

FG654301

Silicon N-channel MOS FET (FET1)
Silicon P-channel MOS FET (FET2)

For switching circuits

■ Overview

FG654301 is N-P channel dual type small signal MOS FET employed small size surface mounting package.

■ Features

- Low drain-source ON resistance:
 $R_{DS(on)}$ typ. = $2\ \Omega$ ($V_{GS} = 4.0\text{ V}$) / $4\ \Omega$ ($V_{GS} = -4.0\text{ V}$)
- High-speed switching
- Small size surface mounting package: SMini6-F3-B
- Contributes to miniaturization of sets, reduction of component count.
- Eco-friendly Halogen-free package

■ Packaging

Embossed type (Thermo-compression sealing): 8000 pcs / reel (standard)

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter		Symbol	Rating	Unit
FET1	Drain-source surrender voltage	V_{DSS}	30	V
	Gate-source surrender voltage	V_{GSS}	± 12	V
	Drain current	I_D	100	mA
	Peak drain current	I_{DP}	200	mA
FET2	Drain-source surrender voltage	V_{DSS}	-30	V
	Gate-source surrender voltage	V_{GSS}	± 12	V
	Drain current	I_D	-100	mA
	Peak drain current	I_{DP}	-200	mA
Overall	Total power dissipation	P_T	150	mW
	Channel temperature	T_{ch}	150	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

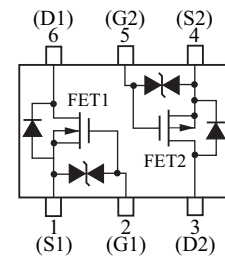
■ Package

- Code
SMini6-F3-B
- Pin Name

1: Source (FET1)	4: Source (FET2)
2: Gate (FET1)	5: Gate (FET2)
3: Drain (FET2)	6: Drain (FET1)

■ Marking Symbol: V7

■ Internal Connection



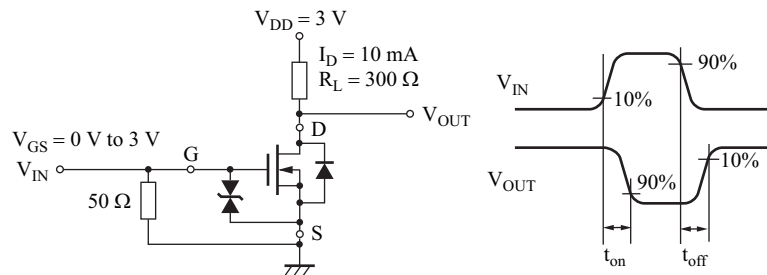
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

• FET1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = 1\text{ mA}$, $V_{GS} = 0$	30			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 30\text{ V}$, $V_{GS} = 0$			1.0	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 10\text{ V}$, $V_{DS} = 0$			± 10	μA
Gate threshold voltage	V_{TH}	$I_D = 1.0\text{ }\mu\text{A}$, $V_{DS} = 3.0\text{ V}$	0.5	1.0	1.5	V
Drain-source ON resistance	$R_{DS(on)}$	$I_D = 10\text{ mA}$, $V_{GS} = 2.5\text{ V}$		3	6	Ω
		$I_D = 10\text{ mA}$, $V_{GS} = 4.0\text{ V}$		2	3	
Forward transfer admittance	$ Y_{fs} $	$I_D = 10\text{ mA}$, $V_{DS} = 3.0\text{ V}$	20	55		mS
Short-circuit input capacitance (Common source)	C_{iss}	$V_{DS} = 3\text{ V}$, $V_{GS} = 0$, $f = 1\text{ MHz}$		12		pF
Short-circuit output capacitance (Common source)	C_{oss}			7		pF
Reverse transfer capacitance (Common source)	C_{rss}			3		pF
Turn-on time *	t_{on}	$V_{DD} = 3\text{ V}$, $V_{GS} = 0\text{ V to } 3\text{ V}$, $I_D = 10\text{ mA}$		100		ns
Turn-off time *	t_{off}	$V_{DD} = 3\text{ V}$, $V_{GS} = 3\text{ V to } 0\text{ V}$, $I_D = 10\text{ mA}$		100		ns

