

# 2SK1803

## Silicon N-Channel Power F-MOS FET

### ■ Features

- Avalanche capacity guaranteed: EAS > 60mJ
- $V_{GS} = \pm 30V$  guaranteed
- High-speed switching:  $t_f = 80ns$
- No secondary breakdown

### ■ Applications

- Contactless relay
- Diving circuit for a solenoid
- Driving circuit for a motor
- Control equipment
- Switching power supply

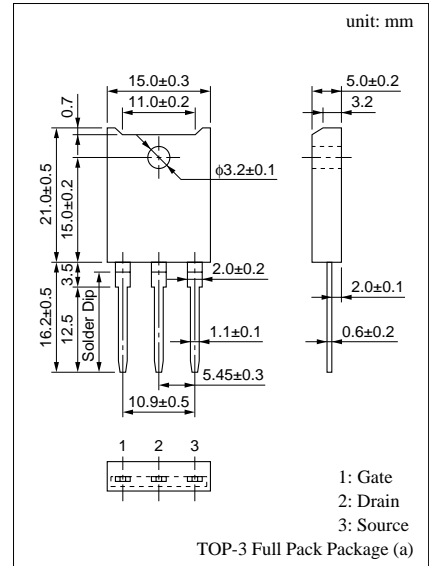
### ■ Absolute Maximum Ratings ( $T_C = 25^\circ C$ )

