

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE

SSM6N04FU

HIGH SPEED SWITCH APPLICATIONS

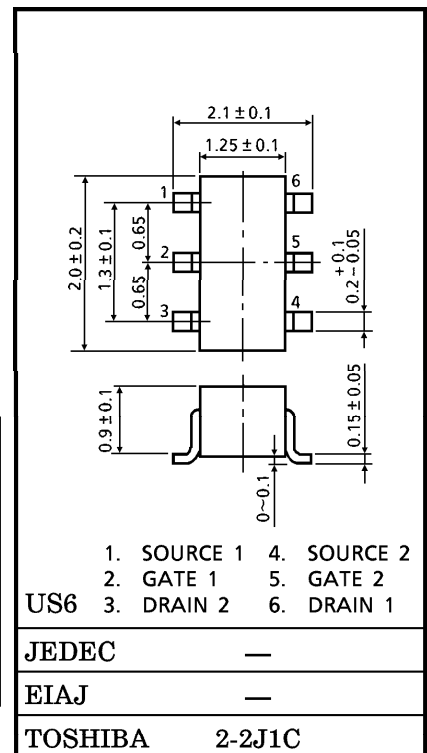
Unit in mm

- With Built-in Gate-Source Resistor : $R_{GS} = 1\text{ M}\Omega$ (Typ.)
- 2.5 V Gate Drive
- Low Gate Threshold Voltage : $V_{th} = 0.7\sim 1.3\text{ V}$
- Small Package

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$) (Q1, Q2 COMMON)

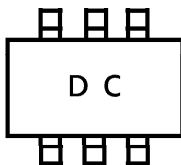
CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GSS}	10	V
DC Drain Current	I_D	100	mA
Drain Power Dissipation	P_D^*	200	mW
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55\sim 150$	$^\circ\text{C}$

* Total Rating

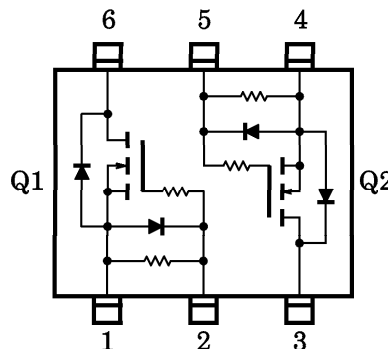


Weight : 6.8 mg

MARKING



PIN ASSIGNMENT (TOP VIEW)



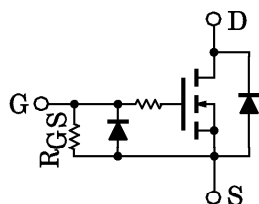
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ELECTRICAL CHARACTERISTICS (Ta = 25°C) (Q1, Q2 COMMON)

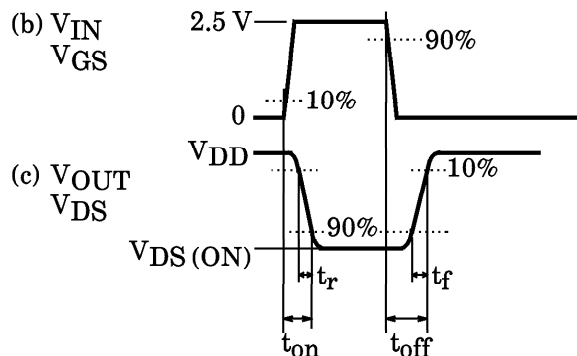
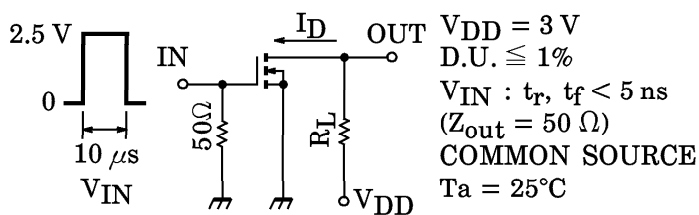
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	I_{GSS}	$V_{GS} = 10\text{ V}, V_{DS} = 0$	—	—	15	μA	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 100\ \mu\text{A}, V_{GS} = 0$	20	—	—	V	
Drain Cut-off Current	I_{DSS}	$V_{DS} = 20\text{ V}, V_{GS} = 0$	—	—	1	μA	
Gate Threshold Voltage	V_{th}	$V_{DS} = 3\text{ V}, I_D = 0.1\text{ mA}$	0.7	—	1.3	V	
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 3\text{ V}, I_D = 10\text{ mA}$	25	50	—	mS	
Drain-Source ON Resistance	$R_{DS(ON)}$	$I_D = 10\text{ mA}, V_{GS} = 2.5\text{ V}$	—	4	12	Ω	
Input Capacitance	C_{iss}	$V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	11.0	—	pF	
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	3.3	—	pF	
Output Capacitance	C_{oss}	$V_{DS} = 3\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	—	9.3	—	pF	
Switching Time	Turn-on Time	t_{on}	$V_{DD} = 3\text{ V}, I_D = 10\text{ mA}, V_{GS} = 0\sim 2.5\text{ V}$	—	0.16	—	μs
	Turn-off Time	t_{off}	$V_{DD} = 3\text{ V}, I_D = 10\text{ mA}, V_{GS} = 0\sim 2.5\text{ V}$	—	0.19	—	
Gate-Source Resistor	R_{GS}	$V_{GS} = 0\sim 10\text{ V}$	0.7	1.0	1.3	M Ω	

