# **2SK0656** (2SK656)

### Silicon N-Channel MOS FET

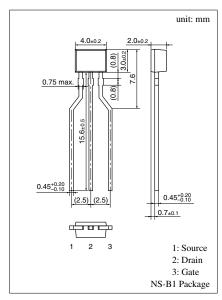
#### For switching

#### ■ Features

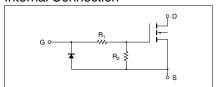
- High-speed switching
- Small drive current owing to high input inpedance
- High electrostatic breakdown voltage

#### ■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Ratings	Unit	
Drain to Source breakdown voltage	V <sub>DSS</sub>	50	V	
Gate to Source voltage	V <sub>GSO</sub>	8	V	
Drain current	$I_D$	100	mA	
Max drain current	$I_{DP}$	200	mA	
Allowable power dissipation	P <sub>D</sub>	200	mW	
Channel temperature	T <sub>ch</sub>	150	°C	
Storage temperature	T <sub>stg</sub>	-55 to +150	°C	



#### Internal Connection



#### ■ Electrical Characteristics (Ta = 25°C)

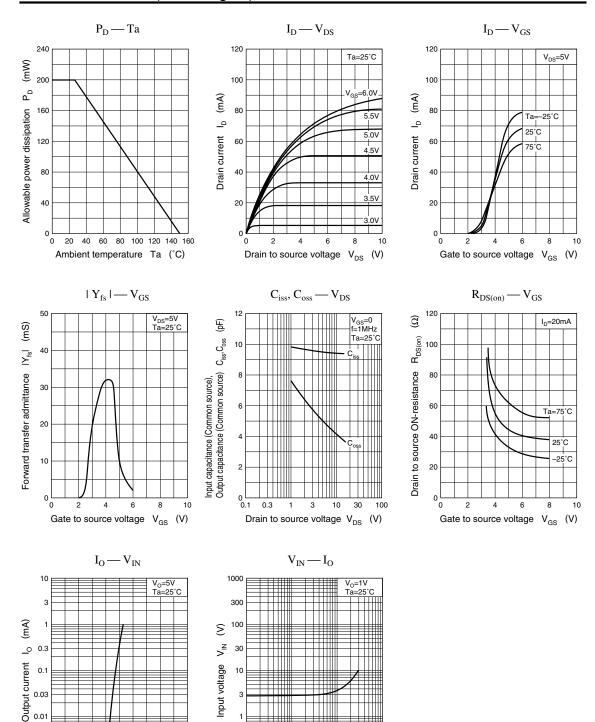
Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	$I_{DSS}$	$V_{DS} = 10V, V_{GS} = 0$			10	μA
Gate to Source leakage current	$I_{GSS}$	$V_{GS} = 8V, V_{DS} = 0$	40		80	μA
Drain to Source breakdown voltage	V <sub>DSS</sub>	$I_D = 100 \mu A, V_{GS} = 0$	50			V
Gate threshold voltage	V <sub>th</sub>	$I_D = 100\mu A, V_{DS} = V_{GS}$	1.5		3.5	V
Drain to Source ON-resistance	R <sub>DS(on)</sub>	$I_D = 20 \text{mA}, V_{GS} = 5 \text{V}$			50	Ω
Forward transfer admittance	Y <sub>fs</sub>	$I_D = 20 \text{mA}, V_{DS} = 5 \text{V}, f = 1 \text{kHz}$	20	35		mS
High level output voltage	V <sub>OH</sub>	$V_{DD} = 5V, V_{GS} = 1V, R_{L} = 200\Omega$	4.5			V
Low level output voltage	V <sub>OL</sub>	$V_{DD} = 5V, V_{GS} = 5V, R_{L} = 200\Omega$			1	V
Input resistance	$R_1 + R_2^{*1}$		100		200	kΩ
Input capacitance (Common Source)	C <sub>iss</sub>			9		pF
Output capacitance (Common Source)	Coss	$V_{DS} = 10V, V_{GS} = 0, f = 1MHz$		4.5		pF
Reverse transfer capacitance (Common Source)	C <sub>rss</sub>			1.1		pF
Turn-on time	t <sub>on</sub> *2	$V_{DD} = 5V$ , $V_{GS} = 0$ to $5V$ , $R_L = 200\Omega$			1	μs
Turn-off time	t <sub>off</sub> *2	$V_{DD} = 5V$ , $V_{GS} = 5$ to $0V$ , $R_L = 200\Omega$			1	μs

<sup>\*1</sup> Resistance ratio  $R_1/R_2 = 1/50$ 

Note) The part number in the parenthesis shows conventional part number.

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<sup>\*2</sup> Pulse measurement



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10

3

0.3

0.1

Output current IO

(mA)

0.1

0.03

0.01 0.003

0.001 L 0

2 Input voltage  $V_{IN}$  (V)

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