

2SK1478

Silicon N-Channel Power F-MOS

■ Features

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

■ Applications

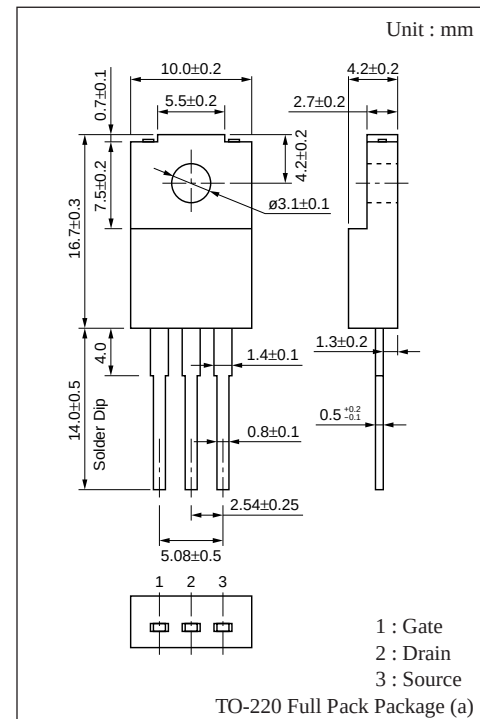
- Non-contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching mode regulator

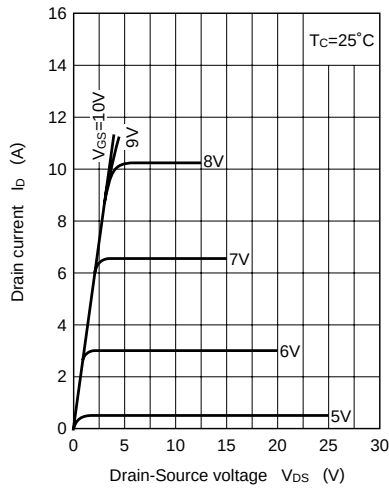
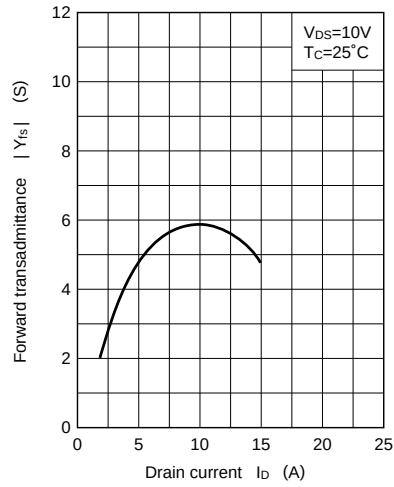
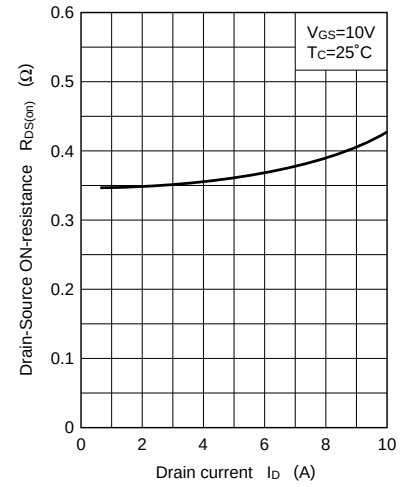
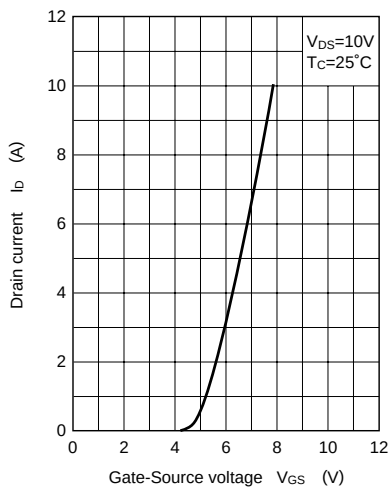
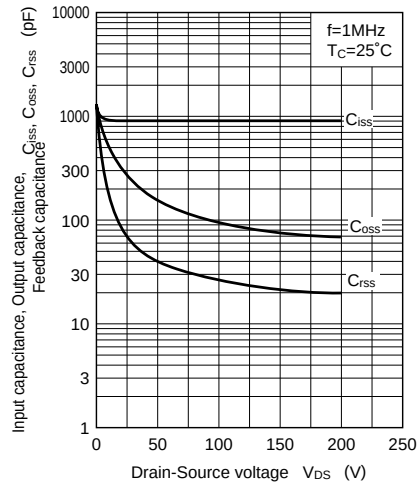
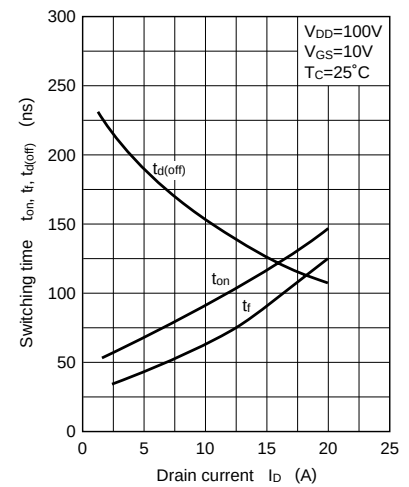
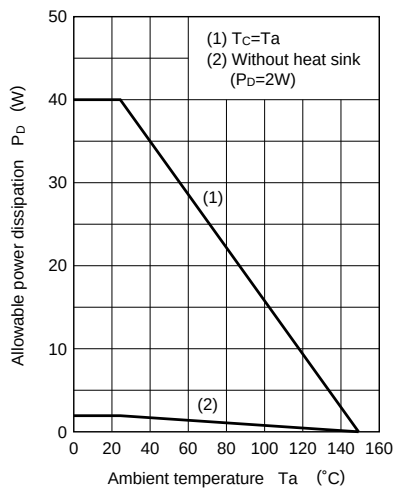
■ Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Drain-Source breakdown voltage	V_{DSS}	250	V
Gate-Source voltage	V_{GSS}	± 20	V
Drain current	DC	I_D	± 8 A
	Pulse	I_{DP}	± 16 A
Allowable power dissipation	$T_c = 25^\circ\text{C}$	P_D	40 W
	$T_a = 25^\circ\text{C}$		2 W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to ± 150	$^\circ\text{C}$

■ Electrical Characteristics ($T_c = 25^\circ\text{C}$)

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



$I_D - V_{DS}$  $|Y_{fs}| - I_D$  $R_{DS(on)} - I_D$  $I_D - V_{GS}$  $C_{iss}, C_{oss}, C_{rss} - V_{DS}$  $t_{on}, t_f, t_d(off) - I_D$  $P_D - T_a$ 

Area of safe operation (ASO)

