

2SK1862, 2SK1863

Silicon N-Channel MOS FET

HITACHI

ADE-208-1329 (Z)
1st. Edition
Mar. 2001

Application

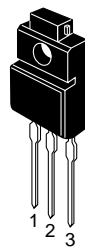
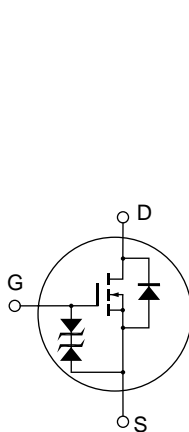
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for Switching regulator

Outline

TO-220FM



1. Gate
2. Drain
3. Source

2SK1862, 2SK1863

Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1862	V_{DSS}	450	V
	2SK1863	V_{DSS}	500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	3	A
Drain peak current		$I_{D(pulse)}^{*1}$	12	A
Body to drain diode reverse drain current		I_{DR}	3	A
Channel dissipation		P_{ch}^{*2}	25	W
Channel temperature		T_{ch}	150	°C
Storage temperature		T_{stg}	-55 to +150	°C

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

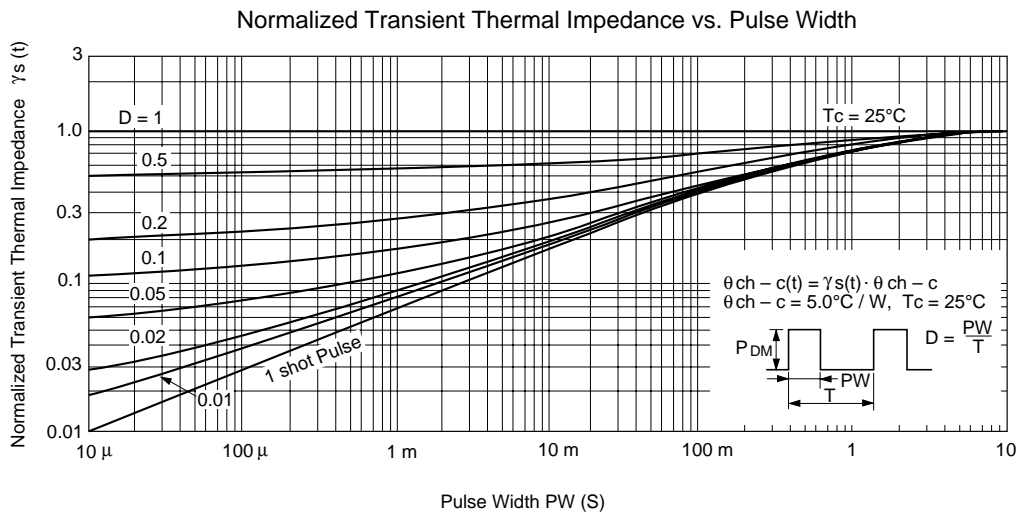
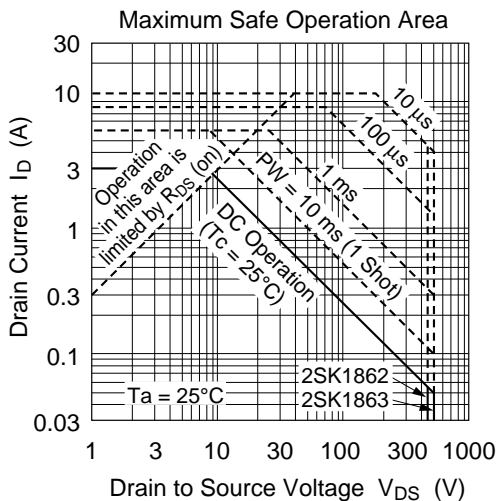
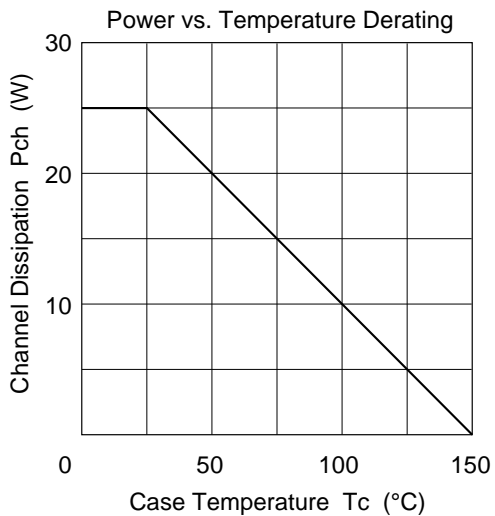
2. Value at $T_c = 25 \text{ }^\circ\text{C}$

