2SK1478

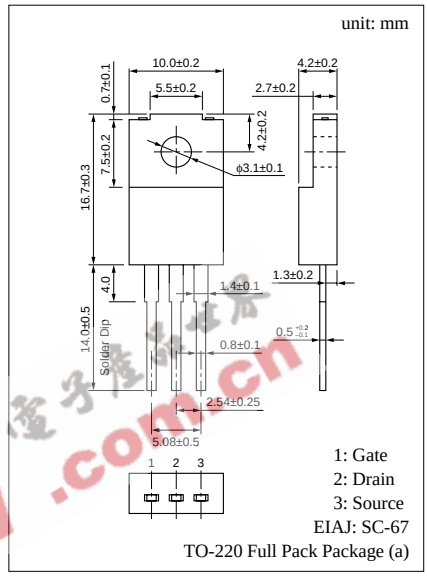
Silicon N-Channel Power F-MOS FET

■ Features

- Low ON-resistance $R_{DS(on)}$: $R_{DS(on)}$ = 0.4Ω (typ.)
- High-speed switching: t_f = 44ns (typ.)
- No secondary breakdown
- High breakdown voltage, large allowable power dissipation

■ Applications

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



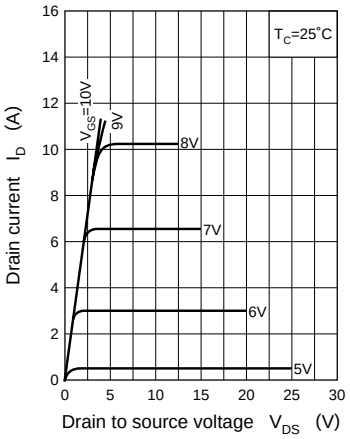
■ Absolute Maximum Ratings (T_C = 25°C)

Parameter		Symbol	Ratings	Unit
Drain to Source breakdown voltage		V_{DSS}	250	V
Gate to Source voltage		V_{GSS}	±20	V
Drain current	DC	I_D	±8	A
	Pulse	I_{DP}	±16	A
Allowable power dissipation	T_C = 25°C	P_D	40	W
	Ta = 25°C		2	
Channel temperature		T_{ch}	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

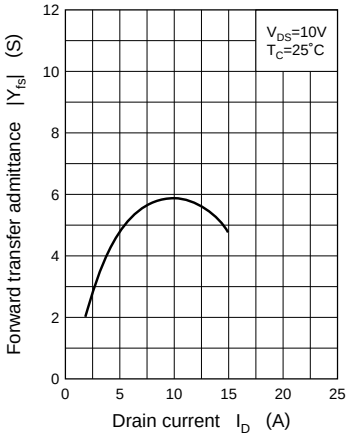
■ Electrical Characteristics (T_C = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I_{DSS}	V_{DS} = 200V, V_{GS} = 0			0.1	mA
Gate to Source leakage current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0			±1	μA
Drain to Source breakdown voltage	V_{DSS}	I_D = 1mA, V_{GS} = 0	250			V
Gate threshold voltage	V_{th}	V_{DS} = 25V, I_D = 1mA	1		5	V
Drain to Source ON-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 5A		0.4	0.6	Ω
Forward transfer admittance	$\|Y_{fs}\|$	V_{DS} = 25V, I_D = 5A	2.7	4.7		S
Input capacitance (Common Source)	C_{iss}	V_{DS} = 10V, V_{GS} = 0, f = 1MHz		1100		pF
Output capacitance (Common Source)	C_{oss}			200		pF
Reverse transfer capacitance (Common Source)	C_{rss}			60		pF
Turn-on time	t_{on}	V_{GS} = 10V, I_D = 5A V_{DD} = 100V, R_L = 20Ω		72		ns
Fall time	t_f			44		ns
Turn-off time (delay time)	$t_{d(off)}$			136		ns

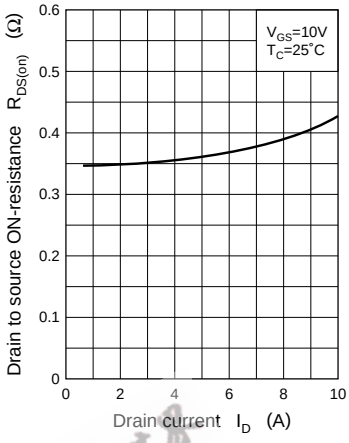
I_D — V_{DS}



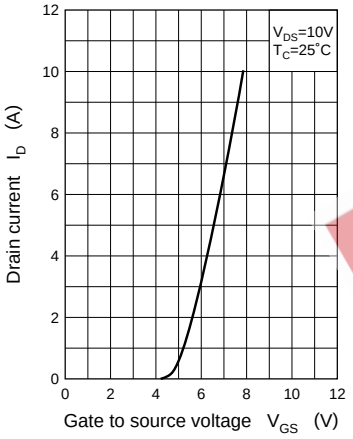
$|Y_{fs}|$ — I_D



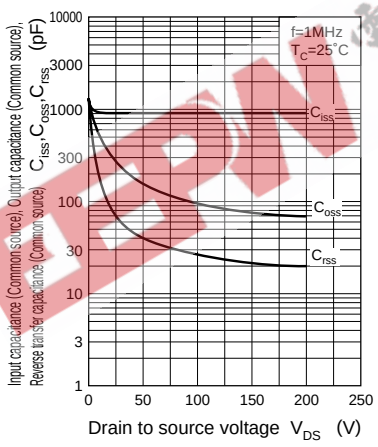
$R_{DS(on)}$ — I_D



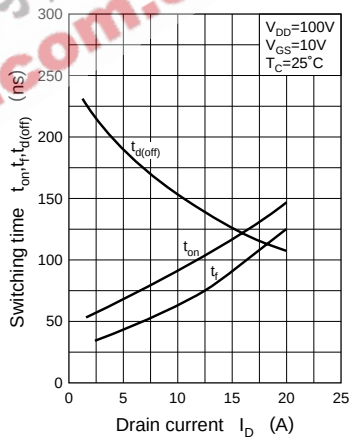
I_D — V_{GS}



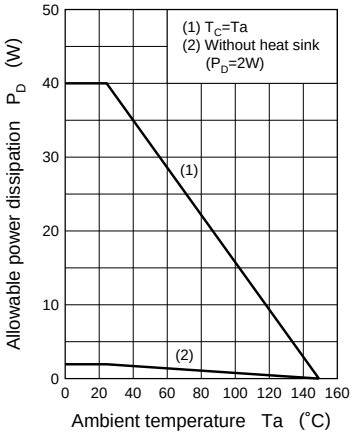
C_{iss}, C_{oss}, C_{rss} — V_{DS}



t_{on}, t_f, $t_{d(off)}$ — I_D



P_D — Ta



Area of safe operation (ASO)