(Q1, Q2 COMMON)
EQUIVALENT CIRCUIT

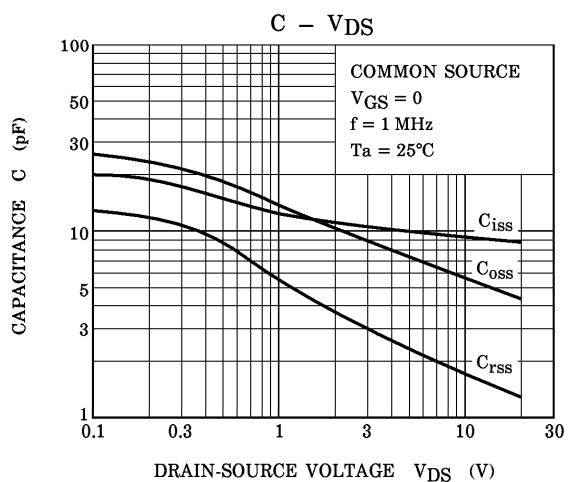
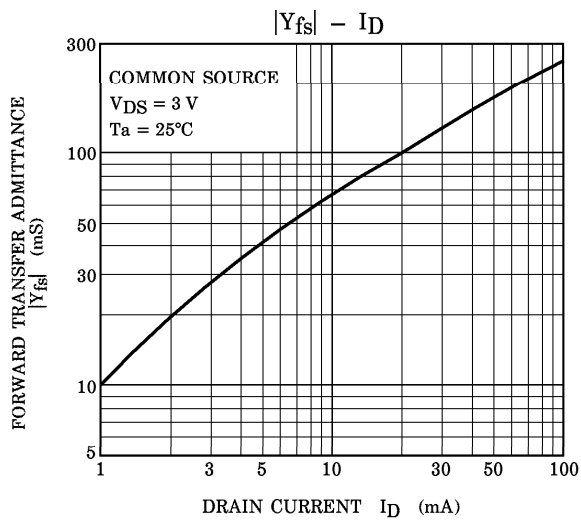
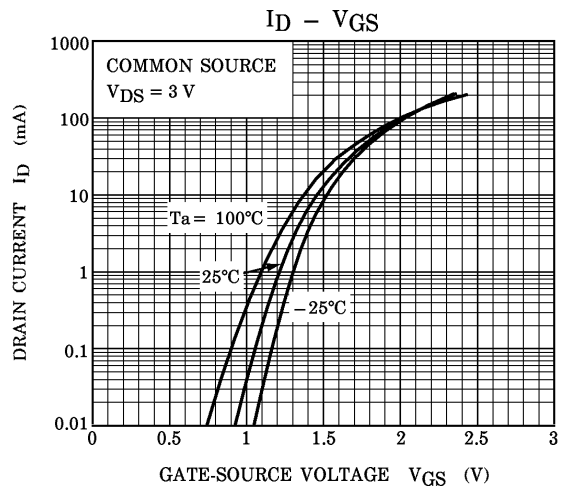
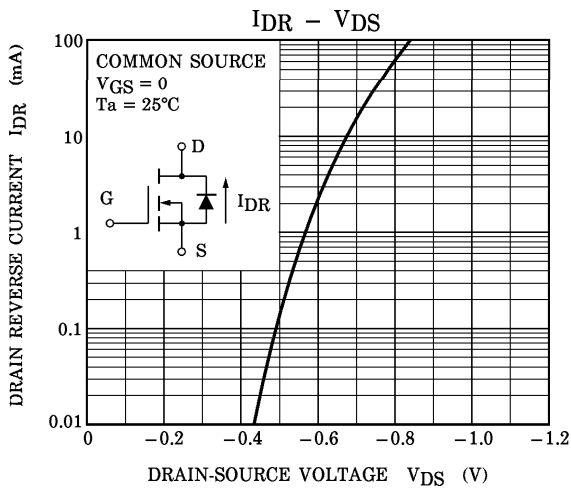
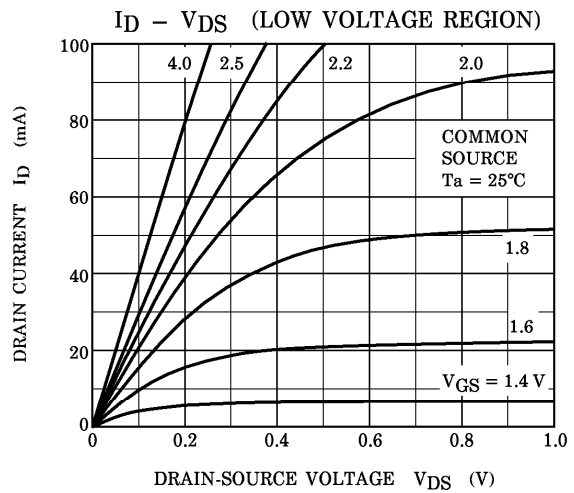
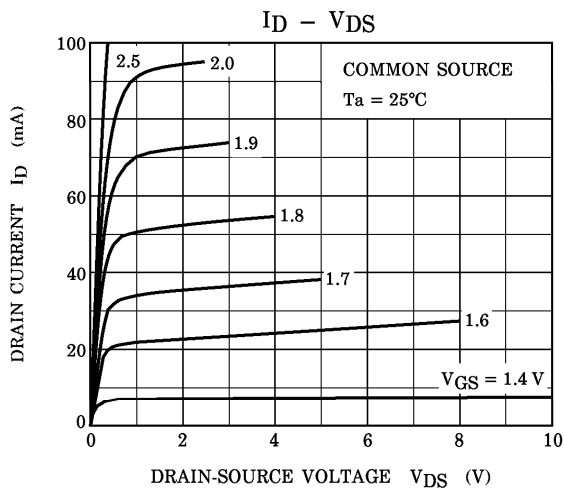


