

2SK3048

Silicon N-Channel Power F-MOS FET

■ Features

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

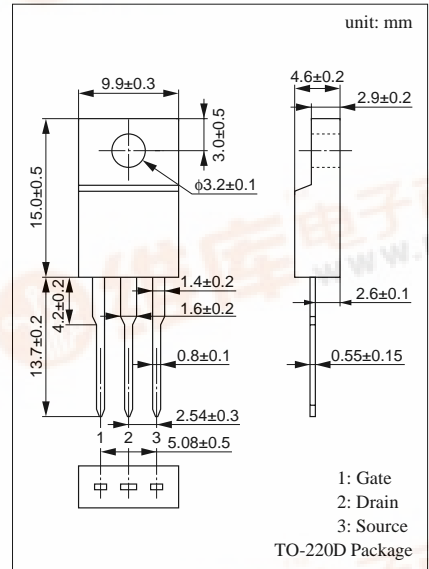
■ Applications

- 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	Ratings	Unit
Drain to Source breakdown voltage	V _{DSS}	600	V
Gate to Source voltage	V _{GSS}	±30	V
Drain current	DC	I _D	±3 A
	Pulse	I _{DP}	±6 A
Avalanche energy capacity	EAS*	22.5	mJ
Allowable power dissipation	T _C = 25°C	P _D	35 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 = 3A, 1 pulse

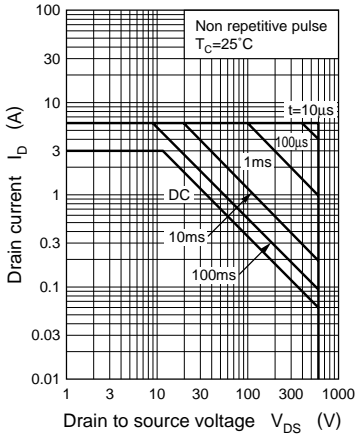


■ Electrical Characteristics (T_C = 25°C)

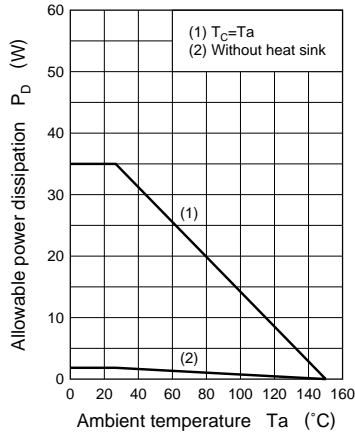
Parameter	Symbol	Conditions	min	typ	max	Unit	
Drain to Source cut-off current	I _{DSS}	V _{DS} = 480V, V _{GS} = 0			100	μA	
Gate to Source leakage current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0			±1	μA	
Drain to Source breakdown voltage	V _{DSS}	I _D = 1mA, V _{GS} = 0	600			V	
Gate threshold voltage	V _{th}	V _{DS} = 25V, I _D = 1mA	2		5	V	
Drain to Source ON-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 2A		1.7	2.5	Ω	
Forward transfer admittance	Y _{fs}	V _{DS} = 25V, I _D = 2A	1.5	2.5		S	
Diode forward voltage	V _{DSF}	I _{DR} = 3A, V _{GS} = 0			-1.5	V	
Input capacitance (Common Source)	C _{iss}	V _{DS} = 20V, V _{GS} = 0, f = 1MHz		750		pF	
Output capacitance (Common Source)	C _{oss}			80		pF	
Reverse transfer capacitance (Common Source)	C _{rss}			25		pF	
Turn-on time (delay time)	t _{d(on)}	V _{DD} = 200V, I _D = 2A		15		ns	
Rise time	t _r			25		ns	
Turn-off time (delay time)	t _{d(off)}		V _{GS} = 10V, R _L = 100Ω		90		ns
Fall time	t _f				40		ns



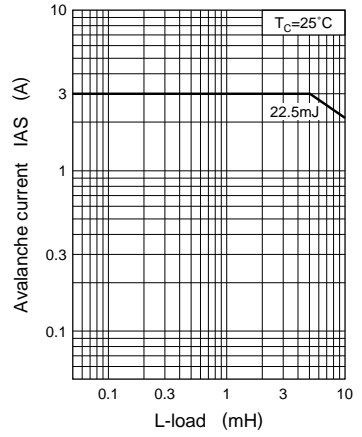
Area of safe operation (ASO)



