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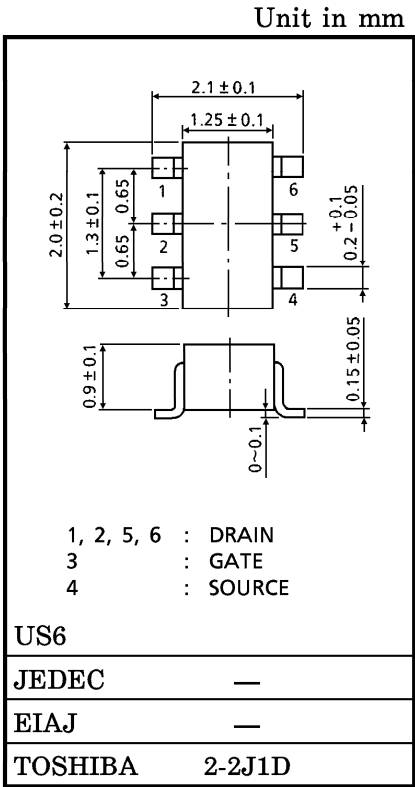
DC-DC CONVERTERS  
HIGH SPEED SWITCHING APPLICATIONS

- Small Package
- Low on Resistance
  - :  $R_{on} = 130\text{ m}\Omega$  max. (@ $V_{GS} = 10\text{ V}$ )
  - :  $R_{on} = 220\text{ m}\Omega$  max. (@ $V_{GS} = 4\text{ V}$ )
- Low Input Capacitance
  - :  $C_{iss} = 102\text{ pF}$  Typ.
  - :  $C_{rss} = 22\text{ pF}$  Typ.

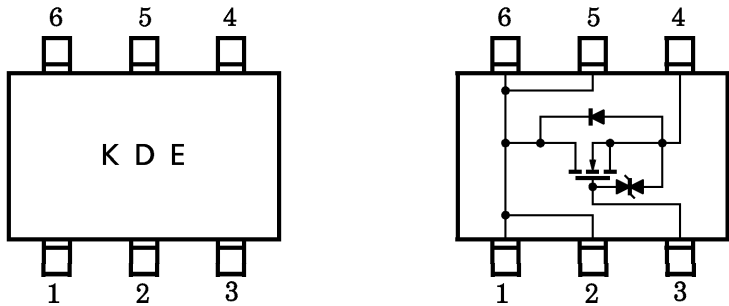
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		$V_{DS}$	30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	DC	$I_D$	1.5	A
	Pulse	$I_{DP}$	3.0	
Drain Power Dissipation		$P_D^*$	300	mW
Channel Temperature		$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	$-55\sim 150$	$^\circ\text{C}$

\* Mounted on FR4 Board.  
( $25.4\text{ mm} \times 25.4\text{ mm} \times 1.6\text{ t}$ , Cu Pad :  $0.32\text{ mm}^2 \times 6$ )



MARKING EQUIVALENT CIRCUIT (TOP VIEW)



