

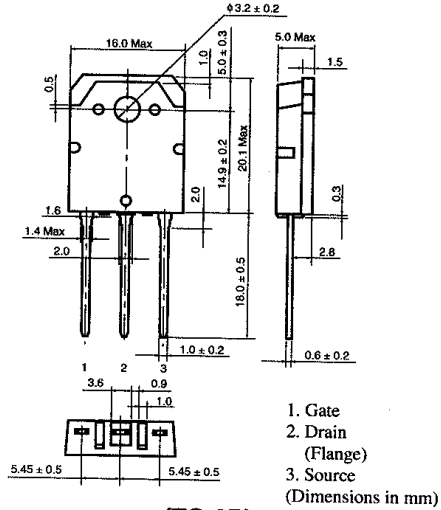
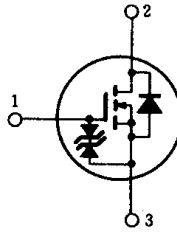
# 2SK684

## SILICON N-CHANNEL MOS FET

高速度電力スイッチング

### ■ 特長

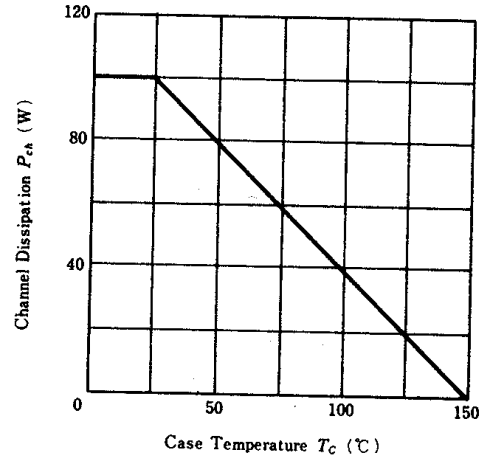
- オン抵抗が低い。
- スwitchングスピードが速い。
- 駆動電力が小さい。
- 2次降伏がない。
- スwitchングレギュレータ, DC-DCコンバータ, などに最適。



1. Gate  
2. Drain (Flange)  
3. Source  
(Dimensions in mm)

(TO-3P)

### POWER VS. TEMPERATURE DERATING



### ■ ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	800	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	$I_D$	7	A
Drain Peak Current	$I_{D(pulse)}$ *	20	A
Body-Drain Diode Reverse Drain Current	$I_{DR}$	7	A
Channel Dissipation	$P_{ch}^{**}$	100	W
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$

\* $PW \leq 10\mu s$ , duty cycle  $\leq 1\%$

\*\*Value at  $T_c=25^\circ\text{C}$

### ■ ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10\text{mA}$ , $V_{GS}=0$	800	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G=\pm 100\mu\text{A}$ , $V_{DS}=0$	$\pm 20$	—	—	V
Gate-Source Leak Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0$	—	—	$\pm 10$	$\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=640\text{V}$ , $V_{GS}=0$	—	—	250	$\mu\text{A}$
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=1\text{mA}$ , $V_{DS}=10\text{V}$	2.0	—	4.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	$I_D=4\text{A}$ , $V_{GS}=10\text{V}$ *	—	1.0	1.5	$\Omega$
Forward Transfer Admittance	$ y_{fs} $	$I_D=4\text{A}$ , $V_{DS}=20\text{V}$ *	2.5	4.0	—	S
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}$ , $V_{GS}=0$ , $f=1\text{MHz}$	—	1830	—	pF
Output Capacitance	$C_{oss}$		—	1150	—	pF
Reverse Transfer Capacitance	$C_{rss}$		—	730	—	pF
Turn-on Delay Time	$t_{d(on)}$		—	20	—	ns
Rise Time	$t_r$	$I_D=4\text{A}$ , $V_{GS}=10\text{V}$ , $R_L=7.5\Omega$	—	230	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	220	—	ns
Fall Time	$t_f$		—	220	—	ns
Body-Drain Diode Forward Voltage	$V_{DF}$		$I_F=7\text{A}$ , $V_{GS}=0$	—	1.0	—
Body-Drain Diode Reverse Recovery Time	$t_{rr}$	$I_F=7\text{A}$ , $V_{GS}=0$ , $di_F/dt=100\text{A}/\mu\text{s}$	—	1000	—	ns

\*Pulse Test

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