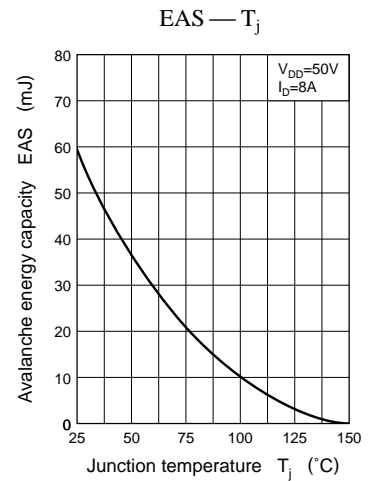
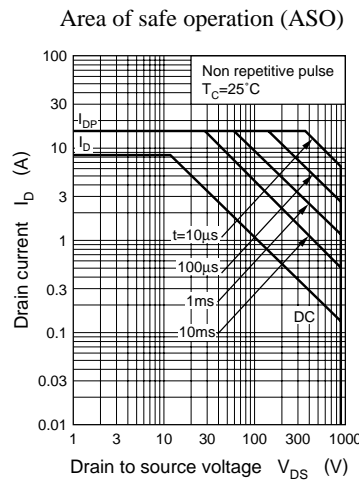
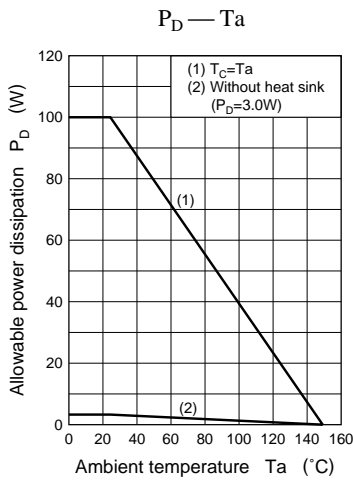
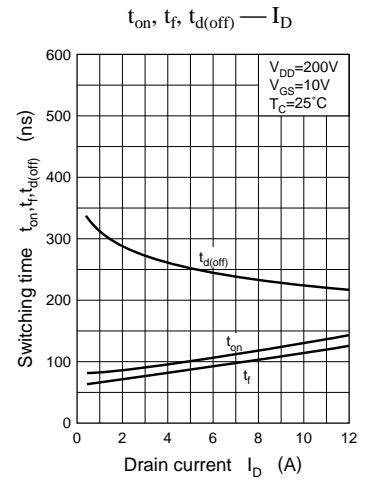
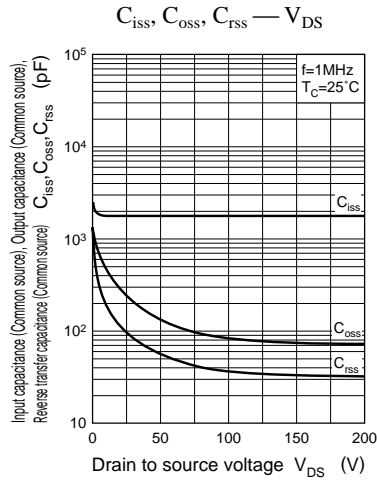
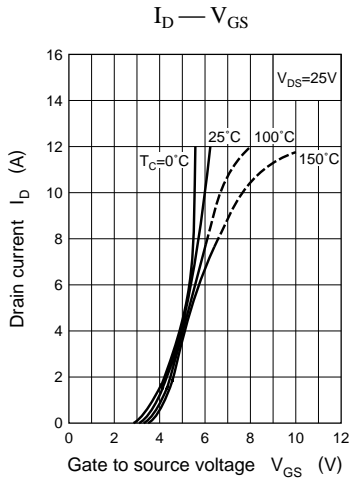
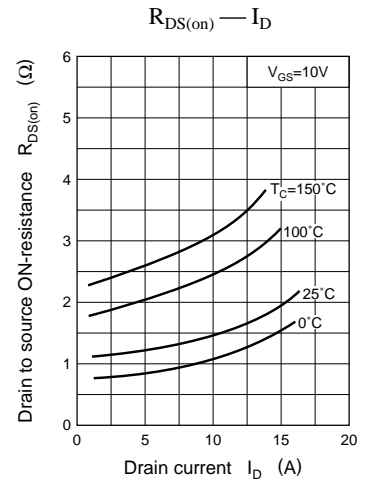
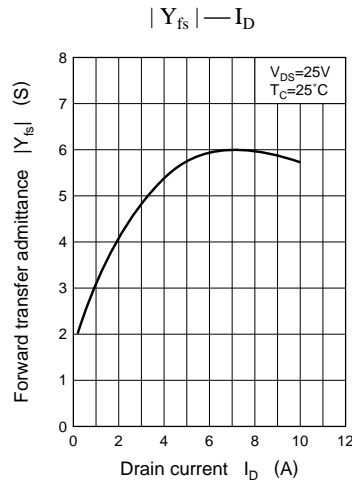
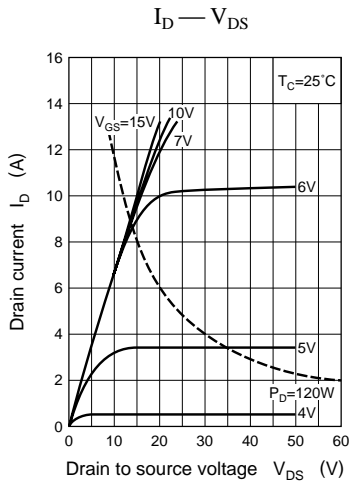
Parameter	Symbol	Ratings	Unit
Drain to Source breakdown voltage	$V_{DSS}$	900	V
Gate to Source voltage	$V_{GSS}$	$\pm 30$	V
Drain current	DC	$I_D$	$\pm 8$ A
	Pulse	$I_{DP}$	$\pm 16$ A
Avalanche energy capacity	EAS*	60	mJ
Allowable power dissipation	$T_C = 25^\circ C$	$P_D$	100 W
	$T_a = 25^\circ C$		3
Channel temperature	$T_{ch}$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$