HANDLING PRECAUTION

When handling individual devices (which are not yet mounting 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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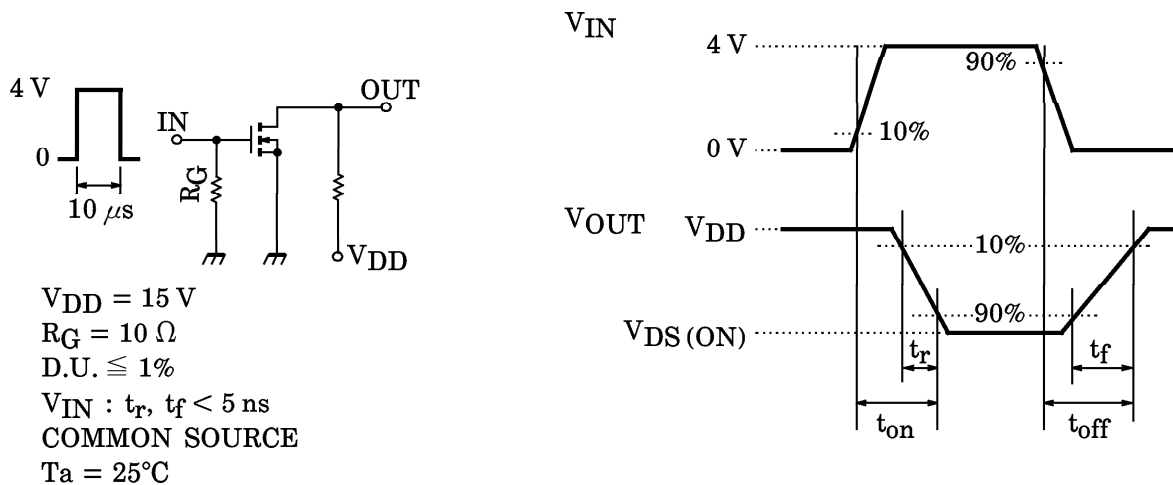
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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GSS}$	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$	—	—	$\pm 1$	$\mu\text{A}$
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		$V_{th}$	$V_{DS} = 5 \text{ V}, I_D = 0.1 \text{ mA}$	1.1	—	1.8	V
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 5 \text{ V}, I_D = 0.75 \text{ A}$ (Note)	1.0	—	—	S
Drain-Source ON Resistance		$R_{DS(ON)}$	$I_D = 0.75 \text{ A}, V_{GS} = 10 \text{ V}$ (Note)	—	105	130	$\text{m}\Omega$
		$R_{DS(ON)}$	$I_D = 0.75 \text{ A}, V_{GS} = 4 \text{ V}$ (Note)	—	170	220	$\text{m}\Omega$
		$R_{DS(ON)}$	$I_D = 0.75 \text{ A}, V_{GS} = 3.3 \text{ V}$ (Note)	—	230	500	$\text{m}\Omega$
Input Capacitance		$C_{iss}$	$V_{DS} = 15 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	102	—	pF
Reverse Transfer Capacitance		$C_{rss}$	$V_{DS} = 15 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	22	—	pF
Output Capacitance		$C_{oss}$	$V_{DS} = 15 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	57	—	pF
Switching Time	Turn-on Time	$t_{on}$	$V_{DD} = 15 \text{ V}, I_D = 0.75 \text{ A},$ $V_{GS} = 0 \sim 4 \text{ V}, R_G = 10 \Omega$	—	46	—	ns
	Turn-off Time	$t_{off}$		—	65	—	ns

