

# 2SK1774

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HITACHI/(OPTOELECTRONICS) 61E D

## Silicon N Channel MOS FET

### Application

High speed power switching

### Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter

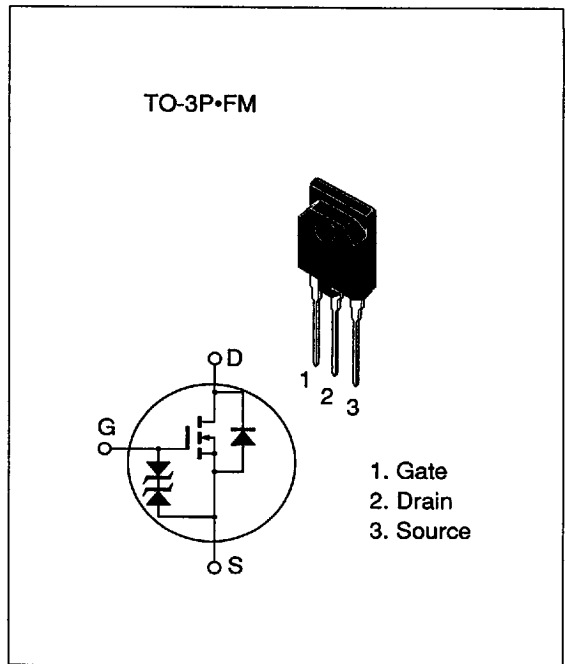


Table 1 Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	800	V
Gate to source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	$I_D$	7	A
Drain peak current	$I_{D(\text{pulse})}^*$	20	A
Body-drain diode reverse drain current	$I_{DR}$	7	A
Channel dissipation	$P_{ch}^{**}$	60	W
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

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

Table 2 Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	800	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	250	$\mu\text{A}$	$V_{DS} = 640 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	4.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.0	1.5	$\Omega$	$I_D = 4 \text{ A}$ $V_{GS} = 10 \text{ V}^*$
Forward transfer admittance	$ y_{fs} $	2.5	4.0	—	S	$I_D = 4 \text{ A}$ $V_{DS} = 20 \text{ V}^*$
Input capacitance	$C_{iss}$	—	1830	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	$C_{oss}$	—	1150	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	730	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$I_D = 4 \text{ A}$
Rise time	$t_r$	—	230	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	220	—	ns	$R_L = 7.5 \text{ }\Omega$
Fall time	$t_f$	—	220	—	ns	
Body-drain diode forward voltage	$V_{DF}$	—	1.0	—	V	$I_F = 7 \text{ A}, V_{GS} = 0$
Body-drain diode reverse recovery time	$t_{rr}$	—	1000	—	ns	$I_F = 7 \text{ A}, V_{GS} = 0,$ $di_F / dt = 100 \text{ A} / \mu\text{s}$

\* Pulse Test

See characteristic curves of 2SK684 except [MAXIMUM SAFE OPERATION AREA] and [NORMALIZED TRANSIENT THERMAL IMPEDANCE VS. PULSE WIDTH]

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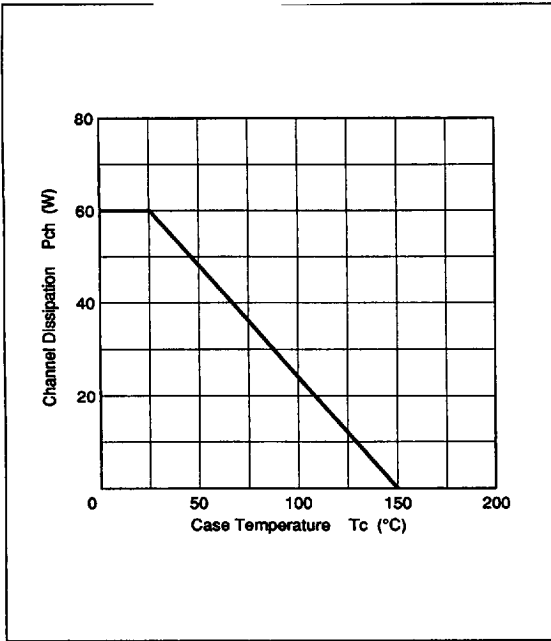


Figure 1 Power vs. Temperature Derating

Package Dimensions

Unit: mm

