

2SK1259

Silicon N-channel Power F-MOS FET

■ Features

- Low ON resistance $R_{DS(on)}$: $R_{DS(on)} 1 = 0.012\Omega$ (typ.)
- High switching rate : $t_f = 700\text{ns}$ (typ.)
- No secondary breakdown.
- Low voltage drive is possible ($V_{GS} = 4\text{V}$).

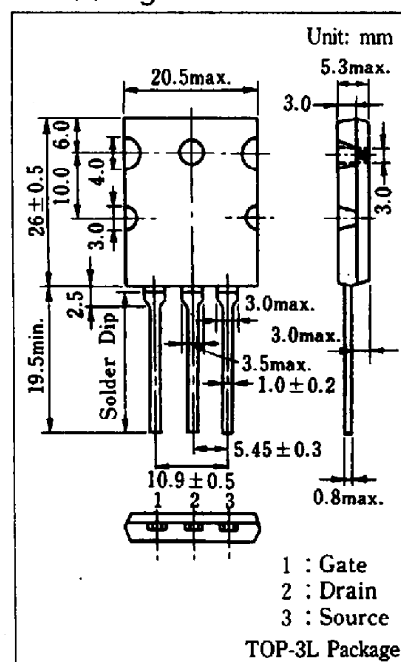
■ Application

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

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

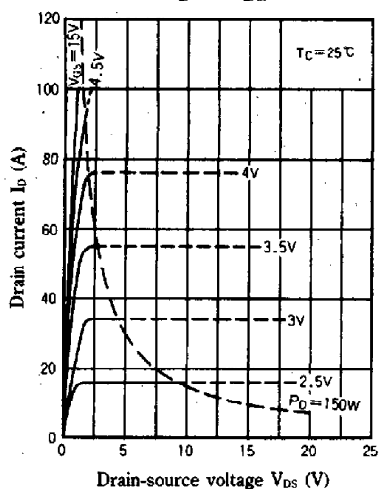
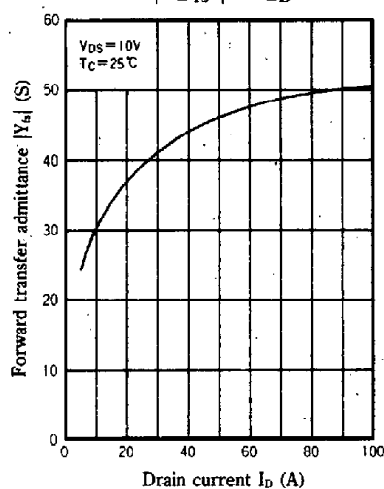
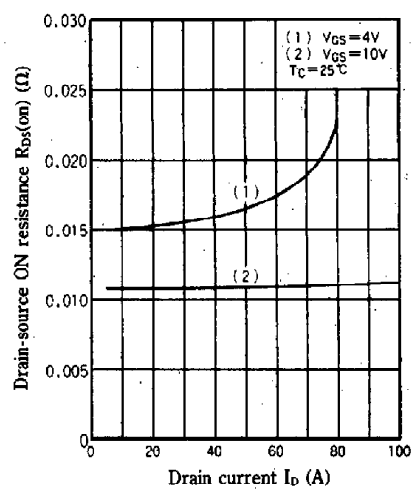
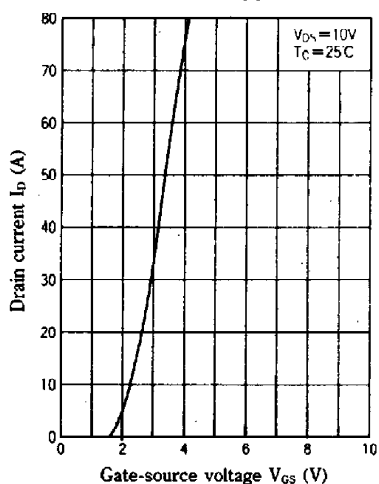
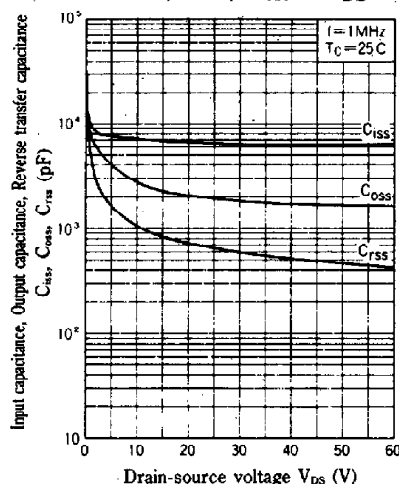
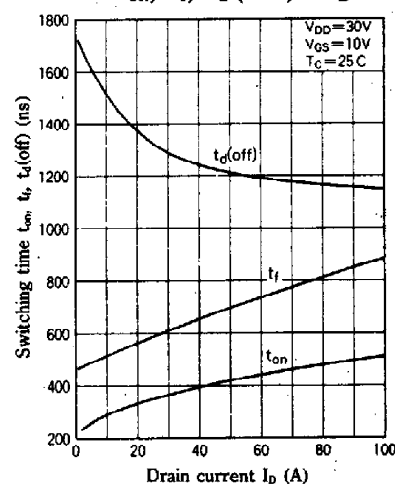
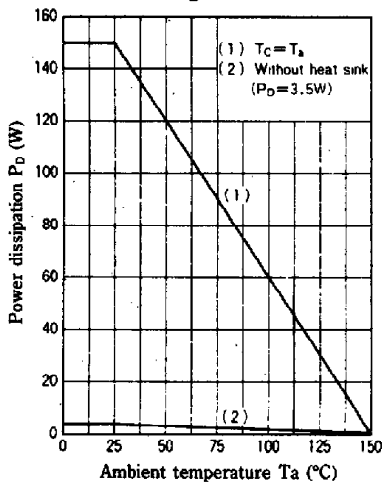
Item	Symbol	Value	Unit
Drain-source voltage	V_{DS}	60	V
Gate-source voltage	V_{GS}	± 20	V
Drain current	At 4V driving	I_D	50
	DC	I_D	100
	Peak-to-peak value	I_{DP}	200
Power dissipation	$T_c = 25^\circ\text{C}$	P_D	150
	$T_a = 25^\circ\text{C}$	P_D	3.5
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

