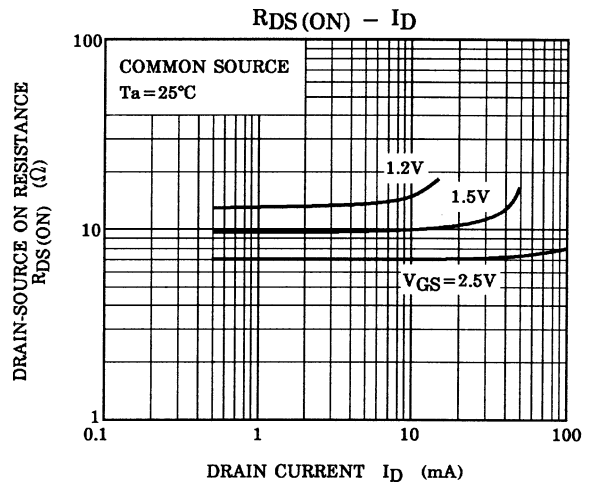
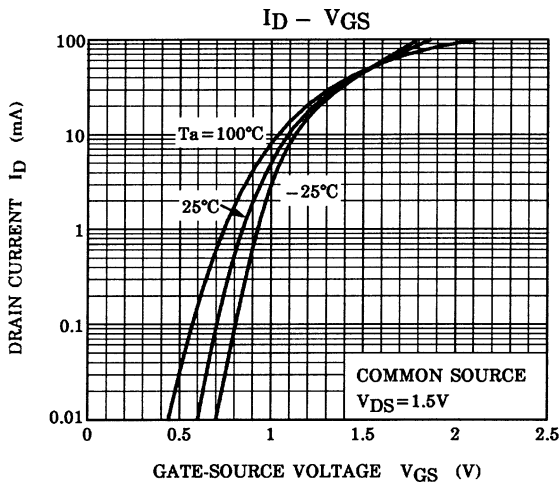
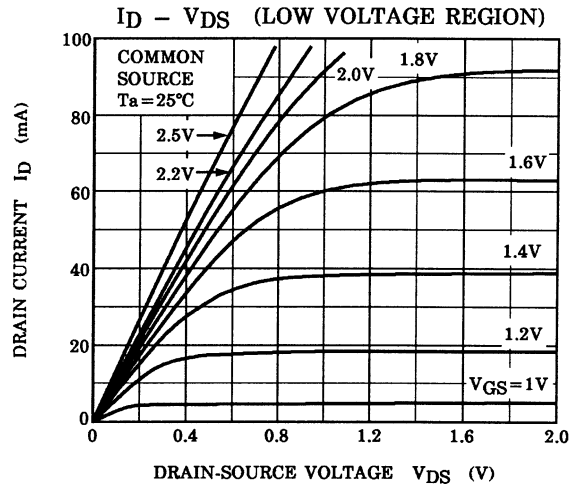
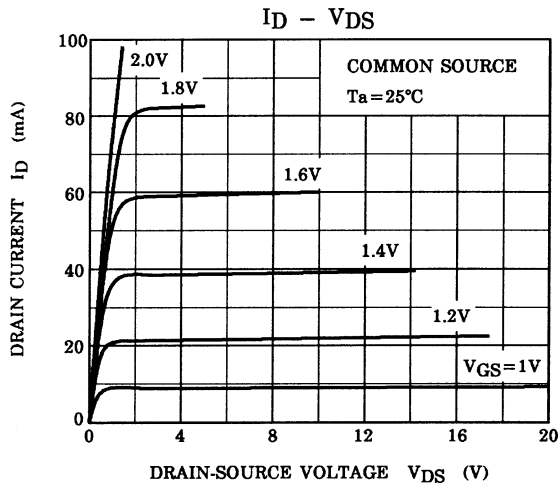
(1) Test circuit

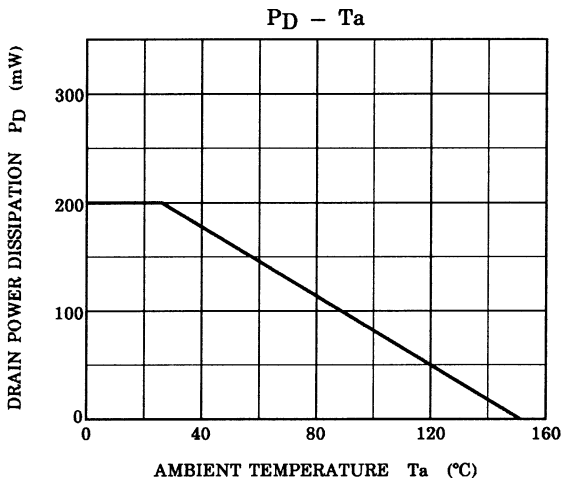
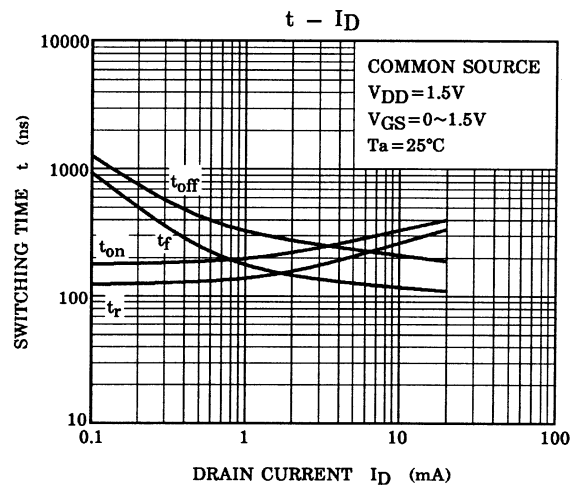
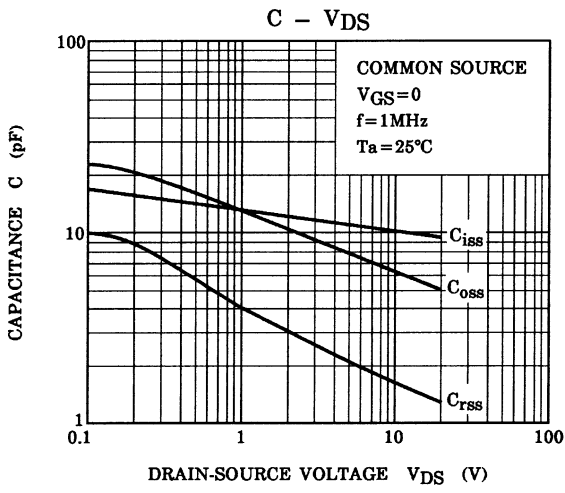


(2)  $V_{IN}$   
 $V_{GS}$



(3)  $V_{OUT}$   
 $V_{DS}$





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