

SSM6K07FU

DC-DC CONVERTERS

HIGH SPEED SWITCHING APPLICATIONS

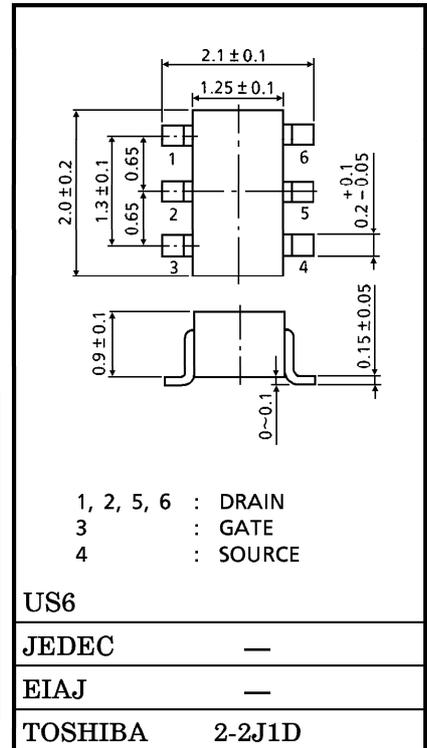
- Small Package
- Low on Resistance
 - : $R_{on} = 130\text{ m}\Omega$ max. (@ $V_{GS} = 10\text{ V}$)
 - : $R_{on} = 220\text{ m}\Omega$ max. (@ $V_{GS} = 4\text{ V}$)
- Low Input Capacitance
 - : $C_{iss} = 102\text{ pF}$ Typ.
 - : $C_{rss} = 22\text{ pF}$ Typ.

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	DC	I_D	1.5
	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}	- 55~150	$^\circ\text{C}$

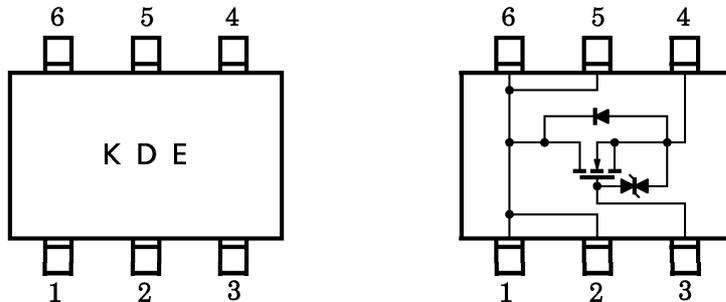
* Mounted on FR4 Board.
(25.4 mm × 25.4 mm × 1.6 t, Cu Pad : 0.32 mm² × 6)

Unit in mm



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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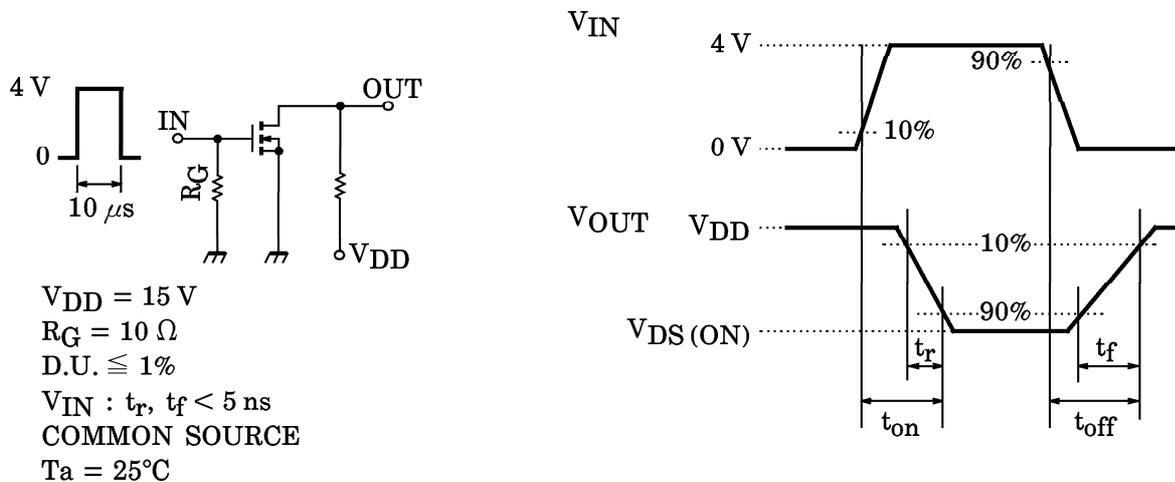
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 16\text{ V}, V_{DS} = 0$	—	—	± 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}	$V_{DS} = 30\text{ V}, V_{GS} = 0$	—	—	1	μA
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