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *: Test circuit

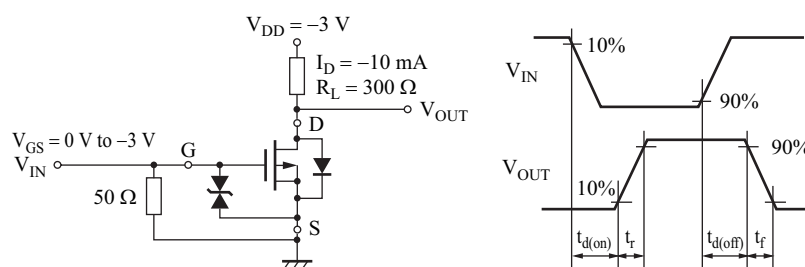


• FET2

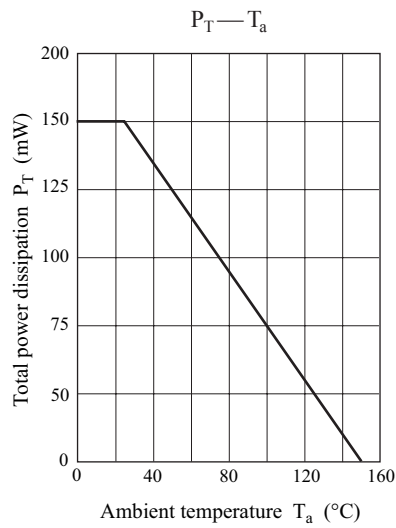
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = -1\text{ mA}$, $V_{GS} = 0$	-30			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = -30\text{ V}$, $V_{GS} = 0$			-1.0	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 10\text{ V}$, $V_{DS} = 0$			± 10	μA
Gate threshold voltage	V_{TH}	$I_D = -1.0\text{ }\mu\text{A}$, $V_{DS} = -3.0\text{ V}$	-0.5	-1.0	-1.5	V
Drain-source ON resistance	$R_{DS(on)}$	$I_D = -10\text{ mA}$, $V_{GS} = -2.5\text{ V}$		7	17	Ω
		$I_D = -10\text{ mA}$, $V_{GS} = -4.0\text{ V}$		4	7	
Forward transfer admittance	$ Y_{fs} $	$I_D = -10\text{ mA}$, $V_{DS} = -3.0\text{ V}$	20	40		mS
Short-circuit input capacitance (Common source)	C_{iss}	$V_{DS} = -3\text{ V}$, $V_{GS} = 0$, $f = 1\text{ MHz}$		12		pF
Short-circuit output capacitance (Common source)	C_{oss}			7		pF
Reverse transfer capacitance (Common source)	C_{rss}			3		pF
Turn-on time *	t_{on}	$V_{DD} = -3\text{ V}$, $V_{GS} = 0\text{ V to } -3\text{ V}$, $I_D = -10\text{ mA}$		100		ns
Turn-off time *	t_{off}	$V_{DD} = -3\text{ V}$, $V_{GS} = -3\text{ V to } 0\text{ V}$, $I_D = -10\text{ mA}$		100		ns

