

2SK2210

Silicon N-Channel Power F-MOS

■ Features

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

■ Applications

- Non-contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching mode regulator

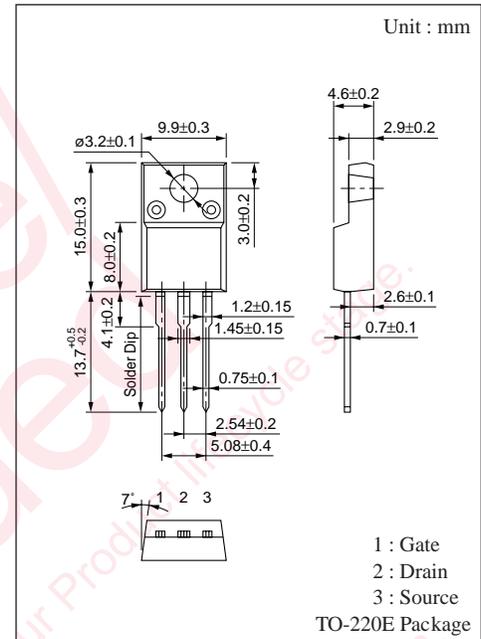
■ Absolute Maximum Ratings (T_c = 25°C)

Parameter	Symbol	Rating	Unit
Drain-Source breakdown voltage	V _{DSS}	750	V
Gate-Source voltage	V _{GS}	±30	V
Drain current	DC	I _D	±4
	Pulse	I _{DP}	±8
Avalanche energy capability	EAS*	40	mJ
Allowable power dissipation	T _C = 25°C	P _D	50
	T _a = 25°C		2
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

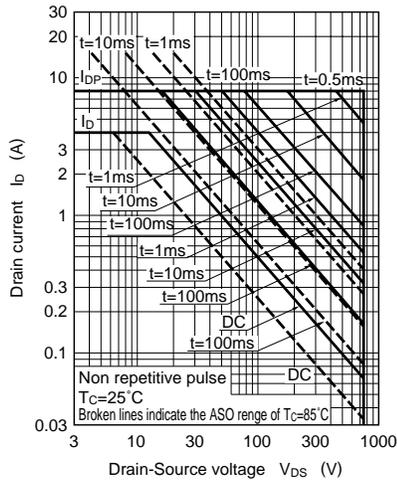
* L= 5mH, I_L= 4A, 1 pulse

■ Electrical Characteristics (T_c = 25°C)

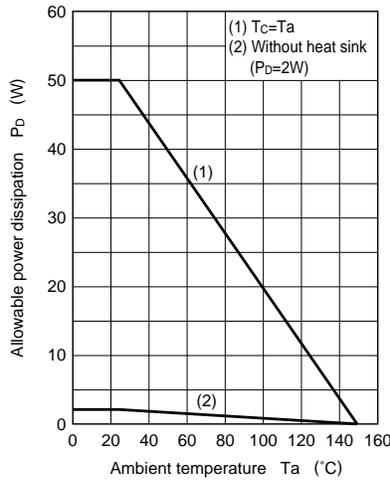
Parameter	Symbol	Condition	Min	Typ	Max	Unit	
Drain-Source cut-off current	I _{DSS}	V _{DS} = 600V, V _{GS} = 0			10	μA	
Gate-Source leakage current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0			±1	μA	
Drain-Source breakdown voltage	V _{DSS}	I _D =1mA, V _{GS} = 0	750			V	
Gate threshold voltage	V _{th}	V _{DS} = 25V, I _D =1mA	2		4	V	
Drain-Source ON-resistance	R _{DS(on)}	V _{GS} =10V, I _D = 2A		1.8	2.4	Ω	
Forward transadmittance	Y _{fs}	V _{DS} = 25V, I _D = 2A	1.3	2.2		S	
Diode forward voltage	V _{DSF}	I _{DR} =4A, V _{GS} = 0			-1.6	V	
Input capacitance	C _{iss}	V _{DS} = 20V, V _{GS} = 0, f=1MHz		600		pF	
Output capacitance	C _{oss}				105		pF
Feedback capacitance	C _{rss}				45		pF
Turn-on time (delay time)	t _{d(on)}	V _{DD} = 200V, I _D = 2A V _{GS} =10V, R _L =100Ω		25		ns	
Rise time	t _r			50		ns	
Fall time	t _f			65		ns	
Turn-off time (delay time)	t _{d(off)}			170		ns	
Channel-Case heat resistance	R _{th(ch-c)}				2.5	°C/W	
Channel-Atmosphere heat resistance	R _{th(ch-a)}				62.5	°C/W	



