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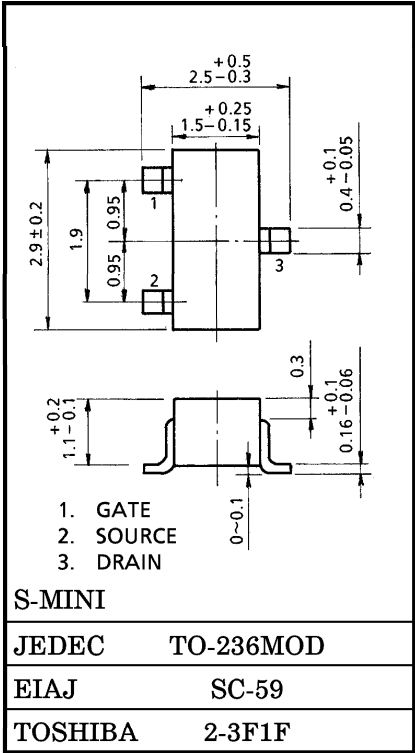
HIGH SPEED SWITCHING APPLICATIONS

Unit in mm

- Small Package
- Low on Resistance :  $R_{on} = 200\text{ m}\Omega$  (Max) ( $V_{GS} = 4\text{ V}$ )  
:  $R_{on} = 250\text{ m}\Omega$  (Max) ( $V_{GS} = 2.5\text{ V}$ )
- Low Gate Threshold Voltage :  $V_{th} = 0.6\sim 1.1\text{ V}$   
( $V_{DS} = 3\text{ V}$ ,  $I_D = 0.1\text{ mA}$ )

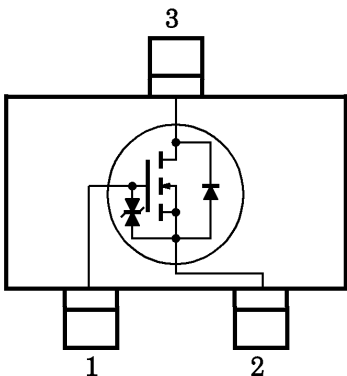
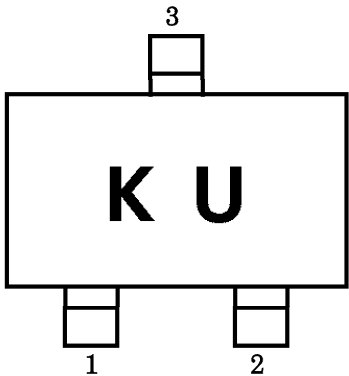
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		$V_{DS}$	30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 10$	V
Drain Current	DC	$I_D$	1.0	A
	Pulse	$I_{DP}$	2.0	
Drain Power Dissipation		$P_D$	200	mW
Channel Temperature		$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	$-55\sim 150$	$^\circ\text{C}$



MARKING

EQUIVALENT CIRCUIT



HANDLING PRECAUTION

When handling individual devices (which are not yet mounted on a circuit board), be sure that the environment is protected against electrostatic electricity. Operators should wear anti-static clothing, and containers and other objects that come into direct contact with devices should be made of anti-static materials.

