

# 2SK809, 2SK809A

## Silicon N-channel Power F-MOS FET

### ■ Features

- Low ON resistance  $R_{DS(on)}$  :  $R_{DS(on)} = 1.5\Omega$  (typ.)
- High switching rate :  $t_f = 85\text{ns}$  (typ.)
- No secondary breakdown
- High breakdown voltage, large power

### ■ Application

- No contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching power source

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

Item	Symbol	Value	Unit	
Drain-source voltage	$V_{DS}$	2SK809	800	V
		2SK809A	900	
Gate-source voltage	$V_{GS}$	$\pm 20$	V	
Drain current	DC	$I_D$	5	A
	Peak-to-peak value	$I_{DP}$	10	
Power dissipation	$T_c = 25^\circ\text{C}$	$P_D$	100	W
	$T_a = 25^\circ\text{C}$		3.0	
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$	

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

Item	Symbol	Condition	min.	typ.	max.	Unit
Drain current	$I_{DSS}$	$V_{DS} = 640\text{V}$ , $V_{GS} = 0$			0.1	mA
Gate-source current	$I_{GSS}$	$V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0$			$\pm 1$	$\mu\text{A}$
Drain-source voltage	$V_{DS}$	$I_D = 1\text{mA}$ , $V_{GS} = 0$	800			V
			900			
Gate threshold voltage	$V_{th}$	$V_{DS} = 25\text{V}$ , $I_D = 1\text{mA}$	1		5	V
Drain-source ON resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$ , $I_D = 3\text{A}$		1.5	3.0	$\Omega$
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25\text{V}$ , $I_D = 3\text{A}$	1.5	2.8		S
Input capacitance	$C_{iss}$	$V_{DS} = 20\text{V}$ , $V_{GS} = 0$ , $f = 1\text{MHz}$		1270		pF
Output capacitance	$C_{oss}$			220		pF
Reverse transfer capacitance	$C_{rss}$			80		pF
Turn-on time	$t_{on}$				60	
Fall time	$t_f$	$V_{GS} = 10\text{V}$ , $I_D = 3\text{A}$			85	ns
Delay time	$t_d(\text{off})$	$V_{DD} = 200\text{V}$ , $R_L = 66\Omega$			280	ns

### ■ Package Dimensions

