

2SK1267

Silicon N-Channel Power F-MOS

■ Features

- Low ON-resistance $R_{DS(on)}$: $R_{DS(on)1} = 0.07\Omega$ (typ)
- High-speed switching : $t_f = 180\text{ns}$ (typ)
- No secondary breakdown
- Large allowable power dissipation
- Low-voltage drive

■ Applications

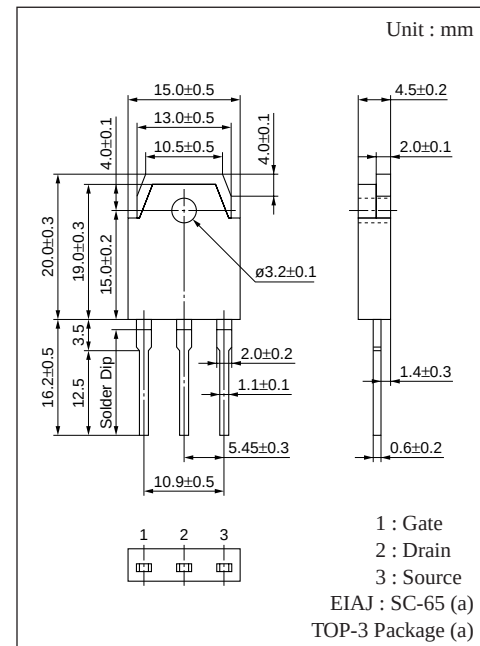
- DC-DC converter
- Non-contact relay
- Solenoid drive
- Motor drive

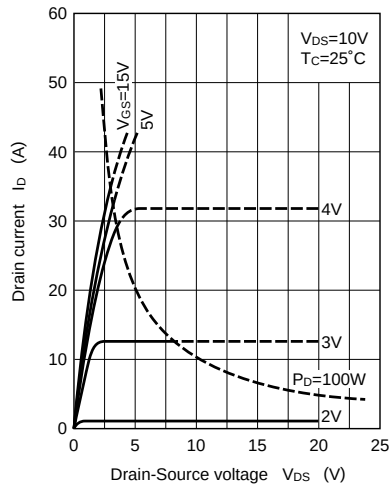
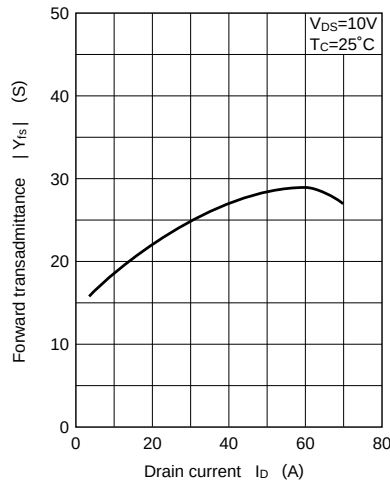
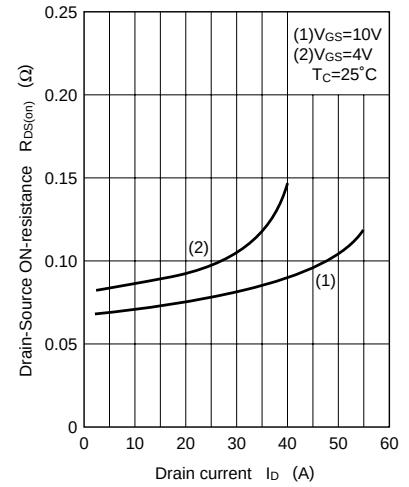
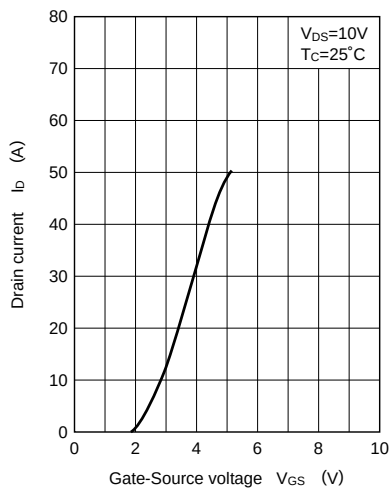
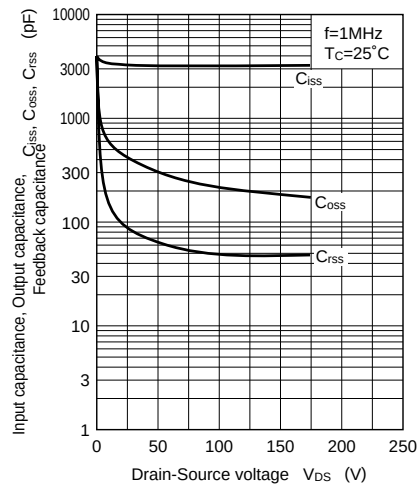
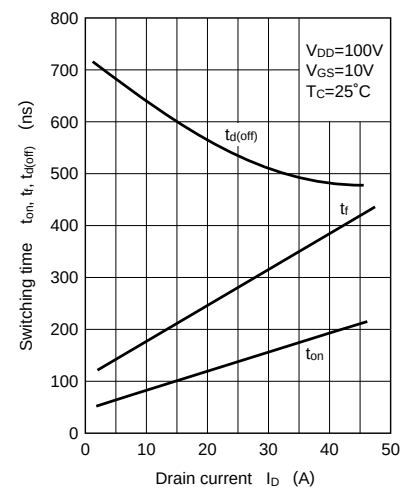
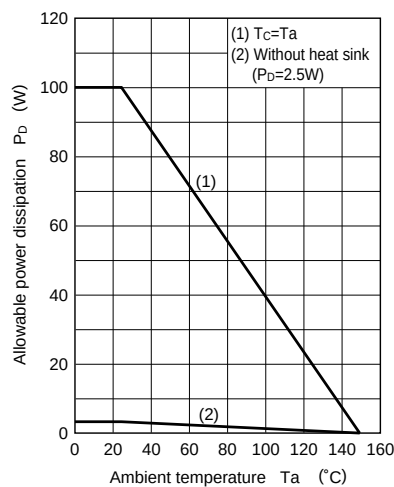
■ Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Drain-Source breakdown voltage	V_{DSS}	150	V
Gate-Source voltage	V_{GSS}	± 20	V
Drain current	at 4V drive	I_D	± 25 A
	Pulse	I_{DP}	± 50 A
Allowable power dissipation	$T_c = 25^\circ\text{C}$	P_D	100 W
	$T_a = 25^\circ\text{C}$		2.5 W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

