2SK1775

Silicon N Channel MOS FET

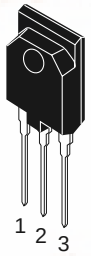
Application

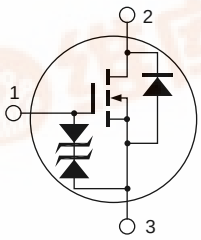
High speed power switching

Features

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

TO–3PFM





1. Gate
2. Drain
3. Source

Table 1 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	900	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D	8	A
Drain peak current	$I_{D(pulse)}$*	20	A
Body–drain diode reverse drain current	I_{DR}	8	A
Channel dissipation	Pch**	60	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

* PW ≤ 10 µs, duty cycle ≤ 1 %
** Value at Tc = 25 °C

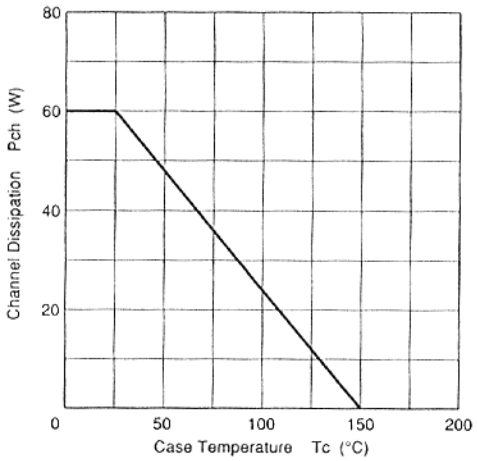
Table 2 Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	900	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±25 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	250	µA	V_{DS} = 720 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	3.0	V	I_D = 1 mA, V_{DS} = 10 V
Static drain to source on state resistance	$R_{DS(on)}$	—	1.2	1.6	Ω	I_D = 4 A V_{GS} = 10 V *
Forward transfer admittance	$\|y_{fs}\|$	3.5	5.5	—	S	I_D = 4 A V_{DS} = 20 V *
Input capacitance	Ciss	—	1730	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	700	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	310	—	pF	f = 1 MHz
Turn–on delay time	$t_{d(on)}$	—	25	—	ns	I_D = 4 A
Rise time	t_r	—	135	—	ns	V_{GS} = 10 V
Turn–off delay time	$t_{d(off)}$	—	185	—	ns	R_L = 7.5 Ω
Fall time	t_f	—	130	—	ns	
Body–drain diode forward voltage	V_{DF}	—	0.9	—	V	I_F = 8 A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	900	—	ns	I_F = 8 A, V_{GS} = 0, di_F / dt = 100 A / µs

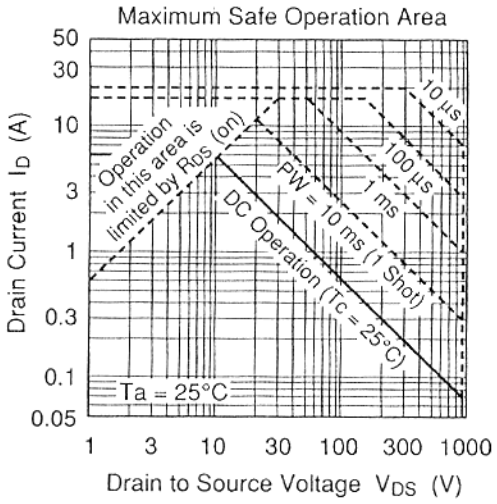
* Pulse Test

See characteristic curves of 2SK1342

Power vs. Temperature Derating



Maximum Safe Operation Area



NORMALIZED TRANSIENT THERMAL IMPEDANCE VS. PULSE WIDTH