(Note) : Pulse test

## SWITCHING TIME TEST CIRCUIT



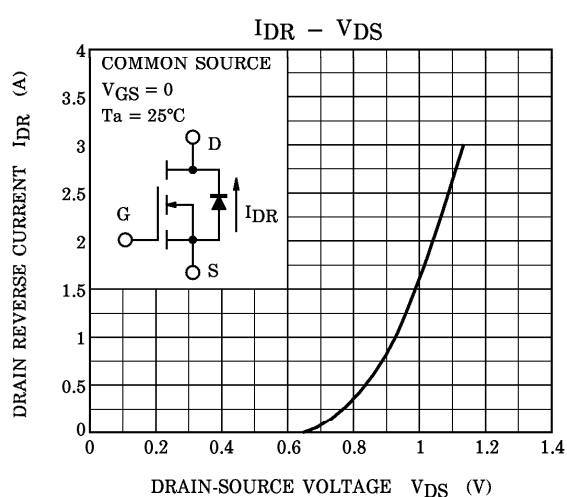
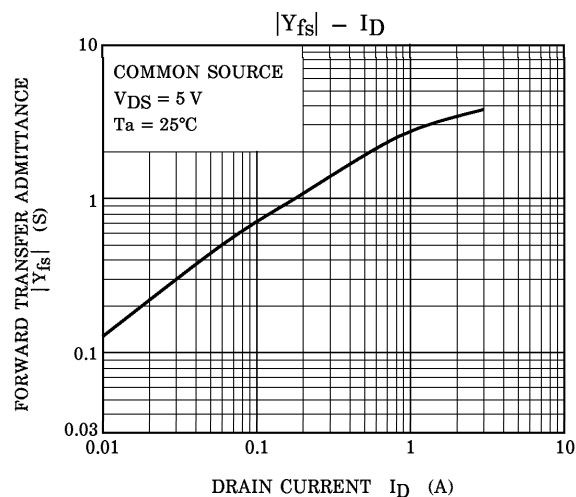
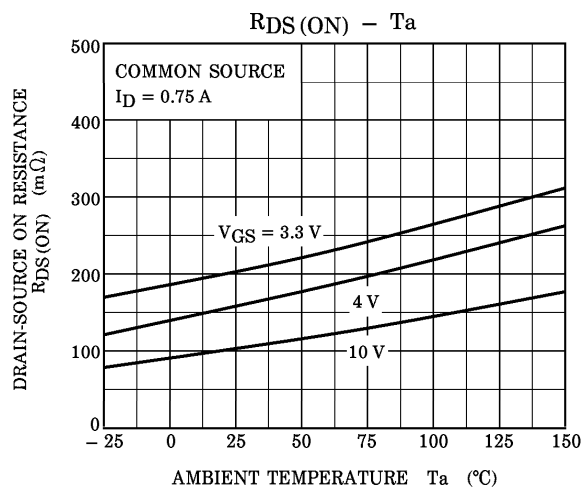
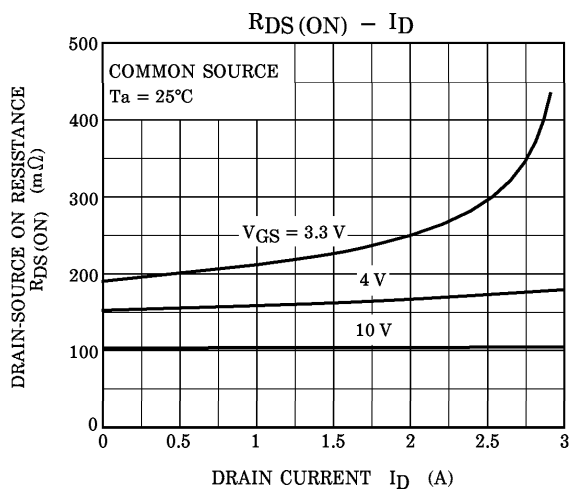
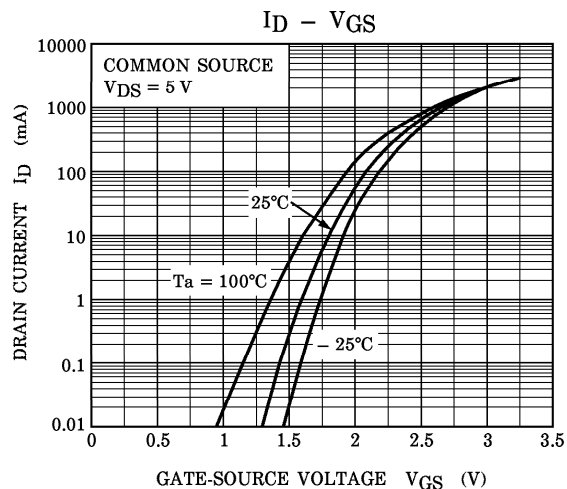
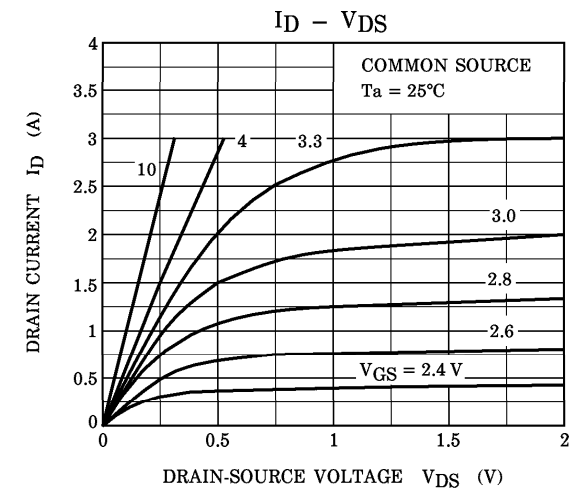
## PRECAUTION

$V_{th}$  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 4 V or higher to turn on this product.



