
2SK1859

Silicon N-Channel MOS FET

HITACHI

ADE-208-1328 (Z)

1st. Edition

Mar. 2001

Application

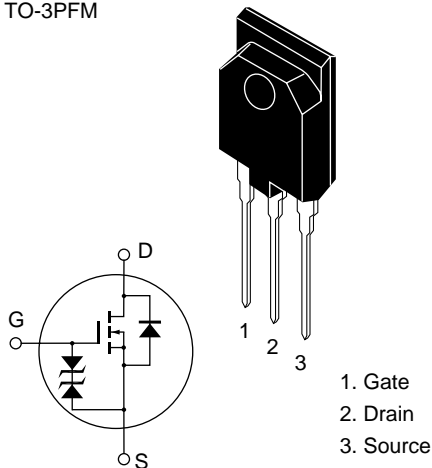
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low Drive Current
- No secondary breakdown
- Suitable for Switching regulator

Outline

TO-3PFM



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	6	A
Drain peak current	$I_{D(pulse)}^{*1}$	15	A
Body to drain diode reverse drain current	I_{DR}	6	A
Channel dissipation	P_{ch}^{*2}	60	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

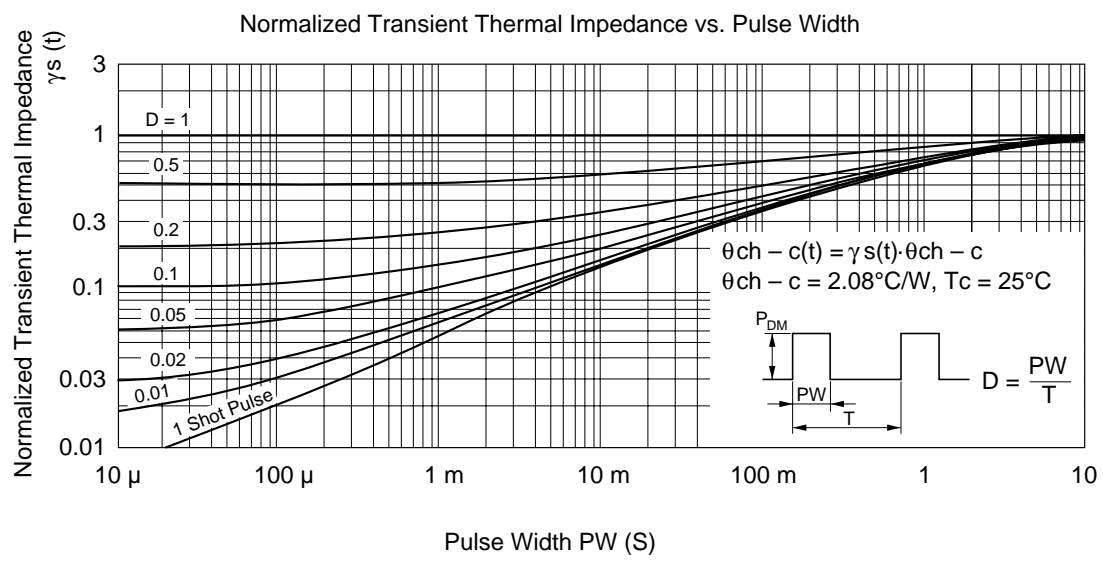
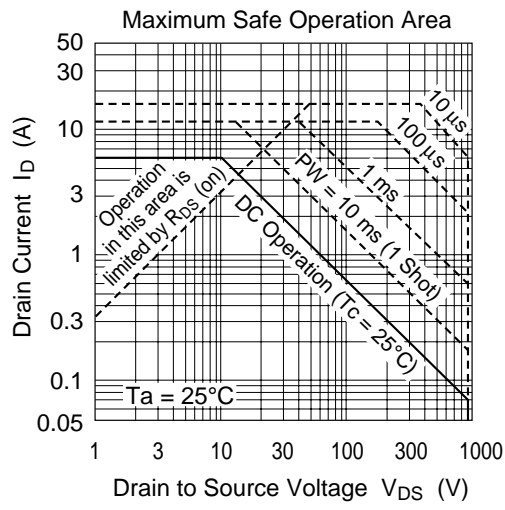
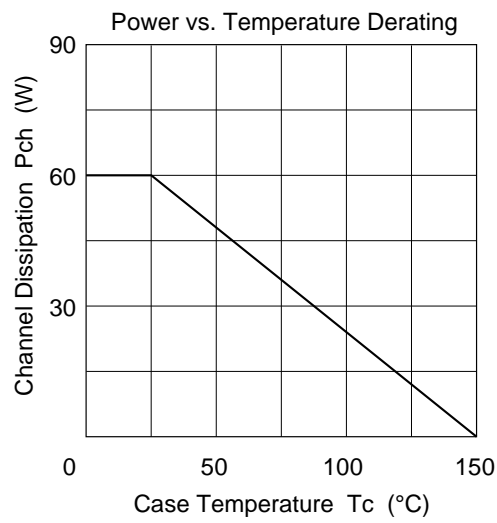
- Notes
- 1. $PW \leq 10 \mu s$, duty cycle $\leq 1 \%$
 - 2. Value at $T_c = 25 \text{ }^\circ C$