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

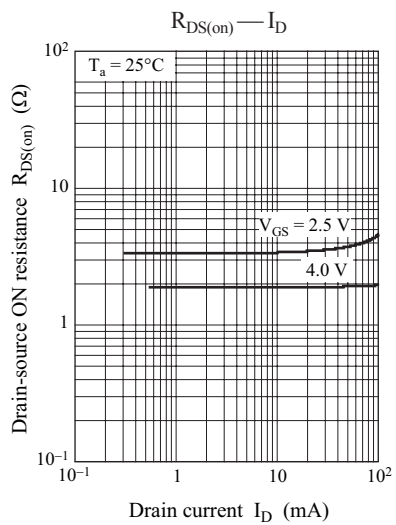
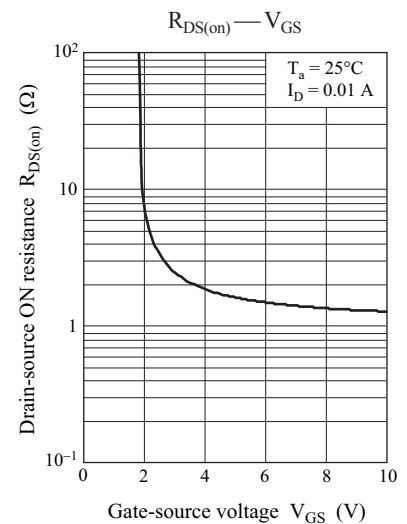
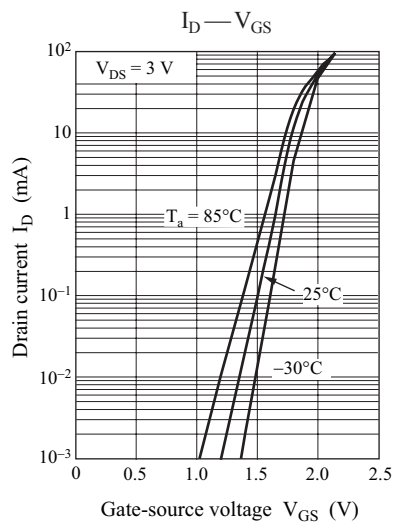
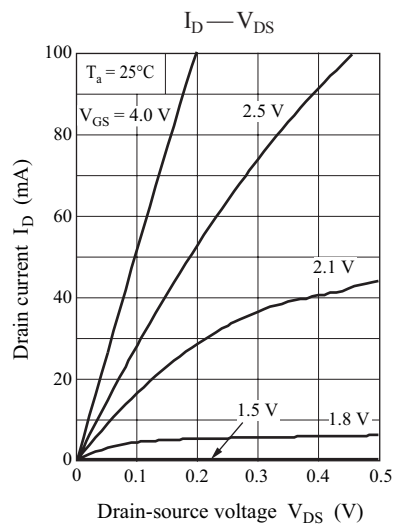
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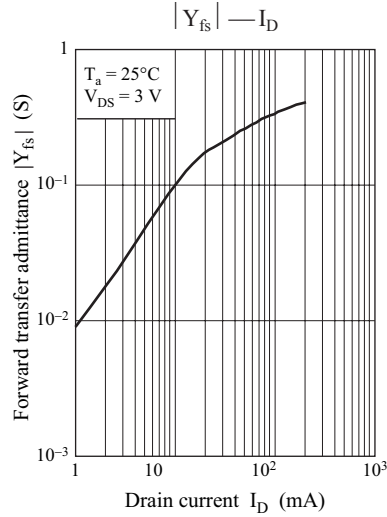
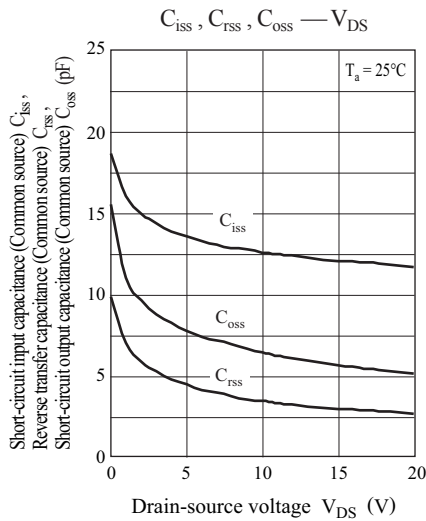