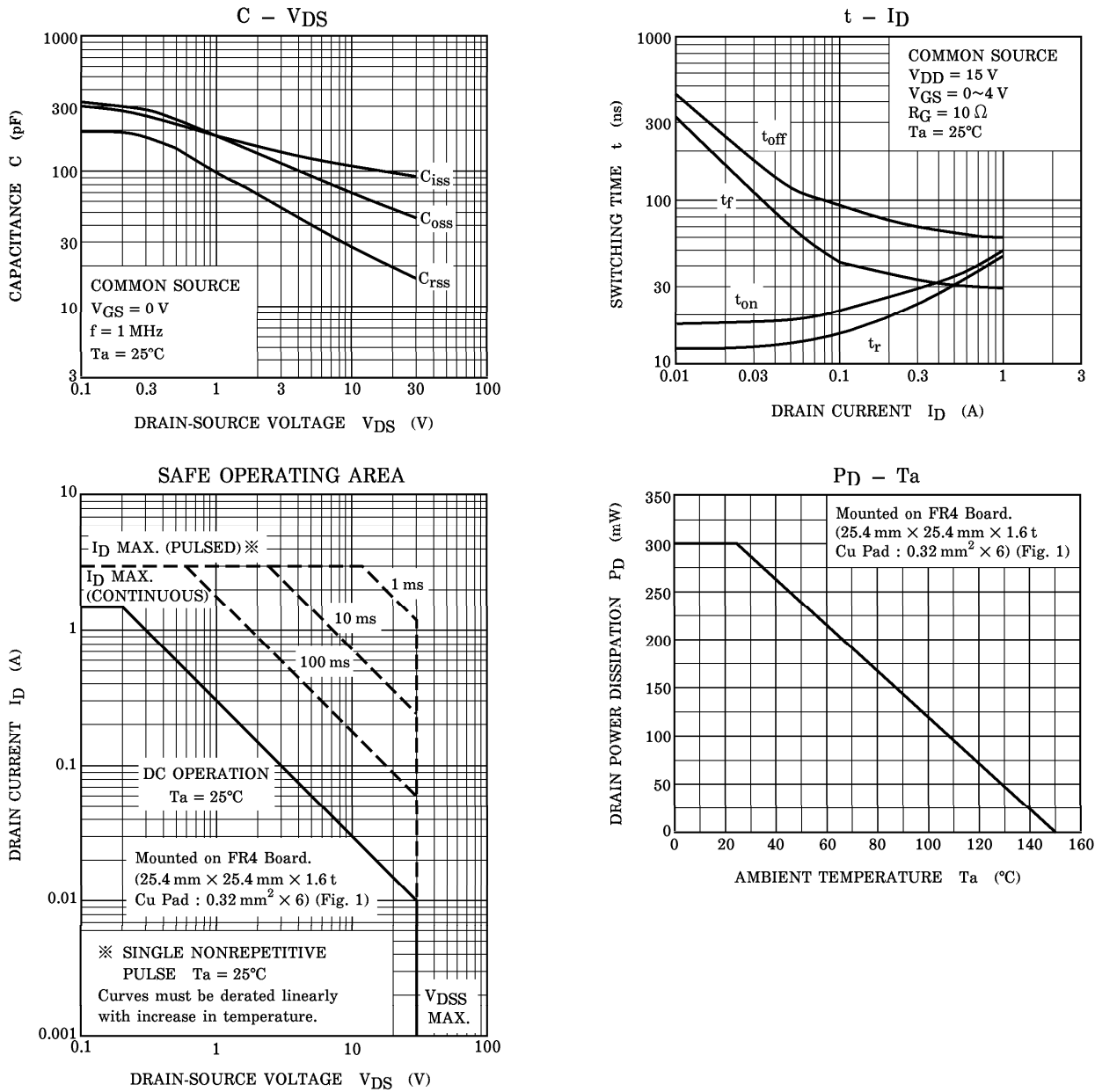


Fig.1 : 25.4 mm × 25.4 mm × 1.6 t, Cu Pad : 0.32 mm<sup>2</sup> × 6

