2SK3022

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

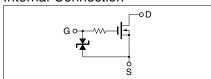
■ Absolute Maximum Ratings (T_C = 25°C)

Parameter		Symbol	Ratings	Unit	
Drain to Source breakdown voltage		V _{DSS}	60	V	
Gate to Source voltage		V _{GSS}	±20	V	
Drain current	DC	I_D	±5	A	
	Pulse	I_{DP}	±10	A	
Avalanche energy capacity		EAS*	1.25	mJ	
Allowable power	$T_C = 25^{\circ}C$	D	10	W	
dissipation	Ta = 25°C	$P_{\rm D}$	1		
Channel temperature		T _{ch}	150	°C	
Storage temperature		T_{stg}	-55 to +150	°C	

^{*} $L = 0.1 \text{mH}, I_L = 5 \text{A}, 1 \text{ pulse}$

unit: mm 6.5±0.1 5.3±0.1 4.35±0.1 0.5±0.1 0.5±0.1 0.5±0.1 1 2 3 1: Gate 2: Drain 3: Source U-G1 Package

Internal Connection



■ Electrical Characteristics ($T_C = 25$ °C)

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

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