Common characteristics chart

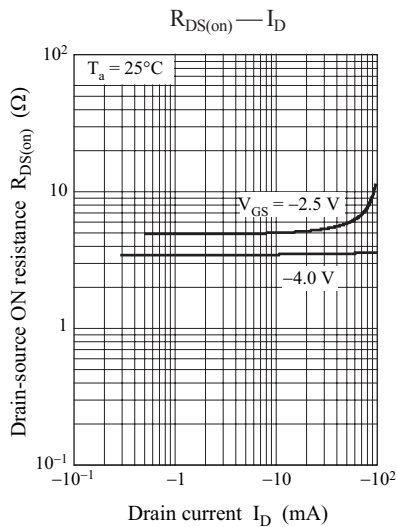
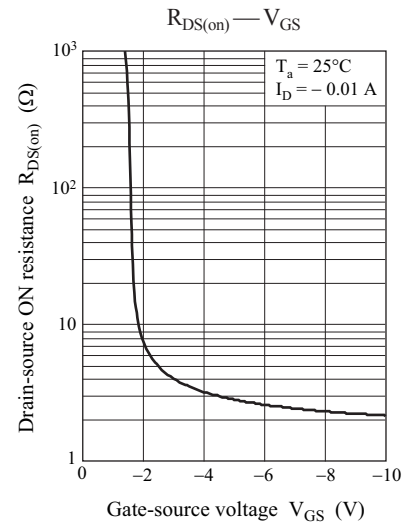
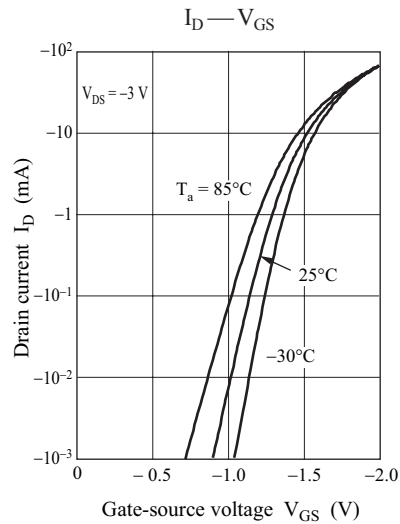
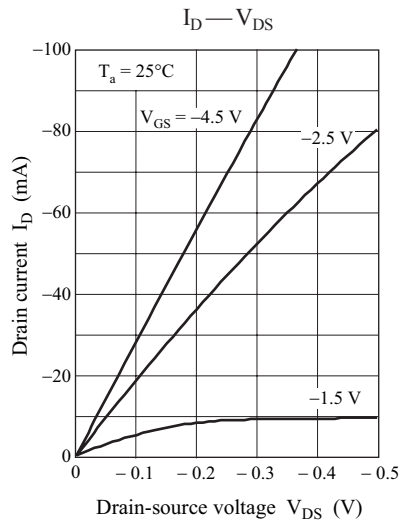


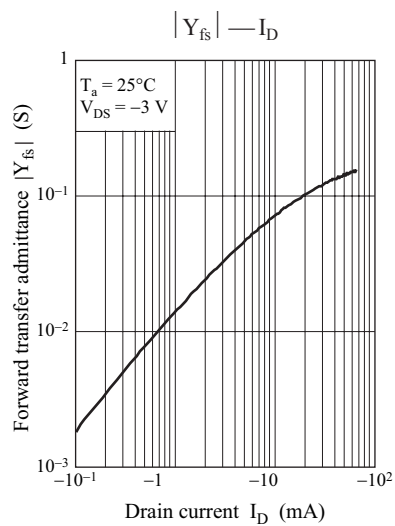
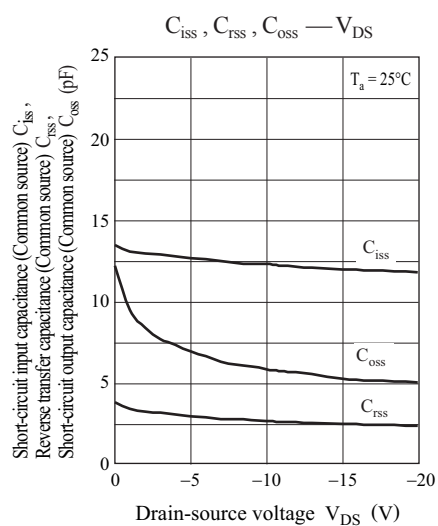
Characteristics charts of FET1