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	900	—	—	V	$I_D = 10\text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100\text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25\text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	250	μA	$V_{DS} = 720\text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1\text{ mA}$, $V_{DS} = 10\text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	2.0	3.0	Ω	$I_D = 3\text{ A}$ $V_{GS} = 10\text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	2.3	3.7	—	S	$I_D = 3\text{ A}$ $V_{DS} = 20\text{ V}^{*1}$
Input capacitance	C_{iss}	—	980	—	pF	$V_{DS} = 10\text{ V}$
Output capacitance	C_{oss}	—	400	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	195	—	pF	$f = 1\text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$I_D = 3\text{ A}$
Rise time	t_r	—	80	—	ns	$V_{GS} = 10\text{ V}$
Turn-off delay time	$t_{d(off)}$	—	125	—	ns	$R_L = 10\text{ }\Omega$
Fall time	t_f	—	100	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.9	—	V	$I_F = 6\text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	1000	—	ns	$I_F = 6\text{ A}$, $V_{GS} = 0$, $di_F / dt = 100\text{ A} / \mu\text{s}$

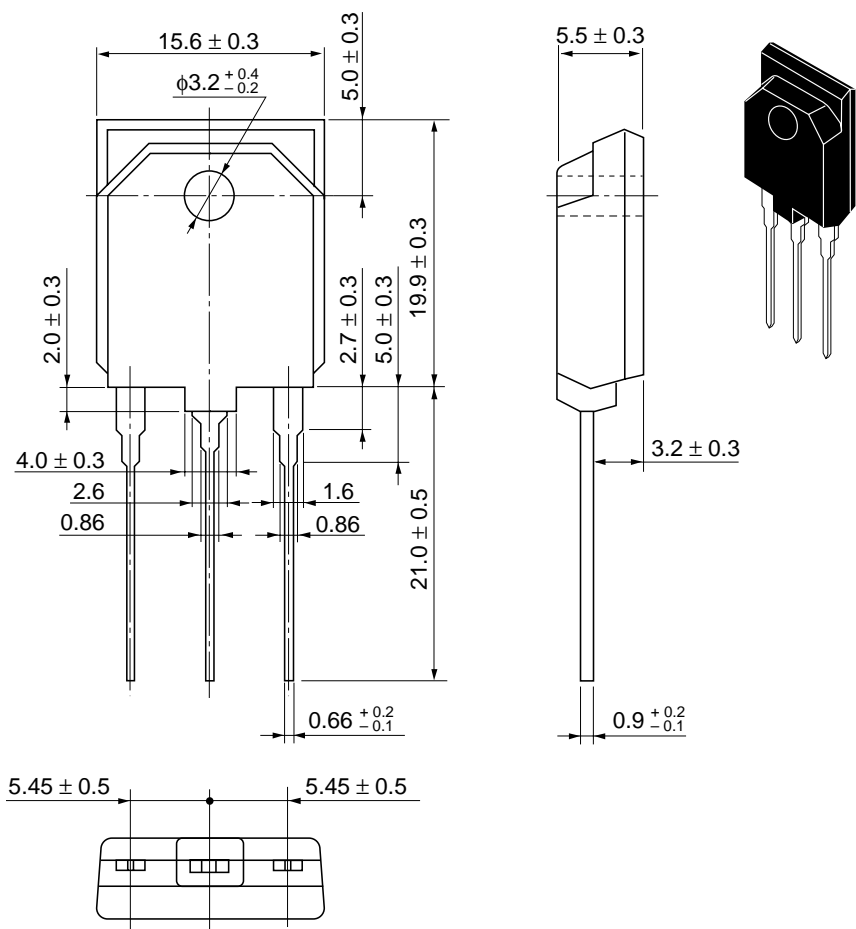
Note 1. Pulse Test

See characteristic curves of 2SK1341



Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	TO-3PFM
JEDEC	—
EIAJ	—
Mass (reference value)	5.2 g

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