

# 2SK1831, 2SK1832

Silicon N-Channel MOS FET

# HITACHI

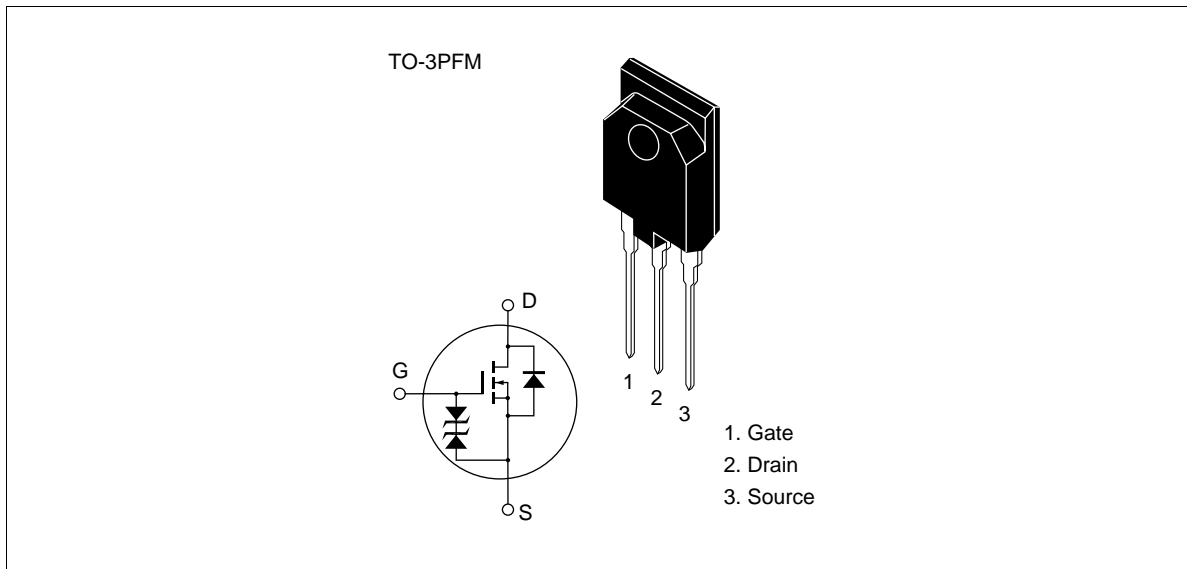
## Application

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



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## 2SK1831, 2SK1832

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### Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	K1831	$V_{DSS}$	450	V
	K1832		500	
Gate to source voltage		$V_{GSS}$	±30	V
Drain current		$I_D$	10	A
Drain peak current		$I_{D(pulse)}^{*1}$	30	A
Body to drain diode reverse drain current		$I_{DR}$	10	A
Channel dissipation		$P_{ch}^{*2}$	50	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

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

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

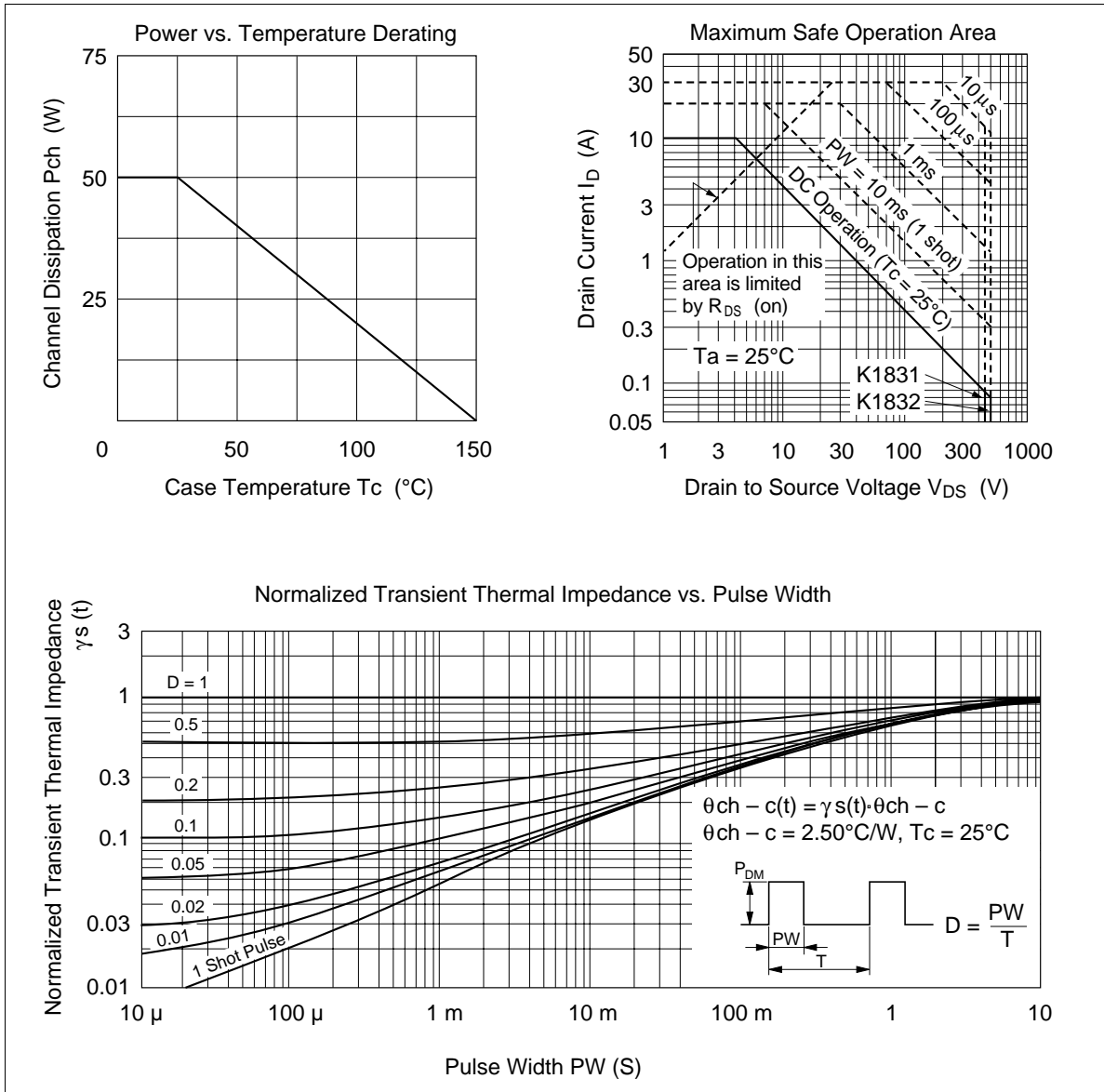
**Electrical Characteristics (Ta = 25°C)**

