2SK3027 (Tentative)

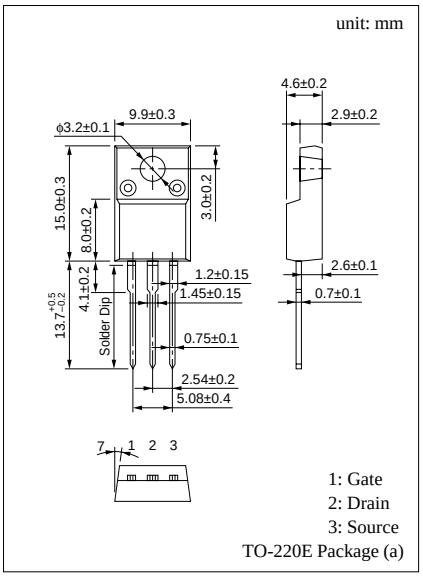
Silicon N-Channel Power F-MOS FET

■ Features

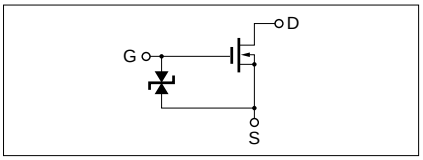
- Avalanche energy capacity guaranteed
- High-speed switching
- Low ON-resistance
- No secondary breakdown
- Low-voltage drive
- High electrostatic breakdown voltage

■ Applications

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



Internal Connection



■ 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	±50	A
	Pulse	I_{DP}	±100	A
Avalanche energy capacity		EAS*	125	mJ
Allowable power dissipation	T_C = 25°C	P_D	60	W
	Ta = 25°C		2	
Channel temperature		T_{ch}	150	°C
Storage temperature		T_{stg}	–55 to +150	°C

* L = 0.1mH, I_L = 50A, 1 pulse

■ Electrical Characteristics (T_C = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I_{DSS}	V_{DS} = 50V, 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	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 = 25A		8	12	mΩ
	$R_{DS(on)2}$	V_{GS} = 4V, I_D = 25A		11	17	mΩ
Forward transfer admittance	$\|Y_{fs}\|$	V_{DS} = 10V, I_D = 25A	25	49		S
Diode forward voltage	V_{DSF}	I_{DR} = 25A, V_{GS} = 0			–1.2	V
Input capacitance (Common Source)	C_{iss}	V_{DS} = 10V, V_{GS} = 0, f = 1MHz		3600		pF
Output capacitance (Common Source)	C_{oss}			1250		pF
Reverse transfer capacitance (Common Source)	C_{rss}			680		pF
Turn-on time (delay time)	$t_{d(on)}$	V_{DD} = 30V, I_D = 25A, V_{GS} = 10V, R_L = 1.2Ω		20		ns
Rise time	t_r			65		ns
Fall time	t_f			250		ns
Turn-off time (delay time)	$t_{d(off)}$			960		ns
Thermal resistance between channel and case	$R_{th(ch-c)}$				2.08	°C/W
Thermal resistance between channel and atmosphere	$R_{th(ch-a)}$				62.5	°C/W