

2SJ305

High Speed Switching Applications

Analog Applications

- High input impedance
- Low gate threshold voltage.: $V_{th} = -0.5 \sim -1.5 \text{ V}$
- Excellent switching times.: $t_{on} = 0.06 \mu\text{s}$ (typ.)
 $t_{off} = 0.15 \mu\text{s}$ (typ.)
- Low drain-source ON resistance: $R_{DS(ON)} = 2.4 \Omega$ (typ.)
- Small package.
- Complementary to 2SK2009

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	-30	V
Gate-source voltage	V_{GSS}	± 20	V
DC drain current	I_D	-200	mA
Drain power dissipation	P_D	200	mW
Channel temperature	T_{ch}	150	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	-55~150	$^{\circ}\text{C}$

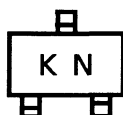
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

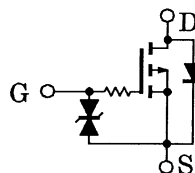
Note: This transistor is electrostatic sensitive device.

Please handle with caution.

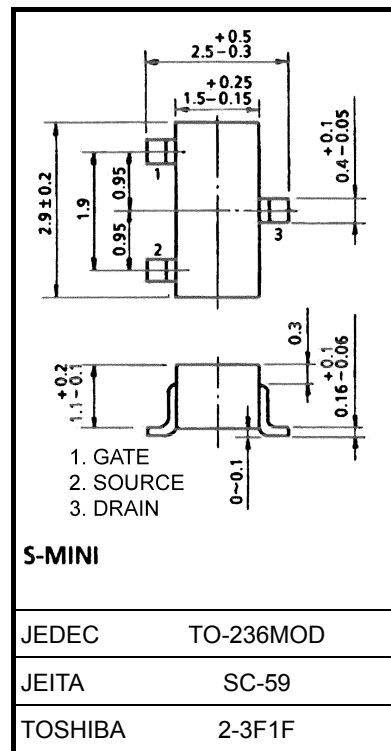
Marking



Equivalent Circuit



Unit: mm

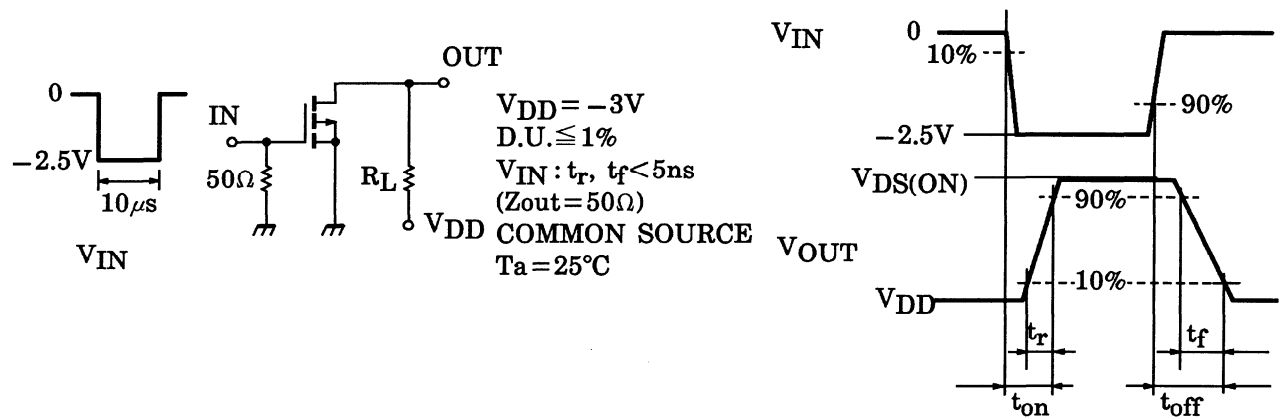


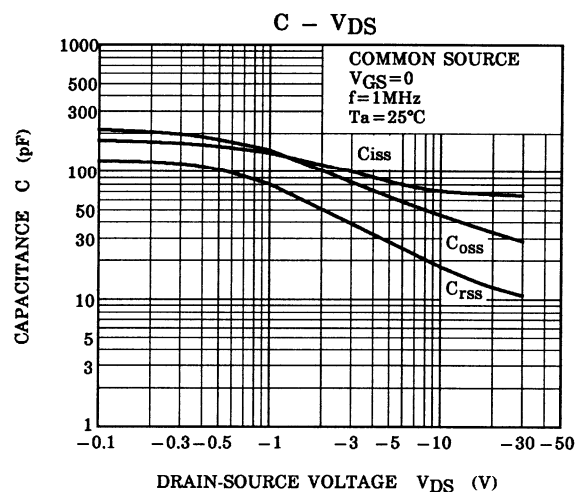
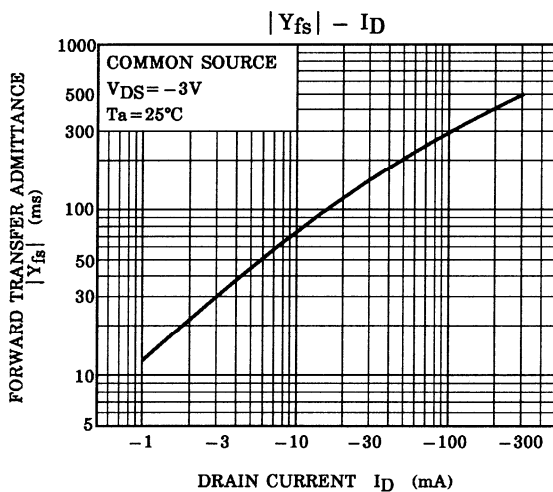
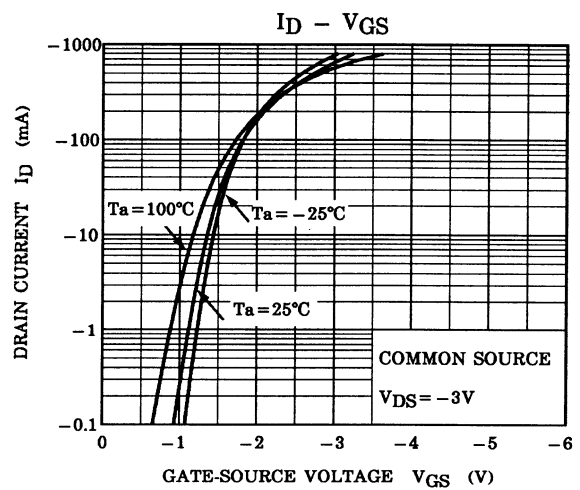
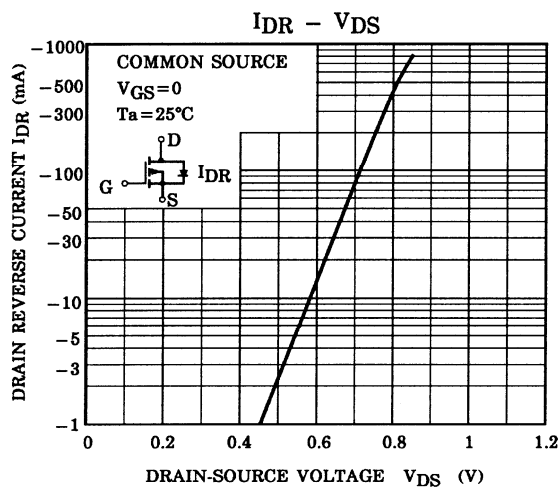
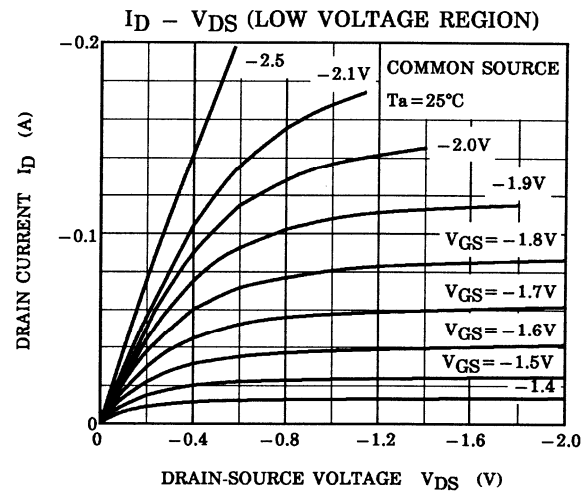
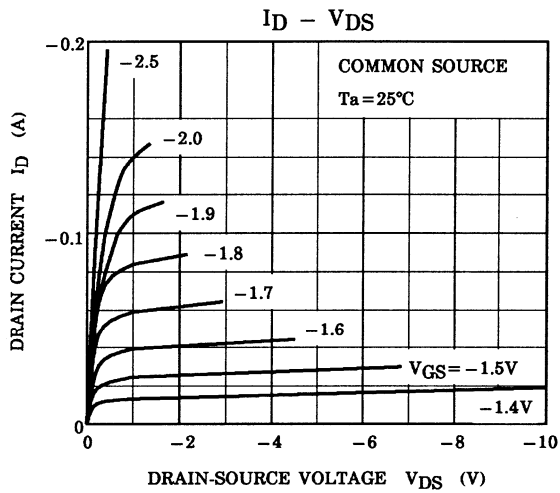
Weight: 0.012 g (typ.)

