

2SK3049

Silicon N-Channel Power F-MOS FET

■ Features

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

■ Applications

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

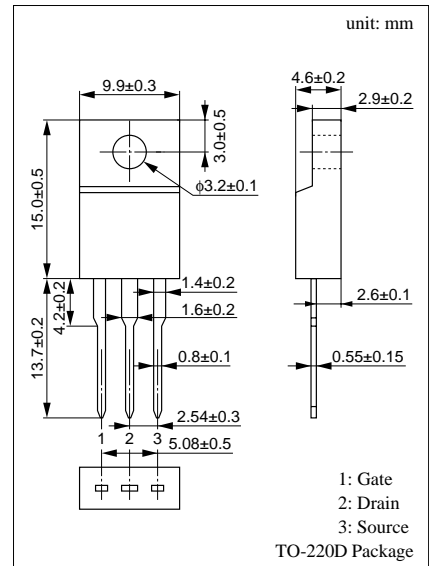
■ Absolute Maximum Ratings (T_C = 25°C)

Parameter	Symbol	Rated	Unit
Drain to Source breakdown voltage	V _{DSS}	600	V
Gate to Source voltage	V _{GSS}	±30	V
Drain current	DC	I _D	±5 A
	Pulse	I _{DP}	±10 A
Avalanche energy capacity	EAS*	62.5	mJ
Allowable power dissipation	T _C = 25°C	P _D	40 W
	T _a = 25°C		2 W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

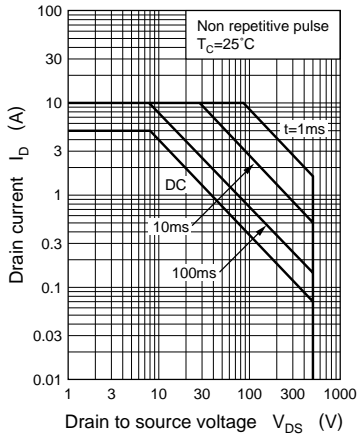
* L = 5mH, I_L = 5A, 1 pulse

■ Electrical Characteristics (T_C = 25°C)

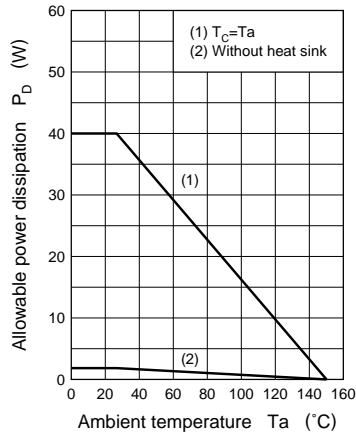
Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I _{DSS}	V _{DS} = 480V, V _{GS} = 0			100	μA
Gate to Source leakage current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0			±1	μA
Drain to Source breakdown voltage	V _{DSS}	I _D = 1mA, V _{GS} = 0	600			V
Gate threshold voltage	V _{th}	V _{DS} = 25V, I _D = 1mA	2		5	V
Drain to Source ON-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 3A		0.85	1.5	Ω
Forward transfer admittance	Y _{fs}	V _{DS} = 25V, I _D = 3A	1.7	3.4		S
Diode forward voltage	V _{DSF}	I _{DR} = 5A, V _{GS} = 0			-1.6	V
Input capacitance (Common Source)	C _{iss}	V _{DS} = 20V, V _{GS} = 0, f = 1MHz		1200		pF
Output capacitance (Common Source)	C _{oss}			140		pF
Reverse transfer capacitance (Common Source)	C _{rss}			40		pF
Turn-on time (delay time)	t _{d(on)}	V _{DD} = 200V, I _D = 3A V _{GS} = 10V, R _L = 66.6Ω		20		ns
Rise time	t _r			30		ns
Turn-off time (delay time)	t _{d(off)}			150		ns
Fall time	t _f			50		ns



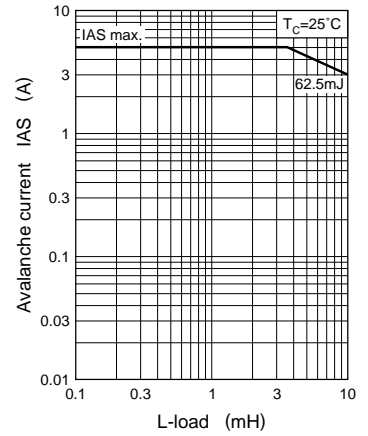
Area of safe operation (ASO)



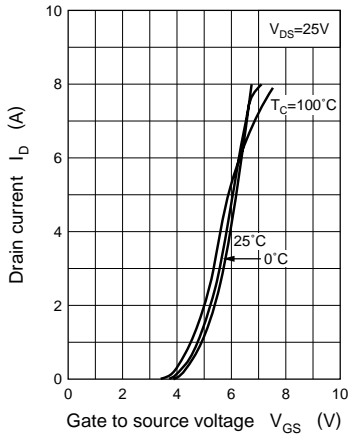
P_D — T_a



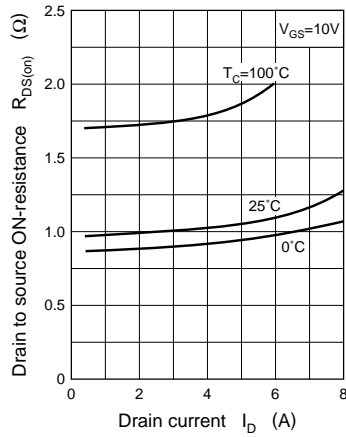
IAS — L-load



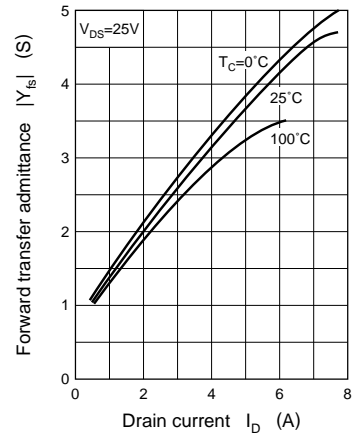
I_D — V_{GS}



R_{DS(on)} — I_D



|Y_{fs}| — I_D



R_{th(t)} — t