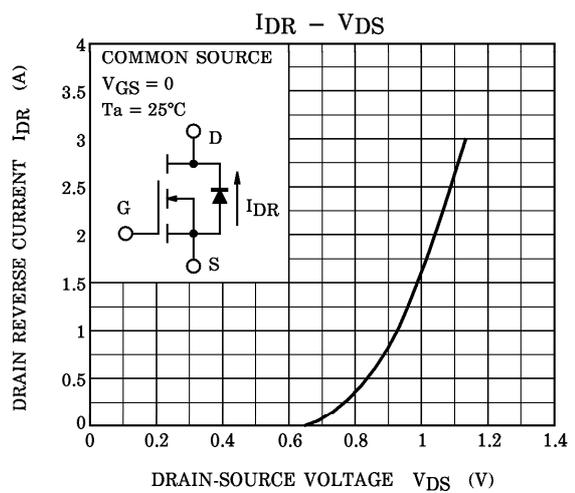
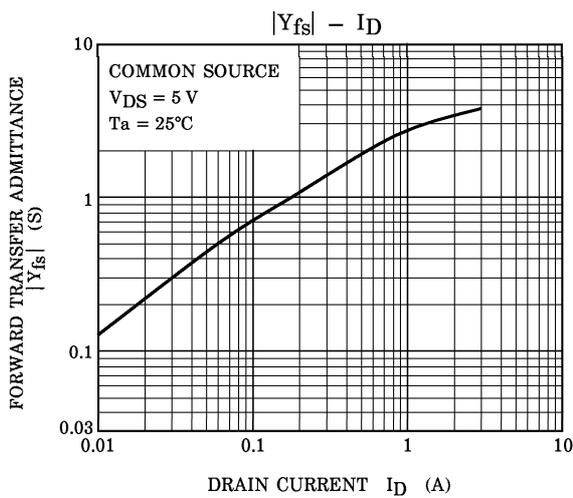
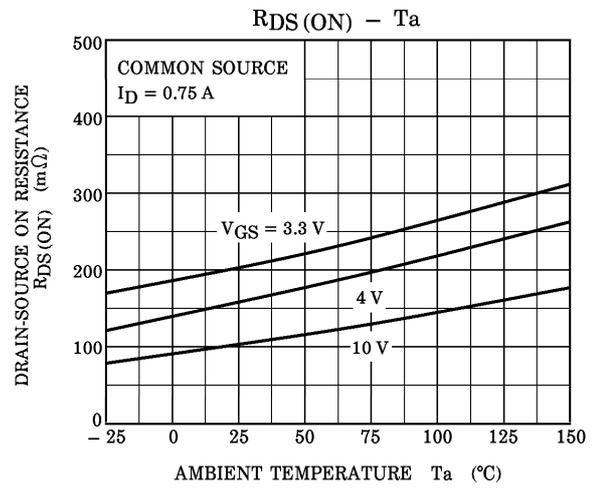
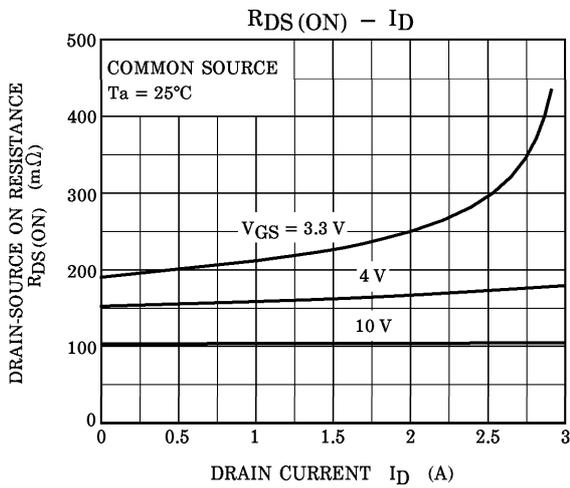
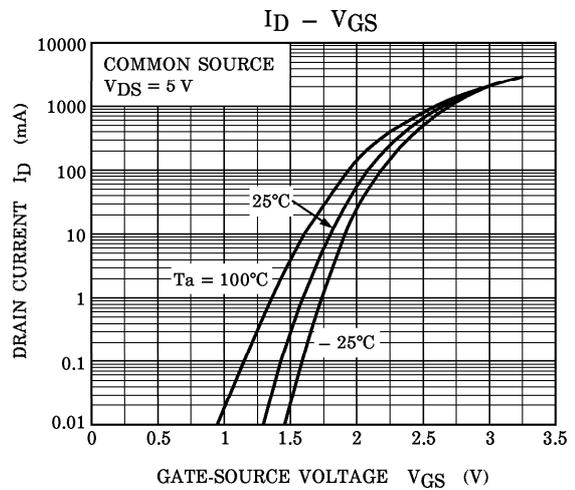
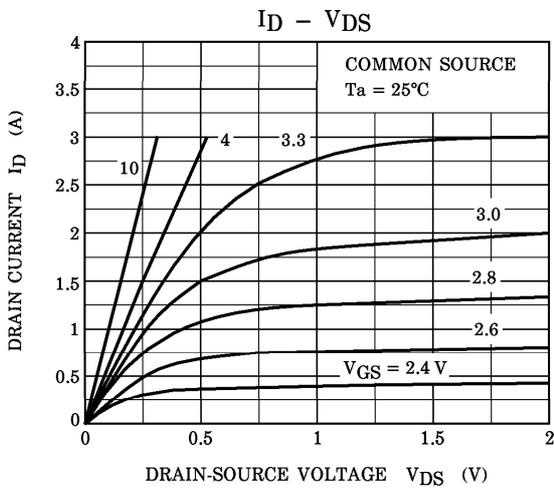
(Note) : Pulse test

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.