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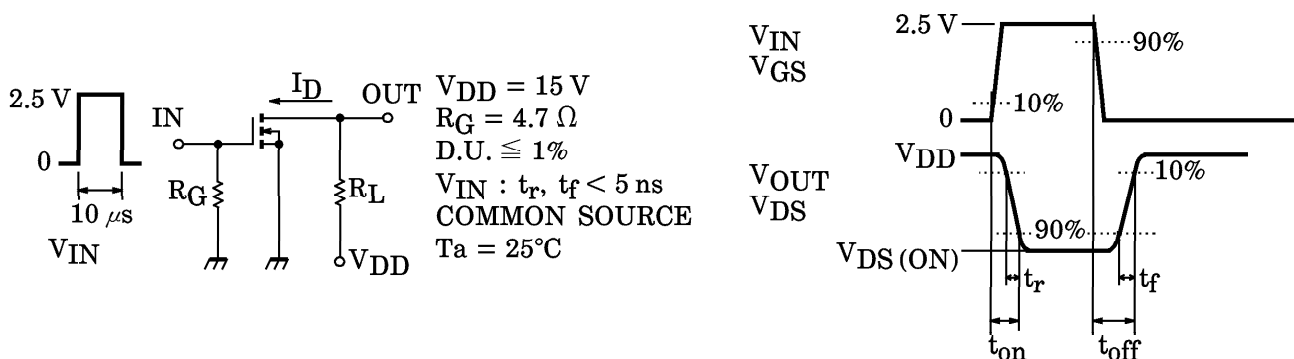
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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GSS}$	$V_{GS} = \pm 10 \text{ V}, V_{DS} = 0$	—	—	$\pm 5$	$\mu\text{A}$
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = 1 \text{ mA}, V_{GS} = 0$	30	—	—	V
Drain Cut-off Current		$I_{DSS}$	$V_{DS} = 30 \text{ V}, V_{GS} = 0$	—	—	1	$\mu\text{A}$
Gate Threshold Voltage		$V_{th}$	$V_{DS} = 3 \text{ V}, I_D = 0.1 \text{ mA}$	0.6	—	1.1	V
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 3 \text{ V}, I_D = 0.5 \text{ A}$ (Note 1)	1.5	—	—	S
Drain-Source ON Resistance		$R_{DS(ON)}$	$I_D = 0.5 \text{ A}, V_{GS} = 4 \text{ V}$ (Note 1)	—	140	200	$\text{m}\Omega$
			$I_D = 0.5 \text{ A}, V_{GS} = 2.5 \text{ V}$ (Note 1)	—	180	250	
Input Capacitance		$C_{iss}$	$V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	115	—	pF
Reverse Transfer Capacitance		$C_{rss}$	$V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	24	—	pF
Output Capacitance		$C_{oss}$	$V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	60	—	pF
Switching Time	Turn-on Time	$t_{on}$	$V_{DD} = 15 \text{ V}, I_D = 0.5 \text{ A},$ $V_{GS} = 0 \sim 2.5 \text{ V}, R_G = 4.7 \Omega$	—	52	—	ns
	Turn-off Time	$t_{off}$		—	80	—	

(Note 1) : Pulse test

## SWITCHING TIME TEST CIRCUIT



## PRECAUTION

$V_{th}$  can be expressed as voltage between gate and source when low operating current value is  $I_D = 100 \mu\text{A}$  for this product. For normal switching operation,  $V_{GS(ON)}$  requires higher voltage than  $V_{th}$  and  $V_{GS(off)}$  requires lower voltage than  $V_{th}$ .

