

# 2SK2431

Silicon N-Channel MOS FET

# HITACHI

## Application

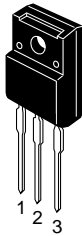
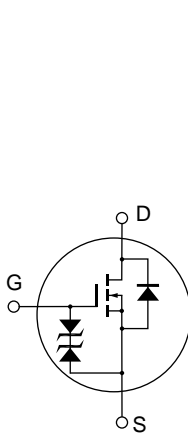
High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- No Secondary Breakdown
- Suitable for Switching regulator, DC-DC converter.

## Outline

TO-220CFM



1. Gate
2. Drain
3. Source

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

<b>Item</b>	<b>Symbol</b>	<b>Ratings</b>	<b>Unit</b>
Drain to source voltage	$V_{DSS}$	450	V
Gate to source voltage	$V_{GSS}$	$\pm 30$	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	$Pch^{*2}$	25	W
Channel temperature	$Tch$	150	$^\circ\text{C}$
Storage temperature	$Tstg$	-55 to +150	$^\circ\text{C}$

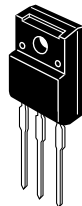
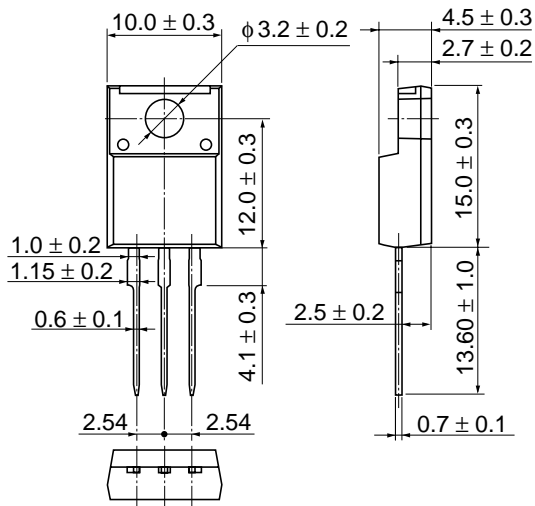
Notes 1.  $PW \leq 10 \mu\text{s}$ , duty cycle  $\leq 1\%$   
2. Value at  $T_c = 25^\circ\text{C}$

## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	450	—	—	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	$V_{DS} = 450 \text{ V}, V_{GS} = 0$
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	2.8	Ω	$I_D = 2 \text{ A}$ $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	1.5	2.5	—	S	$I_D = 2 \text{ A}$ $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	$C_{iss}$	—	330	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	$C_{oss}$	—	90	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	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	$R_L = 15 \Omega$
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 characteristics curves of 2SK1153, 2SK1862.



Hitachi Code	TO-220CFM
JEDEC	—
EIAJ	—
Weight (reference value)	1.9 g

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