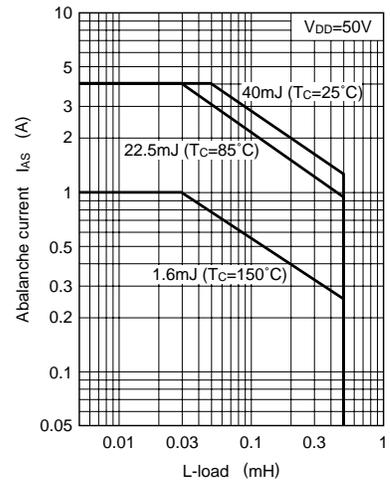
Area of safe operation (ASO)



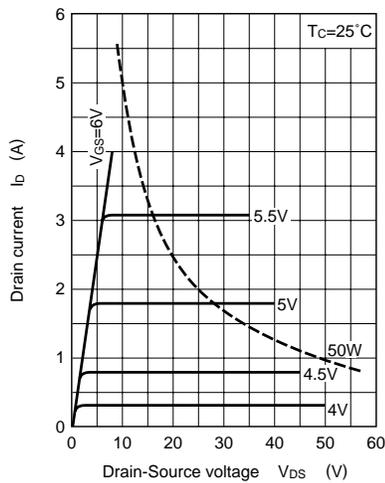
$P_D - T_a$



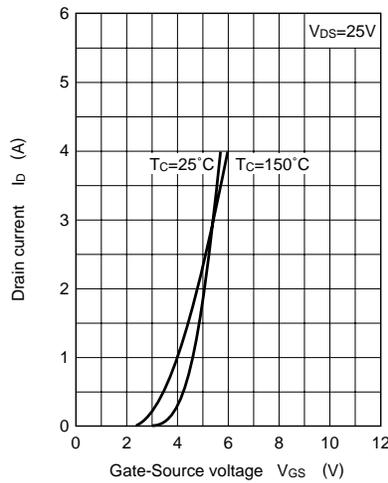
IAS - L-load



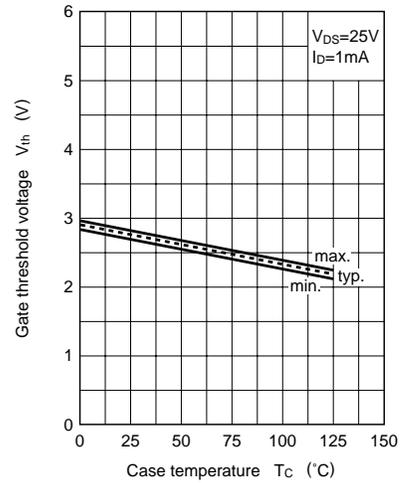
$I_D - V_{DS}$



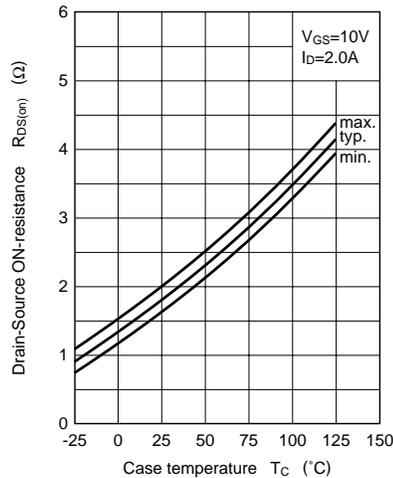
$I_D - V_{GS}$



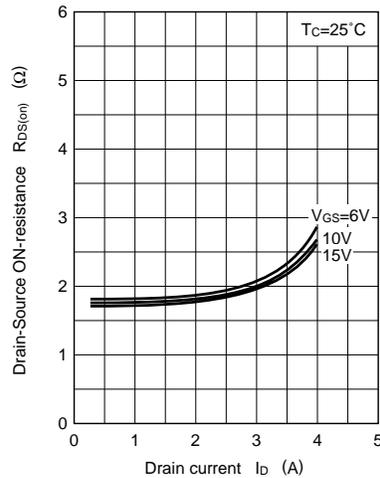
$V_{th} - T_C$