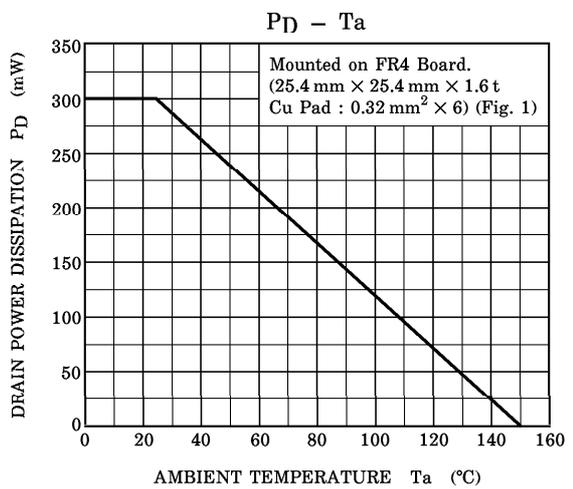
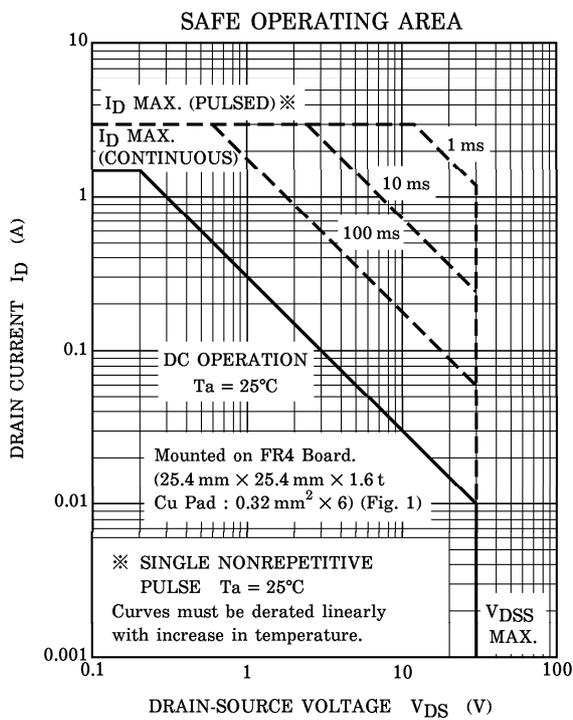
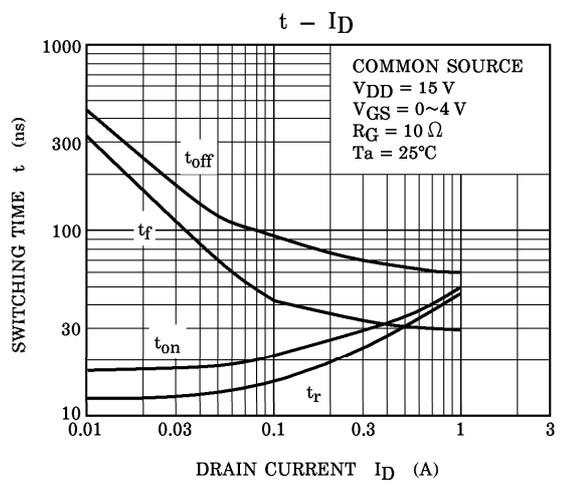
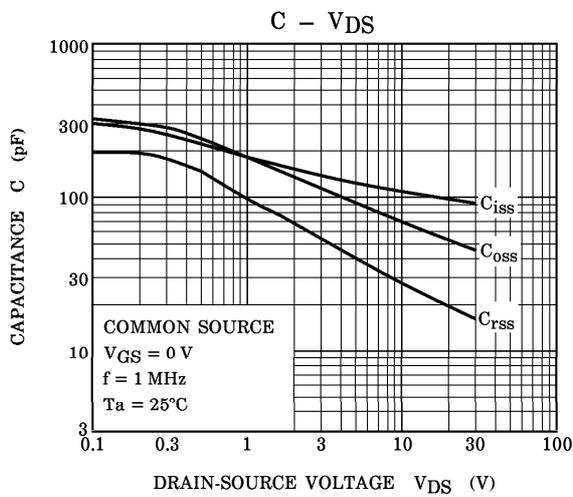


Fig.1 : 25.4 mm × 25.4 mm × 1.6 t, Cu Pad : 0.32 mm² × 6