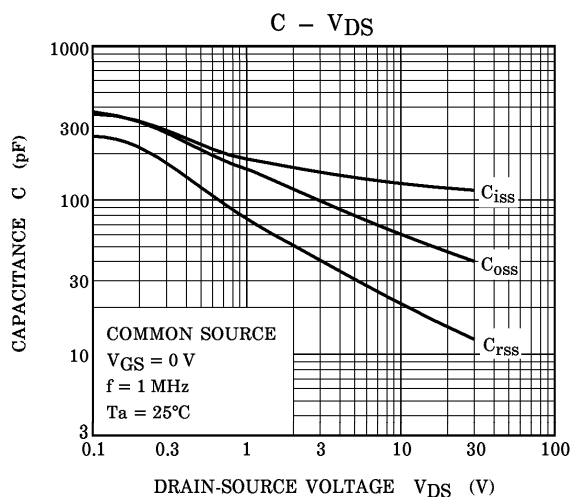
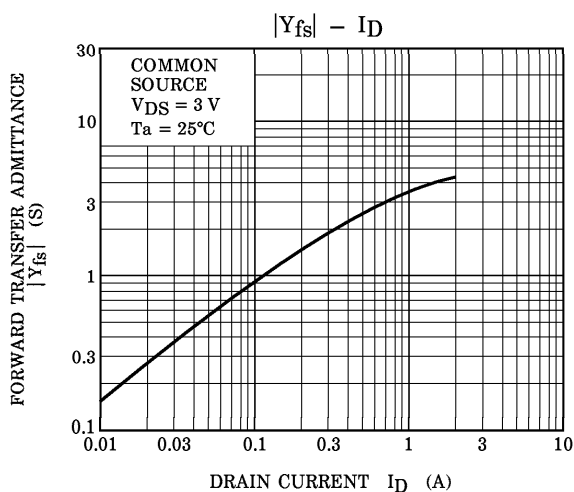
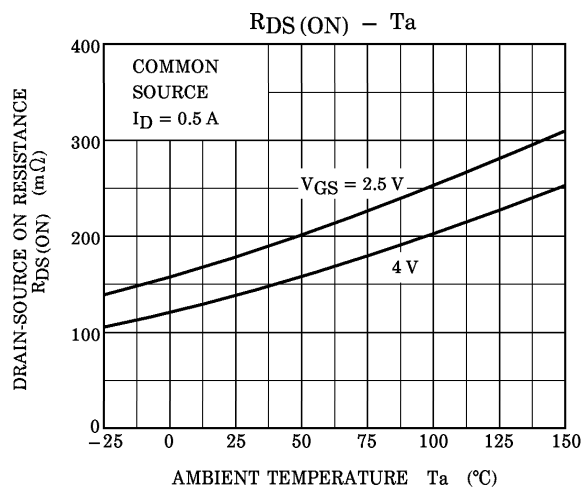
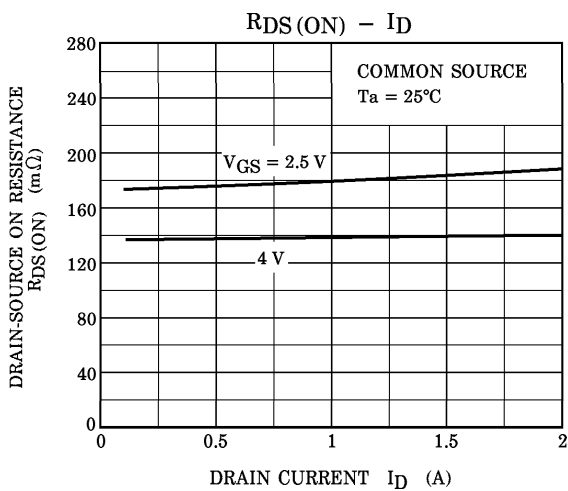
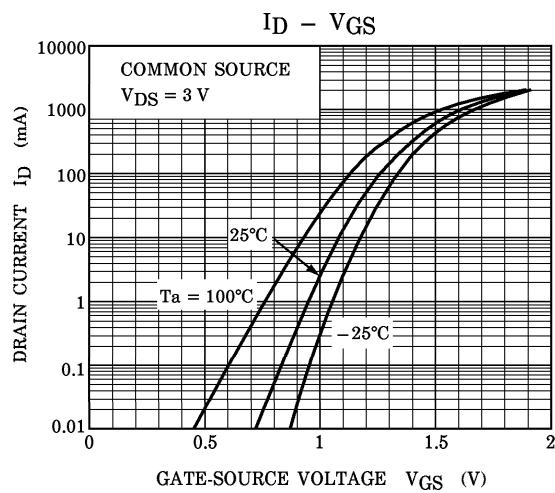
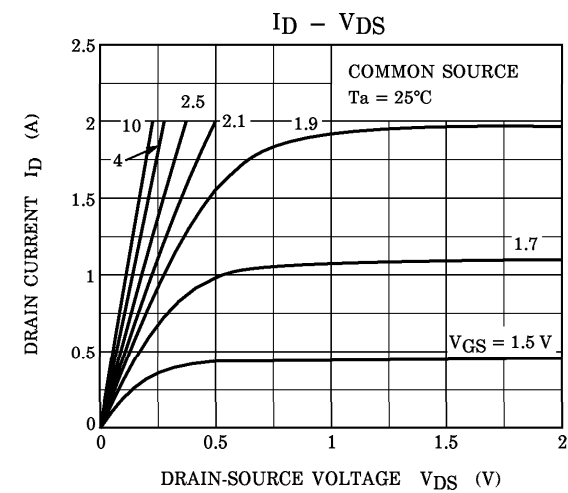
(Relationship can be established as follows :  $V_{GS(off)} < V_{th} < V_{GS(ON)}$ )