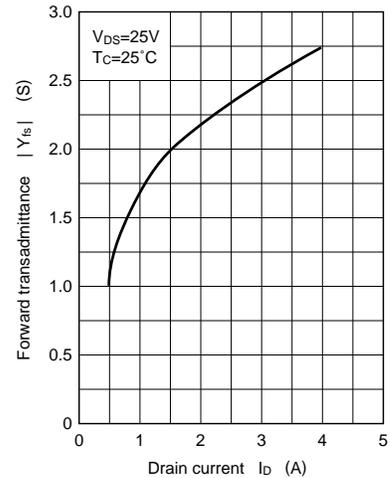
$R_{DS(on)} - I_D$



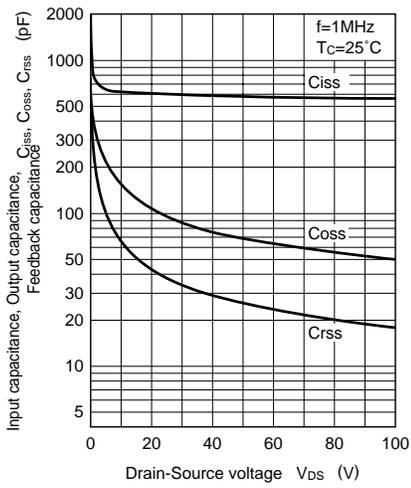
$R_{DS(on)} - T_C$



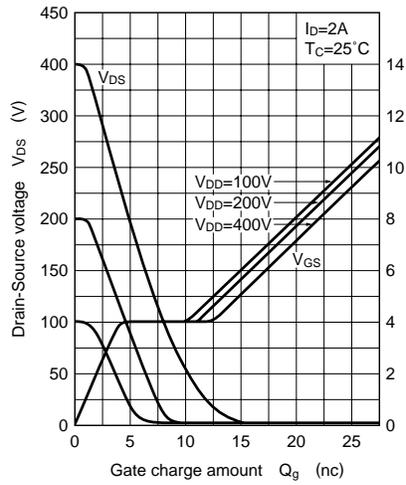
$|Y_{fs}| - I_D$



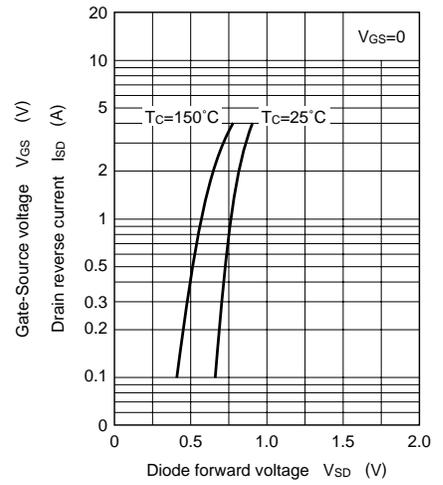
$C_{iss}, C_{oss}, C_{rss} - V_{DS}$



$V_{DS}, V_{GS} - Q_g$



$I_{SD} - V_{SD}$



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