Item		Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	K1831 K1832	$V_{(BR)DSS}$	450 500	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage		$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to source leak current		$I_{GSS}$	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	K1831 K1832	$I_{DSS}$	—	—	250	μA	$V_{DS} = 360 \text{ V}, V_{GS} = 0$ $V_{DS} = 400 \text{ V}, V_{GS} = 0$
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	K1831 K1832	$R_{DS(on)}$	—	0.6 0.7	0.8 0.9	Ω	$I_D = 5 \text{ A}$ $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance		$ y_{fs} $	4.0	7.0	—	S	$I_D = 5 \text{ A}$ $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance		$C_{iss}$	—	1050	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance		$C_{oss}$	—	280	—	pF	$V_{GS} = 0$
Reverse transfer capacitance		$C_{rss}$	—	40	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time		$t_{d(on)}$	—	15	—	ns	$I_D = 5 \text{ A}$
Rise time		$t_r$	—	60	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time		$t_{d(off)}$	—	90	—	ns	$R_L = 6 \Omega$
Fall time		$t_f$	—	45	—	ns	
Body to drain diode forward voltage		$V_{DF}$	—	1.0	—	V	$I_F = 10 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time		$t_{rr}$	—	350	—	ns	$I_F = 10 \text{ A}, V_{GS} = 0,$ $di_F / dt = 100 \text{ A} / \mu\text{s}$

Notes 1. Pulse Test

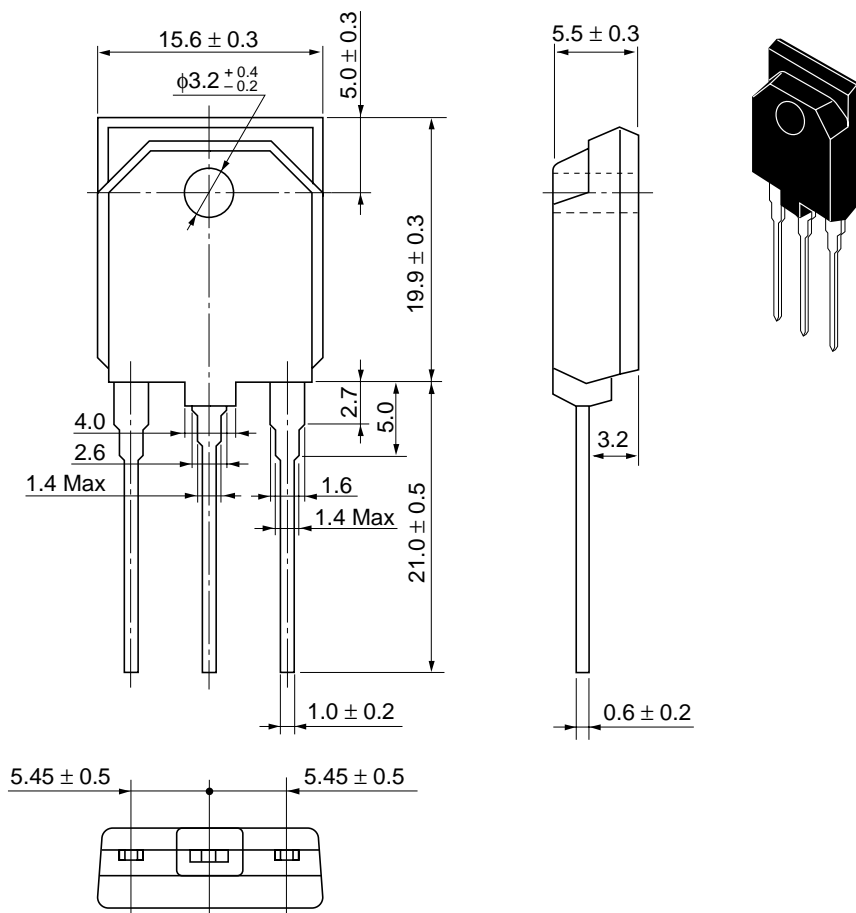
See characteristic curves of 2SK1157, 2SK1158

**2SK1831, 2SK1832**



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Unit: mm



Hitachi Code	TO-3PFM
JEDEC	—
EIAJ	—
Weight (reference value)	5.6 g

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