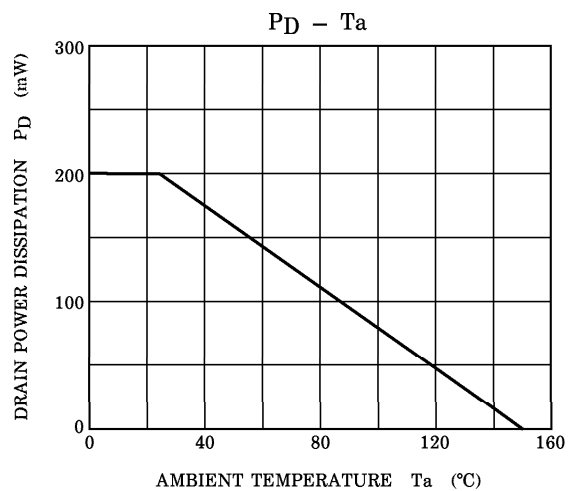
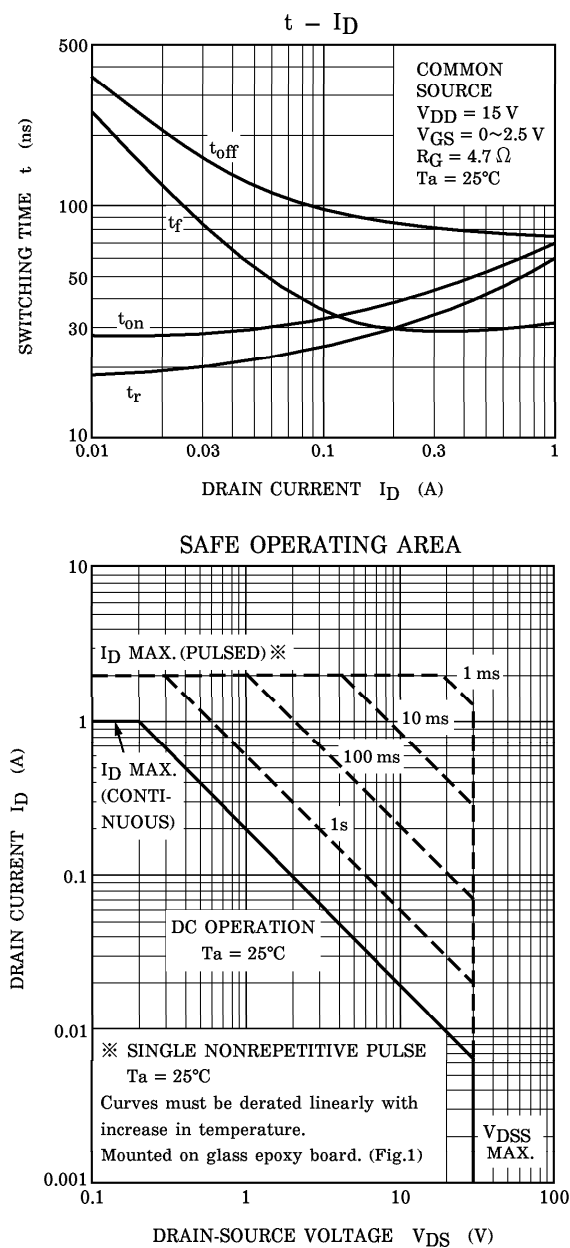
Please take this into consideration for using the device.

$V_{GS}$  recommended voltage of 2.5 V or higher to turn on this product.

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(Fig.1) : 25.4 mm × 25.4 mm × 1.6 t (a Cu pad of 0.8 mm<sup>2</sup> area)