Electrical Characteristics (Ta = 25°C)

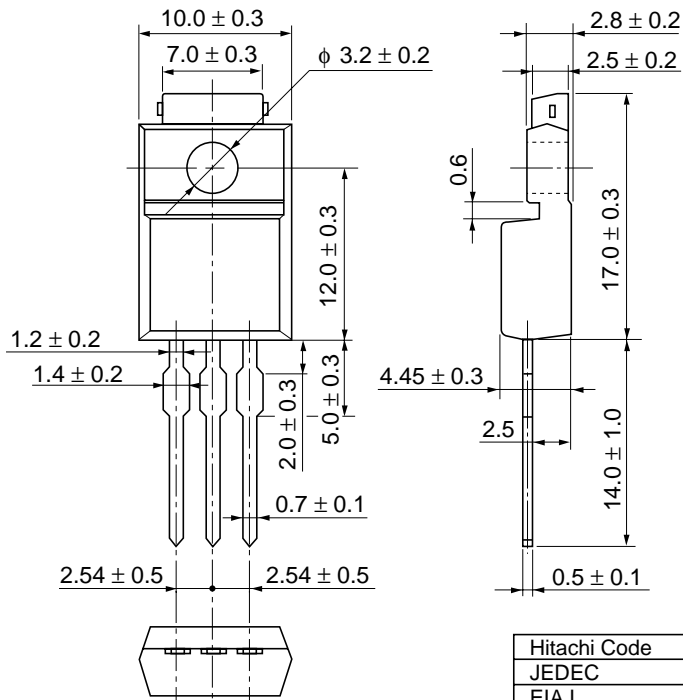
Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1862	$V_{(BR)DSS}$	450	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
	2SK1863		500				
Gate to source breakdown voltage		$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100 \text{ } \mu\text{A}, V_{DS} = 0$
Gate to source leak current		I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	2SK1862	I_{DSS}	—	—	250	μA	$V_{DS} = 360 \text{ V}, V_{GS} = 0$
	2SK1863						$V_{DS} = 400 \text{ V}, V_{GS} = 0$
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	2SK1862	$R_{DS(on)}$	—	2.0	2.8	Ω	$I_D = 2 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
	2SK1863		—	2.2	3.0		
Forward transfer admittance		$ y_{fs} $	1.5	2.5	—	S	$I_D = 2 \text{ A}$ $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance		Ciss	—	330	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance		Coss	—	90	—	pF	$V_{GS} = 0$
Reverse transfer capacitance		Crss	—	15	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time		$t_{d(on)}$	—	7	—	ns	$I_D = 2 \text{ A}$
Rise time		t_r	—	20	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time		$t_{d(off)}$	—	30	—	ns	$R_L = 15 \text{ } \Omega$
Fall time		t_f	—	20	—	ns	
Body to drain diode forward voltage		V_{DF}	—	0.9	—	V	$I_F = 3 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time		t_{rr}	—	300	—	ns	$I_F = 3 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A} / \mu\text{s}$

Note 1. Pulse Test

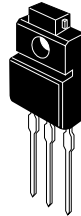
See characteristic curves of 2SK1153, 2SK1154



Package Dimensions



As of January, 2001
Unit: mm



Hitachi Code	TO-220FM
JEDEC	—
EIAJ	Conforms
Mass (reference value)	1.8 g

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