2SK1967

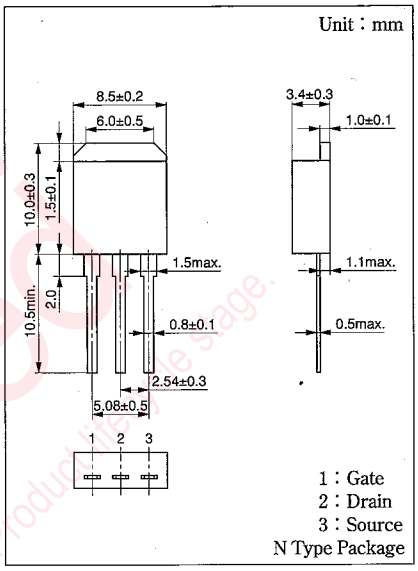
Silicon N-Channel Power F-MOS

■ Features

- Low-voltage drive possible
- High-speed switching : t_f=180ns
- No secondary breakdown

■ Applications

- Solenoid drive
- Motor drive
- Control equipment
- Switching mode regulator



■ Absolute Maximum Ratings (T_C=25℃)

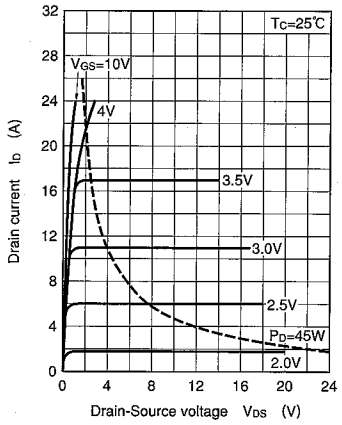
Parameter		Symbol	Rating	Unit
Drain-Source breakdown voltage		V_{DSS}	60	V
Gate-Source voltage		V_{GSS}	±20	V
Drain current	DC	I_D*1	±12	A
		I_D	±20	A
	Pulse	I_{DP}	±40	A
Allowable power dissipation	T_C=25℃	P_D	30	W
	Ta=25℃		1.3	
Channel temperature		T_{ch}	150	℃
Storage temperature		T_{stg}	−55 to +150	℃

*1 Max I_D value at 4V drive

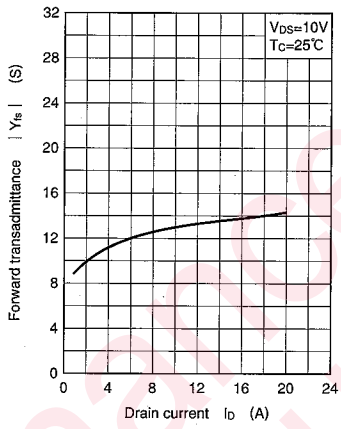
■ Electrical Characteristics (T_C=25℃)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source cut-off current	I_{DSS}	V_{DS}=50V, V_{GS}=0			10	μA
Gate-Source leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0			±1	μA
Drain-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-Source ON-resistance	$R_{DS(on)}1$	V_{GS}=10V, I_D=10A		45	70	mΩ
	$R_{DS(on)}2$	V_{GS}=4V, I_D=6A		65	100	mΩ
Forward transadmittance	$\|Y_{fs}\|$	V_{DS}=10V, I_D=10A	8	13		S
Diode forward voltage	V_{DSF}	I_{DR}=10A, V_{GS}=0			−1.7	V
Input capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0, f=1MHz		1550		pF
Output capacitance	C_{oss}			680		pF
Feedback capacitance	C_{rss}			300		pF
Turn-on time	t_{on}	V_{GS}=10V, I_D=10A V_{DD}=30V, R_L=3Ω		90		ns
Fall time	t_f			180		ns
Turn-off time (delay time)	$t_{d(off)}$			360		ns

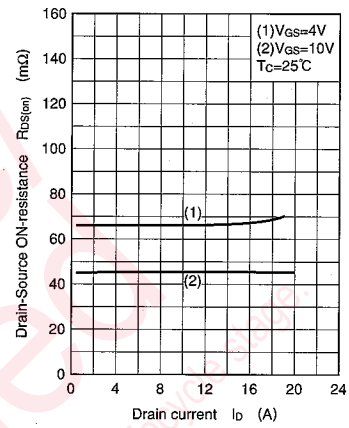
$I_D - V_{DS}$



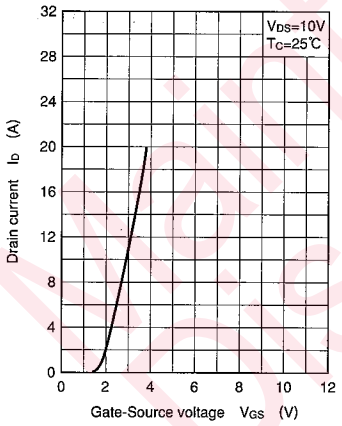
$|Y_{fs}| - I_D$



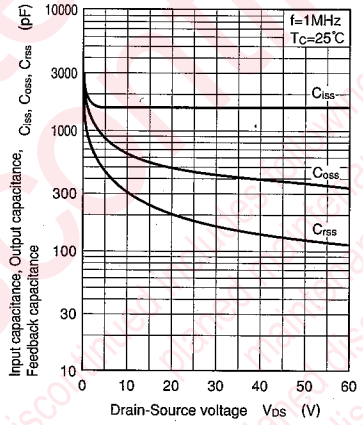
$R_{DS(on)} - I_D$



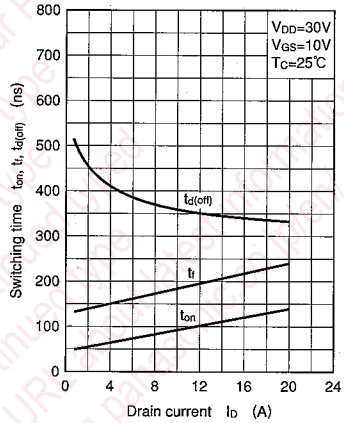
$I_D - V_{GS}$



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

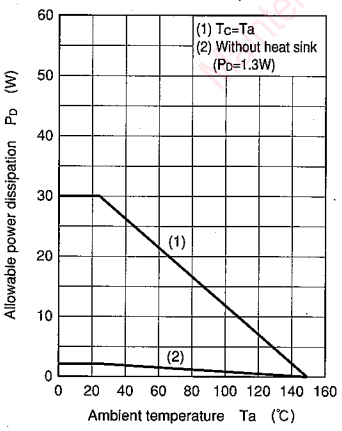


$t_{on},\ t_f,\ t_{d(off)} - I_D$

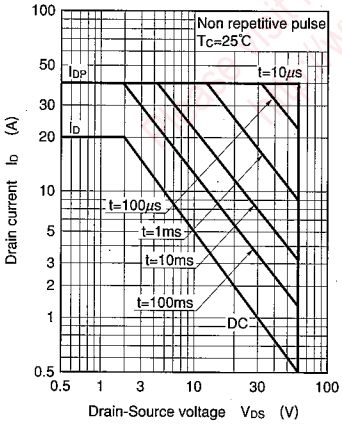


Power F-MOS FETs

$P_D - Ta$



Area of safe operation (ASO)



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