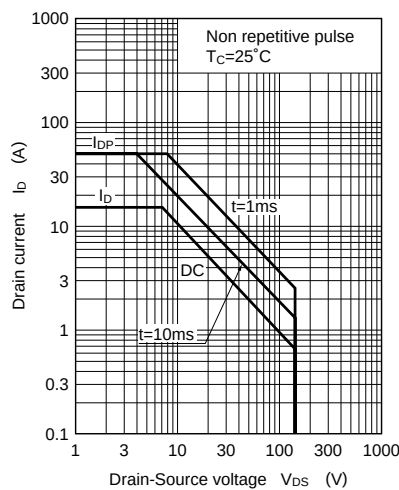
■ Electrical Characteristics ($T_c = 25^\circ\text{C}$)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source cut-off current	I_{DSS}	$V_{DS}=130\text{V}, V_{GS}=0$			10	μA
Gate-Source leakage current	I_{GSS}	$V_{GS}=\pm 20\text{V}, V_{DS}=0$			± 1	μA
Drain-Source breakdown voltage	V_{DSS}	$I_D=1\text{mA}, V_{GS}=0$	150			V
Gate threshold voltage	V_{th}	$V_{DS}=10\text{V}, I_D=1\text{mA}$	1		2.5	V
Drain-Source ON-resistance	$R_{DS(on)1}$	$V_{GS}=10\text{V}, I_D=12\text{A}$		0.07	0.11	Ω
	$R_{DS(on)2}$	$V_{GS}=4\text{V}, I_D=12\text{A}$		0.087	0.13	Ω
Drain-Source on voltage	$V_{DS(on)}$	$V_{GS}=10\text{V}, I_D=25\text{A}$			3	V
Forward transadmittance	$ Y_{fs} $	$V_{DS}=10\text{V}, I_D=12\text{A}$	10	18		S
Input capacitance	C_{iss}	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$		3400		pF
Output capacitance	C_{oss}			650		pF
Feedback capacitance	C_{rss}			150		pF
Turn-on time	t_{on}	$V_{GS}=10\text{V}, I_D=12\text{A}$ $V_{DD} \approx 100\text{V}, R_L=8.3\Omega$		90		ns
Fall time	t_f			180		ns
Turn-off time (delay time)	$t_{d(off)}$			650		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)

 $R_{DS(on)} - I_D$ 