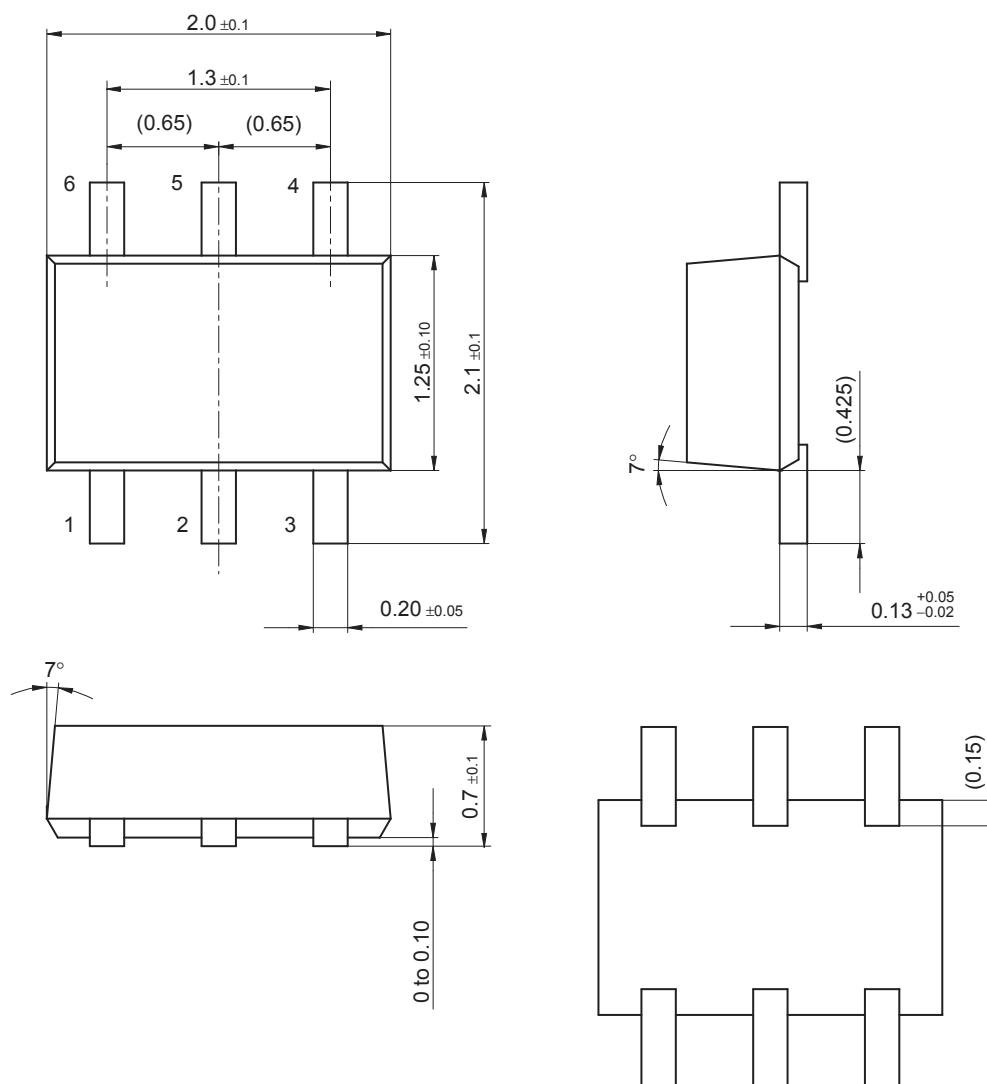
Characteristics charts of FET2





SMini6-F3-B

Unit: mm



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