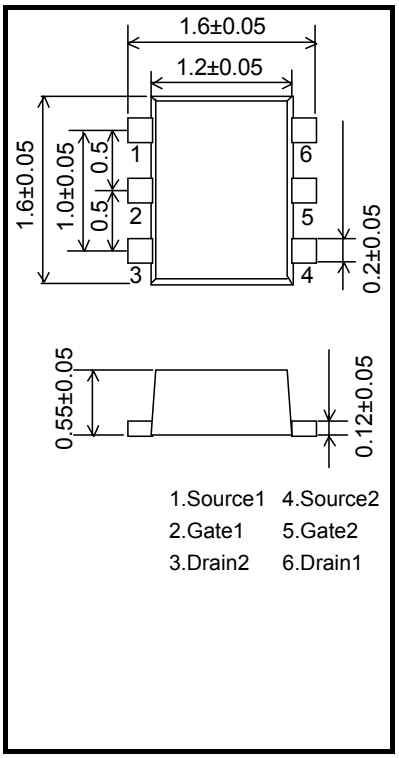
SSM6L35FE

○ High-Speed Switching Applications

○ Analog Switch Applications

- N-ch: 1.2-V drive
  P-ch: 1.2-V drive
- N-ch, P-ch, 2-in-1
- Low ON-resistance Q1 N-ch: R_{on} = 20 Ω (max) (@V_{GS} = 1.2 V)
  : R_{on} = 8 Ω (max) (@V_{GS} = 1.5 V)
  : R_{on} = 4 Ω (max) (@V_{GS} = 2.5 V)
  : R_{on} = 3 Ω (max) (@V_{GS} = 4.0 V)
  Q2 P-ch: R_{on} = 44 Ω (max) (@V_{GS} = -1.2 V)
  : R_{on} = 22 Ω (max) (@V_{GS} = -1.5 V)
  : R_{on} = 11 Ω (max) (@V_{GS} = -2.5 V)
  : R_{on} = 8 Ω (max) (@V_{GS} = -4.0 V)

Unit: mm



Weight: 3.0 mg (typ.)

Q1 Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Drain–source voltage		V_{DSS}	20	V
Gate–source voltage		V_{GSS}	±10	V
Drain current	DC	I_D	180	mA
	Pulse	I_{DP}	360	

Q2 Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Drain–source voltage		V_{DSS}	-20	V
Gate–source voltage		V_{GSS}	±10	V
Drain current	DC	I_D	-100	mA
	Pulse	I_{DP}	-200	

Absolute Maximum Ratings (Ta = 25 °C) (Common to the Q1, Q2)

Characteristic	Symbol	Rating	Unit
Drain power dissipation	P_D(Note 1)	150	mW
Channel temperature	T_{ch}	150	°C
Storage temperature range	T_{stg}	−55 to 150	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the TY Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Total rating
Mounted on an FR4 board
(25.4 mm × 25.4 mm × 1.6 mm, Cu Pad: 0.135 mm^2 × 6)

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Q1 Electrical Characteristics (Ta = 25°C)

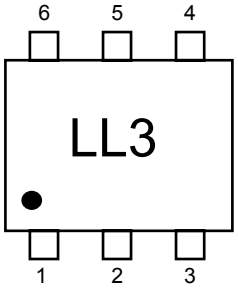
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GSS}	V_{GS} = ±10 V, V_{DS} = 0V	—	—	±10	μA
Drain–source breakdown voltage		$V_{(BR)\ DSS}$	I_D = 0.1 mA, V_{GS} = 0V	20	—	—	V
Drain cutoff current		I_{DSS}	V_{DS} = 20 V, V_{GS} = 0V	—	—	1	μA
Gate threshold voltage		V_{th}	V_{DS} = 3 V, I_D = 1 mA	0.4	—	1.0	V
Forward transfer admittance		$\|Y_{fs}\|$	V_{DS} = 3 V, I_D = 50 mA (Note 2)	115	—	—	mS
Drain–source ON-resistance		$R_{DS\ (ON)}$	I_D = 50 mA, V_{GS} = 4 V (Note 2)	—	1.5	3	Ω
			I_D = 50 mA, V_{GS} = 2.5 V (Note 2)	—	2	4	
			I_D = 5 mA, V_{GS} = 1.5 V (Note 2)	—	3	8	
			I_D = 5 mA, V_{GS} = 1.2 V (Note 2)	—	5	20	
Input capacitance		C_{iss}	V_{DS} = 3 V, V_{GS} = 0V, f = 1 MHz	—	9.5	—	pF
Reverse transfer capacitance		C_{rss}		—	4.1	—	
Output capacitance		C_{oss}		—	9.5	—	
Switching time	Turn-on time	t_{on}	V_{DD} = 3 V, I_D = 50 mA, V_{GS} = 0 to 2.5 V	—	115	—	ns
	Turn-off time	t_{off}		—	300	—	
Drain–source forward voltage		V_{DSF}	I_D = - 180 mA, V_{GS} = 0V (Note 2)	—	-0.9	-1.2	V

Q2 Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GSS}	V_{GS} = ±10 V, V_{DS} = 0 V	—	—	±10	μA
Drain–source breakdown voltage		$V_{(BR)\ DSS}$	I_D = -0.1 mA, V_{GS} = 0 V	-20	—	—	V
Drain cutoff current		I_{DSS}	V_{DS} = -20 V, V_{GS} = 0 V	—	—	-1	μA
Gate threshold voltage		V_{th}	V_{DS} = -3 V, I_D = -1 mA	-0.4	—	-1.0	V
Forward transfer admittance		$\|Y_{fs}\|$	V_{DS} = -3 V, I_D = -50 mA (Note 2)	77	—	—	mS
Drain–source ON-resistance		$R_{DS\ (ON)}$	I_D = -50 mA, V_{GS} = -4 V (Note 2)	—	4.3	8	Ω
			I_D = -50 mA, V_{GS} = -2.5 V (Note 2)	—	5.6	11	
			I_D = -5 mA, V_{GS} = -1.5 V (Note 2)	—	8.2	22	
			I_D = -2 mA, V_{GS} = -1.2 V (Note 2)	—	11	44	
Input capacitance		C_{iss}	V_{DS} = -3 V, V_{GS} = 0 V, f = 1 MHz	—	12.2	—	pF
Reverse transfer capacitance		C_{rss}		—	6.5	—	
Output capacitance		C_{oss}		—	10.4	—	
Switching time	Turn-on time	t_{on}	V_{DD} = -3 V, I_D = -50 mA, V_{GS} = 0 to -2.5 V	—	175	—	ns
	Turn-off time	t_{off}		—	251	—	
Drain–source forward voltage		V_{DSF}	I_D = 100 mA, V_{GS} = 0 V (Note 2)	—	0.83	1.2	V

Note 2: Pulse test

Marking



Equivalent Circuit (top view)