SWITCHING TIME TEST CIRCUIT

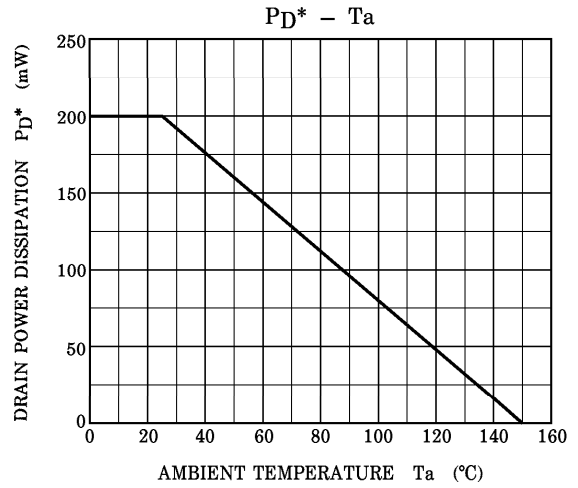
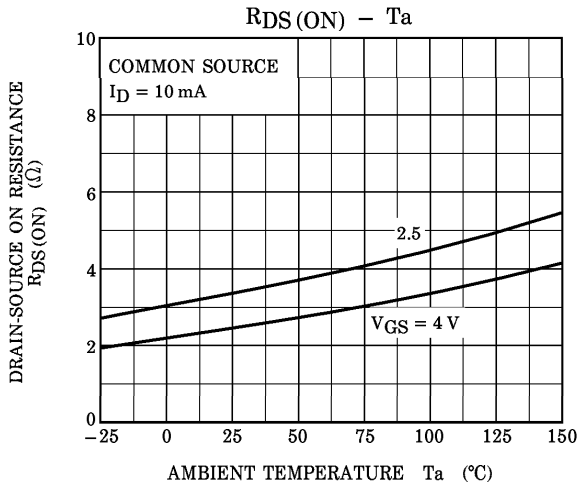
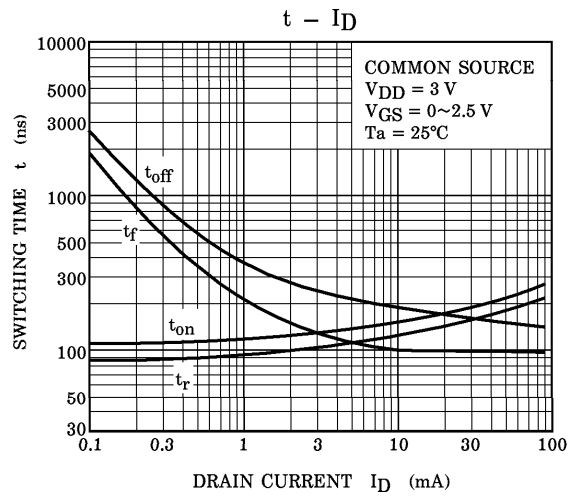
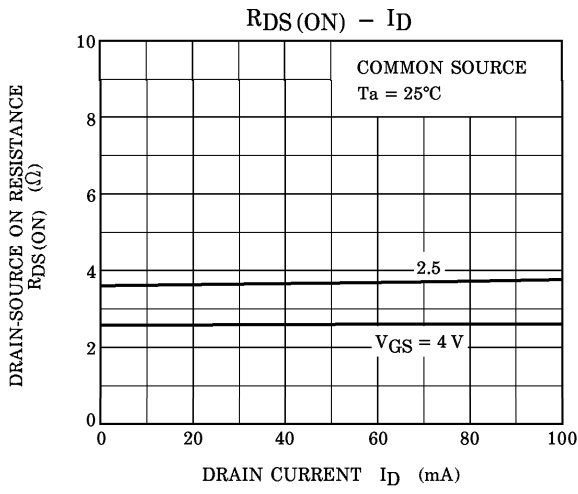
(a) TEST CIRCUIT



(Q1, Q2 COMMON)



(Q1, Q2 COMMON)



*: Total Rating