

# 2SK3022 (Tentative)

## Silicon N-Channel Power F-MOS FET

### ■ Features

- Avalanche energy capacity guaranteed
- High-speed switching
- Low ON-resistance
- No secondary breakdown
- Low-voltage drive
- High electrostatic breakdown voltage

### ■ Applications

- Contactless relay
- Diving circuit for a solenoid
- Driving circuit for a motor
- Control equipment
- Switching power supply

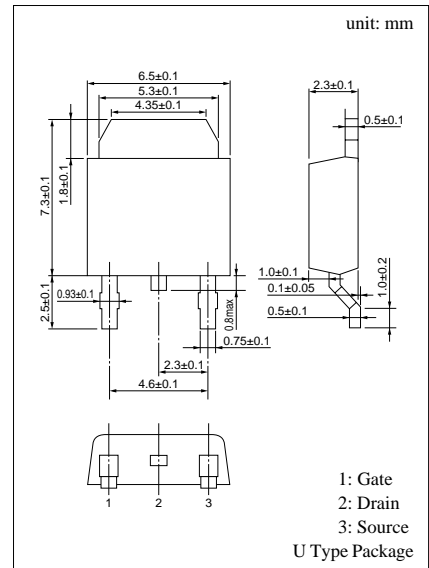
### ■ Absolute Maximum Ratings (T<sub>C</sub> = 25°C)

Parameter	Symbol	Rated	Unit	
Drain to Source breakdown voltage	V <sub>DSS</sub>	60	V	
Gate to Source voltage	V <sub>GSS</sub>	±20	V	
Drain current	DC	I <sub>D</sub>	±5	A
	Pulse	I <sub>DP</sub>	±10	A
Avalanche energy capacity	EAS*	1.25	mJ	
Allowable power dissipation	T <sub>C</sub> = 25°C	P <sub>D</sub>	10	W
	T <sub>a</sub> = 25°C		1	
Channel temperature	T <sub>ch</sub>	150	°C	
Storage temperature	T <sub>stg</sub>	-55 to +150	°C	

\* L = 0.1mH, I<sub>L</sub> = 5A, 1 pulse

### ■ Electrical Characteristics (T<sub>C</sub> = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I <sub>DSS</sub>	V <sub>DS</sub> = 40V, V <sub>GS</sub> = 0			10	μA
Gate to Source leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0			±10	μA
Drain to Source breakdown voltage	V <sub>DSS</sub>	I <sub>D</sub> = 1mA, V <sub>GS</sub> = 0	60			V
Gate threshold voltage	V <sub>th</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA	1		2.5	V
Drain to Source ON-resistance	R <sub>DS(on)1</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 3A		90	135	mΩ
	R <sub>DS(on)2</sub>	V <sub>GS</sub> = 4V, I <sub>D</sub> = 3A		130	200	mΩ
Forward transfer admittance	Y <sub>fs</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 3A	2	4		S
Diode forward voltage	V <sub>DSF</sub>	I <sub>DR</sub> = 5A, V <sub>GS</sub> = 0			-1.3	V
Input capacitance (Common Source)	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0, f = 1MHz		220		pF
Output capacitance (Common Source)	C <sub>oss</sub>			90		pF
Reverse transfer capacitance (Common Source)	C <sub>rss</sub>			50		pF
Turn-on time (delay time)	t <sub>d(on)</sub>	V <sub>DD</sub> = 30V, I <sub>D</sub> = 3A		15		ns
Rise time	t <sub>r</sub>			30		ns
Fall time	t <sub>f</sub>		V <sub>GS</sub> = 10V, R <sub>L</sub> = 10Ω		170	
Turn-off time (delay time)	t <sub>d(off)</sub>			550		ns
Thermal resistance between channel and case	R <sub>th(ch-c)</sub>				12.5	°C/W
Thermal resistance between channel and atmosphere	R <sub>th(ch-a)</sub>				125	°C/W



### Internal Connection