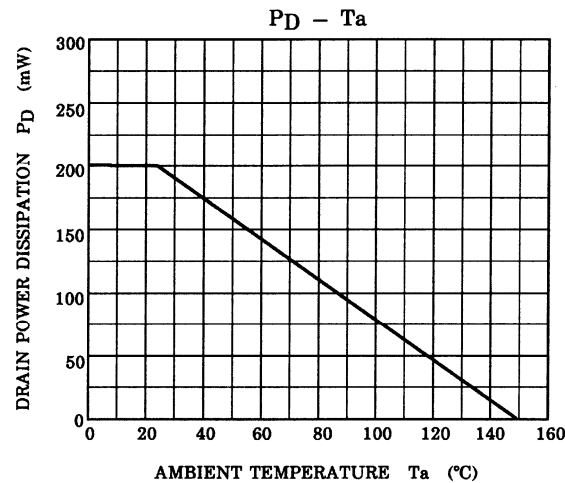
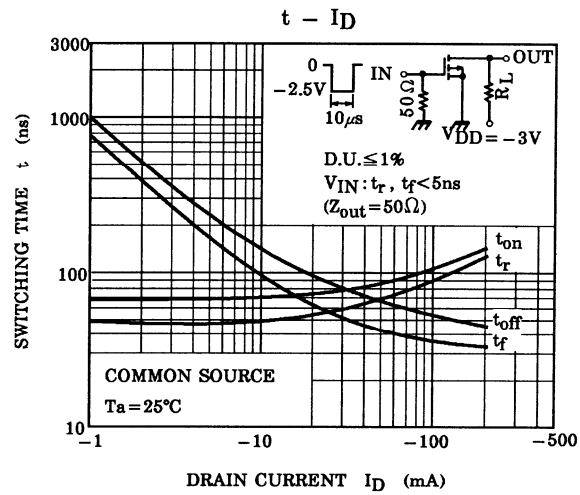
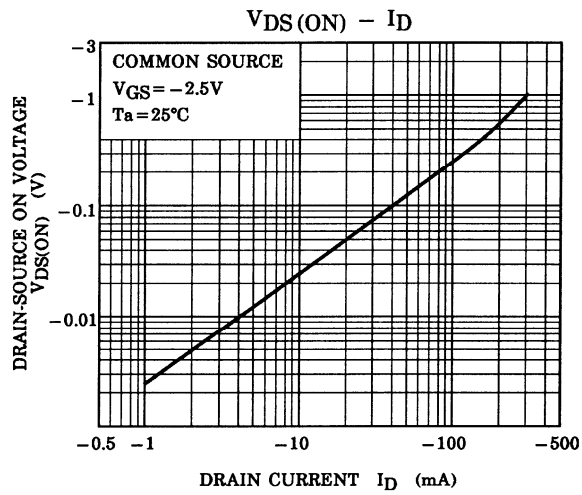
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GSS}	$V_{GS} = \pm 10\text{ V}, V_{DS} = 0$	—	—	± 0.1	μA
Drain-source breakdown voltage		$V_{(BR)DSS}$	$I_D = -1\text{ mA}, V_{GS} = 0$	-30	—	—	V
Drain cut-off current		I_{DSS}	$V_{DS} = -30\text{ V}, V_{GS} = 0$	—	—	-10	μA
Gate threshold voltage		V_{th}	$V_{DS} = -3\text{ V}, I_D = -0.1\text{ mA}$	-0.5	—	-1.5	V
Forward transfer admittance		$ Y_{fs} $	$V_{DS} = -3\text{ V}, I_D = -50\text{ mA}$	100	—	—	mS
Drain-source ON resistance		$R_{DS(ON)}$	$I_D = -50\text{ mA}, V_{GS} = -2.5\text{ V}$	—	2.4	4	Ω
Input capacitance		C_{iss}	$V_{DS} = -3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	92	—	pF
Reverse transfer capacitance		C_{rss}	$V_{DS} = -3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	36	—	pF
Output capacitance		C_{oss}	$V_{DS} = -3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	80	—	pF
Switching time	Turn-on time	t_{on}	$V_{DD} = -3\text{ V}, I_D = -10\text{ mA}$ $V_{GS} = 0 \sim -2.5\text{ V}$	—	0.06	—	μs
	Turn-off time	t_{off}	$V_{DD} = -3\text{ V}, I_D = -10\text{ mA}$ $V_{GS} = 0 \sim -2.5\text{ V}$	—	0.15	—	

Switching Time Test Circuit







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