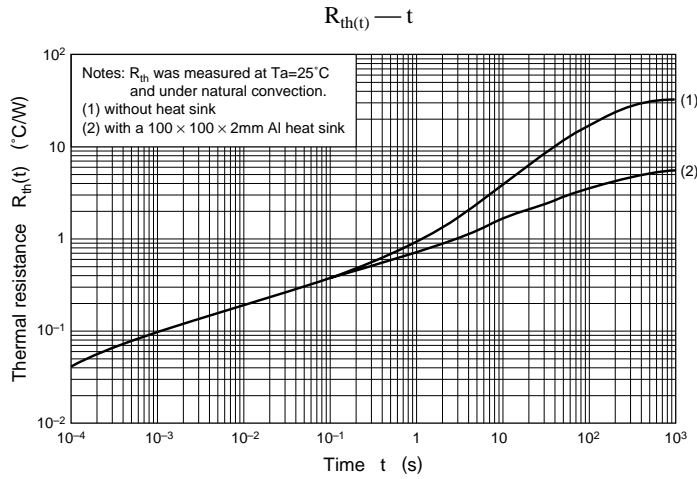
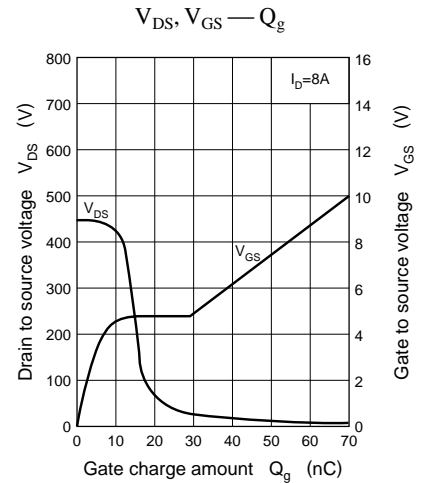
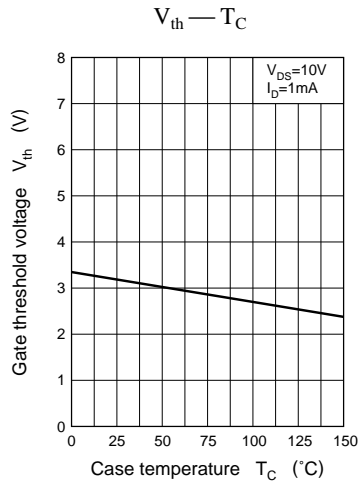
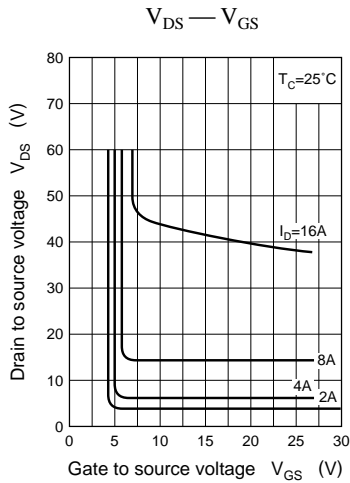
\*  $L = 1.9mH$ ,  $I_L = 8A$ ,  $V_{DD} = 50V$ , 1 pulse

### ■ Electrical Characteristics ( $T_C = 25^\circ C$ )

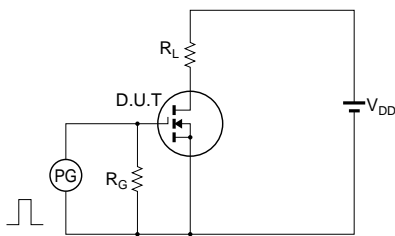
Parameter	Symbol	Conditions	min	typ	max	Unit	
Drain to Source cut-off current	$I_{DSS}$	$V_{DS} = 720V$ , $V_{GS} = 0$			0.1	mA	
Gate to Source leakage current	$I_{GSS}$	$V_{GS} = \pm 30V$ , $V_{DS} = 0$			$\pm 1$	$\mu A$	
Drain to Source breakdown voltage	$V_{DSS}$	$I_D = 1mA$ , $V_{GS} = 0$	900			V	
Gate threshold voltage	$V_{th}$	$V_{DS} = 25V$ , $I_D = 1mA$	1		5	V	
Drain to Source ON-resistance	$R_{DS(on)}$	$V_{GS} = 10V$ , $I_D = 4A$		1.3	1.7	$\Omega$	
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 25V$ , $I_D = 4A$	3	5.5		S	
Diode forward voltage	$V_{DSF}$	$I_{DR} = 8A$ , $V_{GS} = 0$			-1.6	V	
Input capacitance (Common Source)	$C_{iss}$	$V_{DS} = 20V$ , $V_{GS} = 0$ , $f = 1MHz$		1800		pF	
Output capacitance (Common Source)	$C_{oss}$				200		pF
Reverse transfer capacitance (Common Source)	$C_{rss}$				90		pF
Turn-on time	$t_{on}$	$V_{GS} = 10V$ , $I_D = 4A$ $V_{DD} = 200V$ , $R_L = 50\Omega$		100		ns	
Fall time	$t_f$				80		ns
Turn-off time (delay time)	$t_{d(off)}$				250		ns
Thermal resistance between channel and case	$R_{th(ch-c)}$				1.25	$^\circ C/W$	







Switching measurement circuit



Avalanche energy capacity test circuit

