

2SK1257

Silicon N-channel Power F-MOS FET

■ Features

- Low ON resistance $R_{DS(on)}$: $R_{DS(on)1} = 0.024\Omega$ (typ.)
- High switching rate : $t_f = 320\text{ns}$ (typ.)
- No secondary breakdown
- Low voltage drive is possible ($V_{GS} = 4\text{V}$).

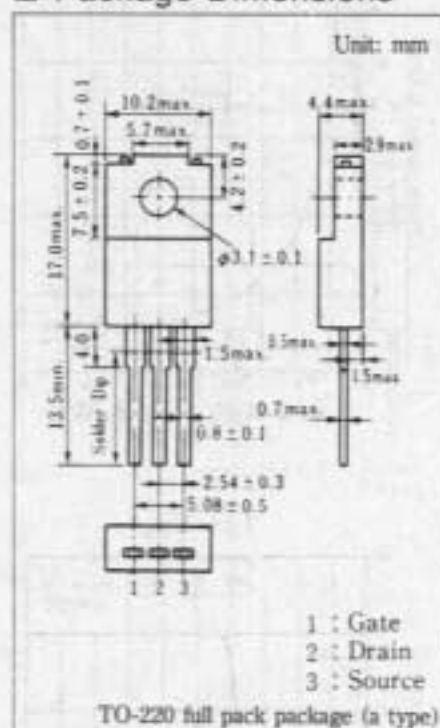
■ Application

- DC-DC converter
- No contact relay
- Solenoid drive
- Motor drive

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

Item	Symbol	Value	Unit
Drain-source voltage	V_{DS}	60	V
Gate-source voltage	V_{GS}	± 20	V
Drain current	At 4V driving	I_D	20
	DC	I_D	40
	Pulse-to-pulse rate	I_{DP}	80
Power dissipation	$T_c = 25^\circ\text{C}$	P_D	45
	$T_a = 25^\circ\text{C}$	P_D	2.0
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

■ Package Dimensions



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

Item	Symbol	Condition	min.	typ.	max.	Unit
Drain current	I_{DS}	$V_{DS} = 40\text{V}, V_{GS} = 0$			10	μA
Gate-source current	I_{GS}	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$			± 1	μA
Drain-source voltage	V_{DS}	$I_D = 1\text{mA}, V_{GS} = 0$	60			V
Gate threshold voltage	V_{th}	$V_{DS} = 10\text{V}, I_D = 1\text{mA}$	1		2.5	V
Drain-source ON resistance	$R_{DS(on)1}$	$V_{GS} = 10\text{V}, I_D = 20\text{A}$		0.024	0.035	Ω
Drain-source ON resistance	$R_{DS(on)2}$	$V_{GS} = 4\text{V}, I_D = 10\text{A}$		0.033	0.05	Ω
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10\text{V}, I_D = 20\text{A}$	13	22		S
Input capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$		3200		pF
Output capacitance	C_{oss}			1400		pF
Reverse transfer capacitance	C_{rss}			600		pF
Turn-on time	t_{on}	$V_{GS} = 10\text{V}, I_D = 20\text{A}$ $V_{DD} \approx 30\text{V}, R_L = 1.5\Omega$		200		ns
Fall time	t_f			320		ns
Delay time	$t_d(\text{off})$			690		ns