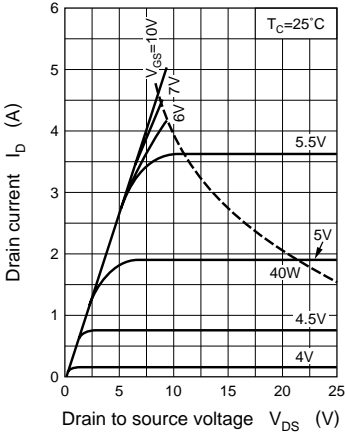
$P_D - T_a$



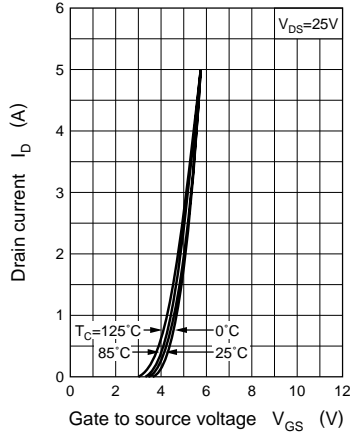
IAS — L-load



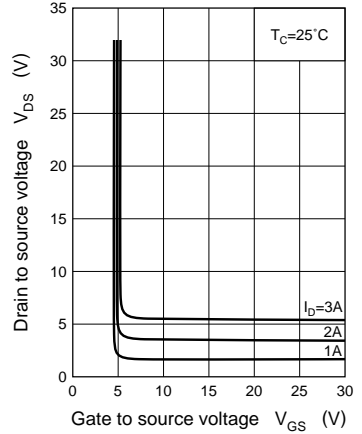
$I_D - V_{DS}$



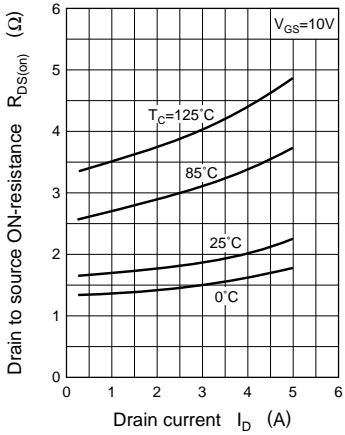
$I_D - V_{GS}$



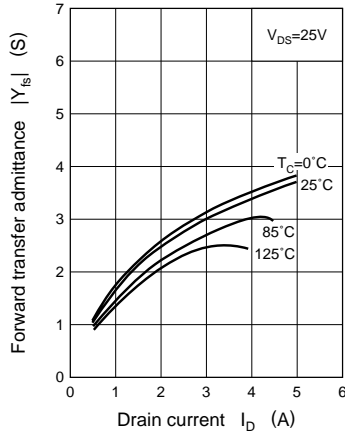
$V_{DS} - V_{GS}$



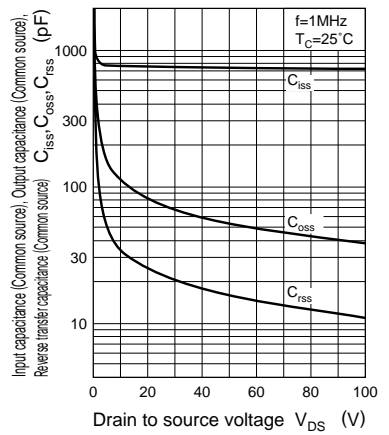
$R_{DS(on)} - I_D$

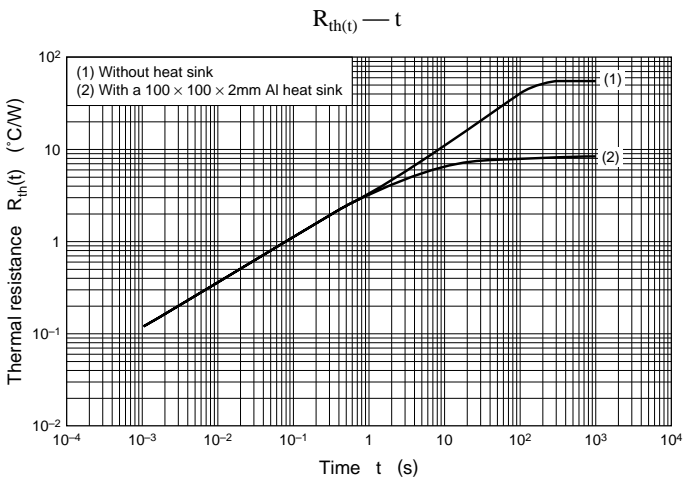
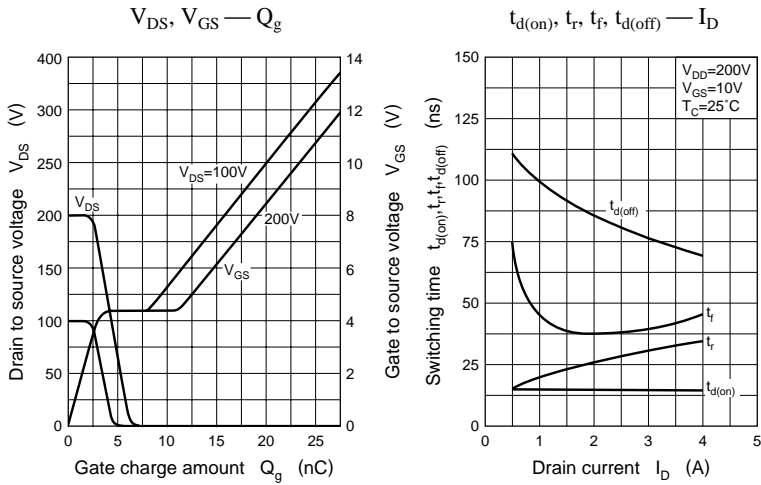


$|Y_{fs}| - I_D$



$C_{iss}, C_{oss}, C_{rss} - V_{DS}$





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