

2SK2016

Silicon N-Channel Power F-MOS

■ Features

- Low ON-resistance $R_{DS(on)}$: $R_{DS(on)1} = 0.315\Omega$ (typ)
- High-speed switching : $t_f = 38\text{ns}$ (typ)
- No secondary breakdown
- For low-voltage drive ($V_{GS} = 4\text{V}$)
- Taping supply possible

■ Applications

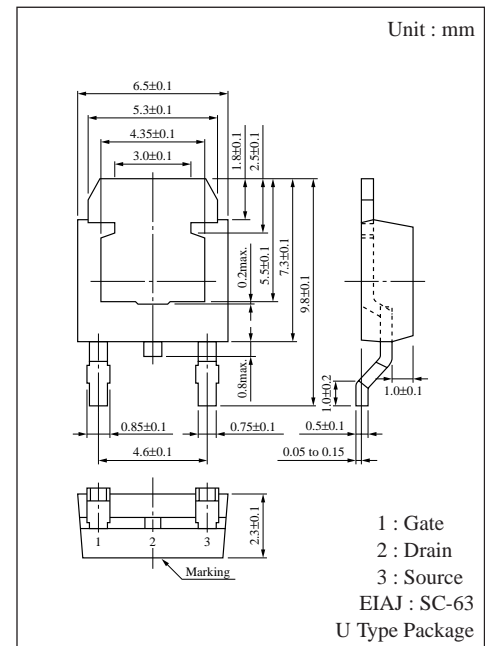
- DC-DC converter
- Non-contact relay
- Solenoid drive
- Motor drive

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

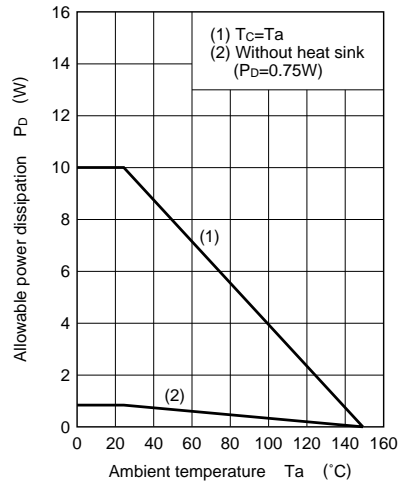
Parameter	Symbol	Rating	Unit
Drain-Source breakdown voltage	V_{DSS}	100	V
Gate-Source voltage	V_{GSS}	± 20	V
Drain current	at 4V drive	I_D	± 3
	DC		± 5
	Pulse	I_{DP}	± 10
Allowable power dissipation	$T_c = 25^\circ\text{C}$	P_D	10
	$T_a = 25^\circ\text{C}$		0.75
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

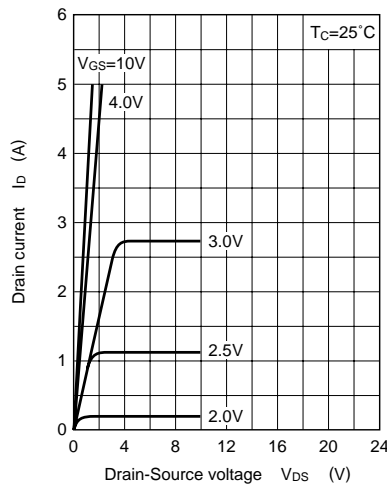
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source cut-off current	I_{DSS}	$V_{DS} = 80\text{V}, V_{GS} = 0$			10	μA
Gate-Source leakage current	I_{GSS}	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$			± 1	μA
Drain-Source breakdown voltage	V_{DSS}	$I_D = 1\text{mA}, V_{GS} = 0$	100			V
Gate threshold voltage	V_{th}	$V_{DS} = 10\text{V}, I_D = 1\text{mA}$	1		2.5	V
Drain-Source ON-resistance	$R_{DS(on)1}$	$V_{GS} = 10\text{V}, I_D = 3\text{A}$		0.315	0.47	Ω
	$R_{DS(on)2}$	$V_{GS} = 4\text{V}, I_D = 2\text{A}$		0.4	0.6	Ω
Forward transadmittance	$ Y_{fs} $	$V_{DS} = 10\text{V}, I_D = 3\text{A}$	2.5	3.8		S
Input capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$		416		pF
Output capacitance	C_{oss}				135	pF
Feedback capacitance	C_{rss}				38	pF
Turn-on time	t_{on}		$V_{GS} = 10\text{V}, I_D = 3\text{A}$		26	
Fall time	t_f	$V_{DD} = 30\text{V}, R_L = 10\Omega$		38		ns
Turn-off time (delay time)	$t_{d(off)}$				84	



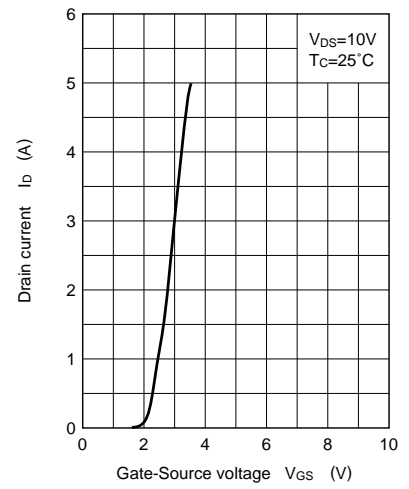
$P_D - T_a$



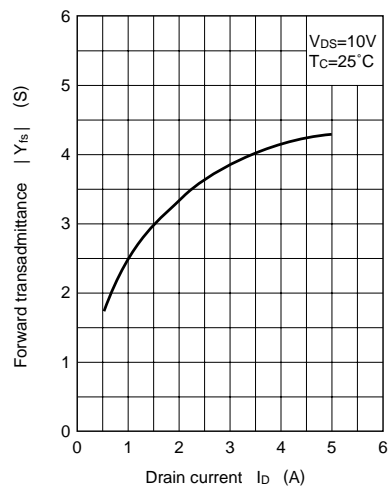
$I_D - V_{DS}$



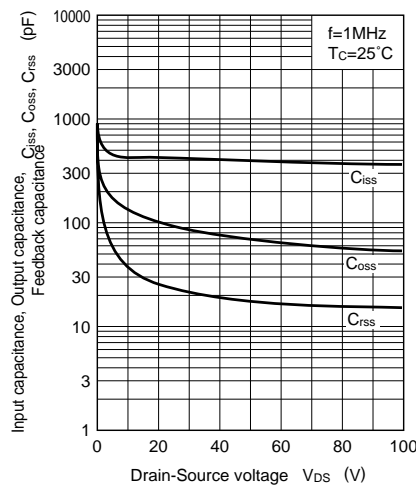
$I_D - V_{GS}$



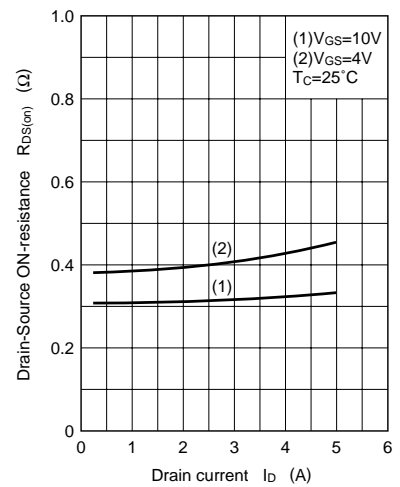
$|Y_{fs}| - I_D$



$C_{iss}, C_{oss}, C_{rss} - V_{DS}$



$R_{DS(on)} - I_D$



$t_{on}, t_f, t_{d(off)} - I_D$