■ Package Dimensions

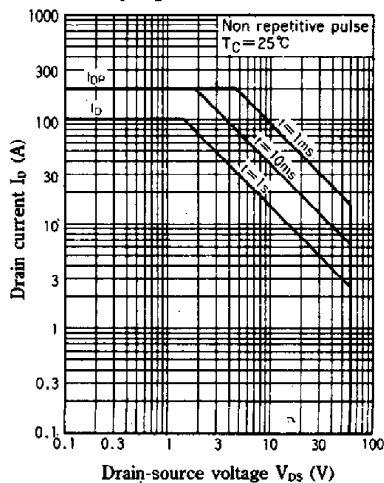
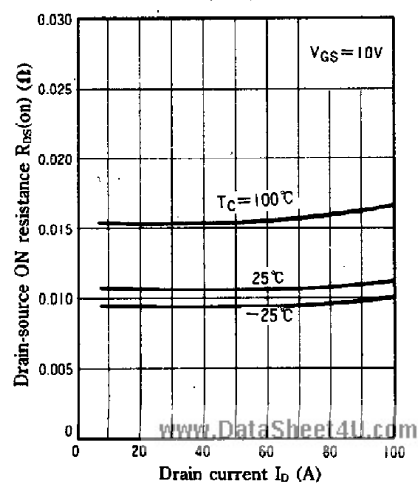


■ Electrical Characteristics ($T_c = 25^\circ\text{C}$)

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_{GSS}	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$			± 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	$R_{DS(on)1}$	$V_{GS} = 10\text{V}, I_D = 50\text{A}$		0.012	0.016	Ω
Drain-source ON resistance	$R_{DS(on)2}$	$V_{GS} = 4\text{V}, I_D = 25\text{A}$		0.015	0.023	Ω
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10\text{V}, I_D = 50\text{A}$	30	45		S
Input capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$		7000		pF
Output capacitance	C_{oss}			2900		pF
Reverse transfer capacitance	C_{rss}			1000		pF
Turn-on time	t_{on}	$V_{GS} = 10\text{V}, I_D = 50\text{A}$ $V_{DD} = 30\text{V}, R_L = 0.6\Omega$		420		ns
Fall time	t_f			700		ns
Delay time	$t_d(\text{off})$			1200		ns

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

Safety operation area (ASO)

 $R_{DS(on)} - I_D$ 

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