

2SK3031 (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

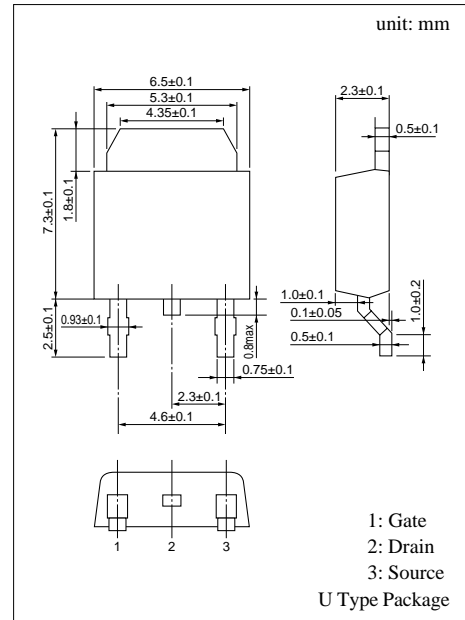
■ Applications

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

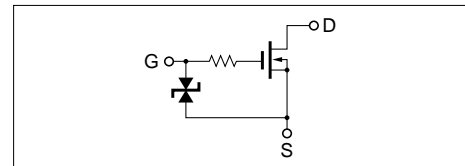
■ Absolute Maximum Ratings (T_C = 25°C)

Parameter	Symbol	Ratings	Unit	
Drain to Source breakdown voltage	V _{DSS}	100	V	
Gate to Source voltage	V _{GSS}	±20	V	
Drain current	DC	I _D	±15	A
	Pulse	I _{DP}	±30	A
Avalanche energy capacity	EAS*	11.25	mJ	
Allowable power dissipation	T _C = 25°C	P _D	20	W
	T _a = 25°C		1	
Channel temperature	T _{ch}	150	°C	
Storage temperature	T _{stg}	-55 to +150	°C	

* L = 0.1mH, I_L = 15A, 1 pulse



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} = 80V, V _{GS} = 0			10	μA
Gate to Source leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0			±10	μA
Drain to Source breakdown voltage	V _{DSS}	I _D = 1mA, V _{GS} = 0	100			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 = 8A		90	135	mΩ
	R _{DS(on)2}	V _{GS} = 4V, I _D = 8A		100	160	mΩ
Forward transfer admittance	Y _{fs}	V _{DS} = 10V, I _D = 8A	4	7.5		S
Diode forward voltage	V _{DSF}	I _{DR} = 15A, V _{GS} = 0			-1.6	V
Input capacitance (Common Source)	C _{iss}	V _{DS} = 10V, V _{GS} = 0, f = 1MHz		300		pF
Output capacitance (Common Source)	C _{oss}			190		pF
Reverse transfer capacitance (Common Source)	C _{rss}			30		pF
Turn-on time (delay time)	t _{d(on)}				20	
Rise time	t _r	V _{DD} = 30V, I _D = 8A		85		ns
Fall time	t _f	V _{GS} = 10V, R _L = 3.75Ω		330		ns
Turn-off time (delay time)	t _{d(off)}			1440		ns
Thermal resistance between channel and case	R _{th(ch-c)}				6.25	°C/W
Thermal resistance between channel and atmosphere	R _{th(ch-a)}				125	°C/W