

# 2SK2116, 2SK2117

Silicon N-Channel MOS FET

# HITACHI

ADE-208-1347 (Z)  
1st. Edition  
Mar. 2001

## Application

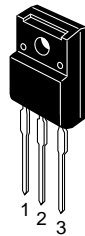
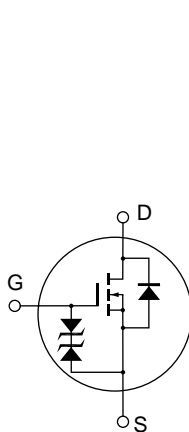
High speed power switching

## Features

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

## Outline

TO-220CFM



1. Gate
2. Drain
3. Source

# 2SK2116, 2SK2117

## Ordering Information

Type No.	$V_{DSS}$
2SK2116	450 V
2SK2117	500 V

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

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK2116	$V_{DSS}$	450	V
	2SK2117	$V_{DSS}$	500	
Gate to source voltage		$V_{GSS}$	±30	V
Drain current		$I_D$	7	A
Drain peak current		$I_{D(pulse)}^{*1}$	28	A
Body to drain diode reverse drain current		$I_{DR}$	7	A
Channel dissipation		$Pch^{*2}$	35	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

Notes 1. PW 10 μs, duty cycle 1 %

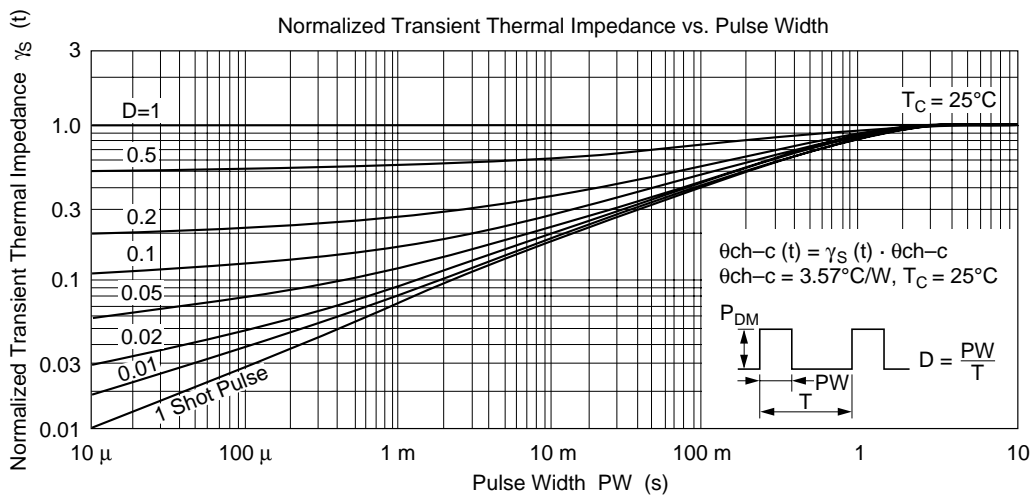
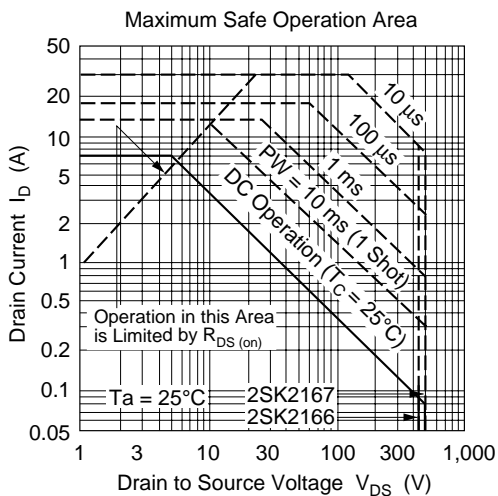
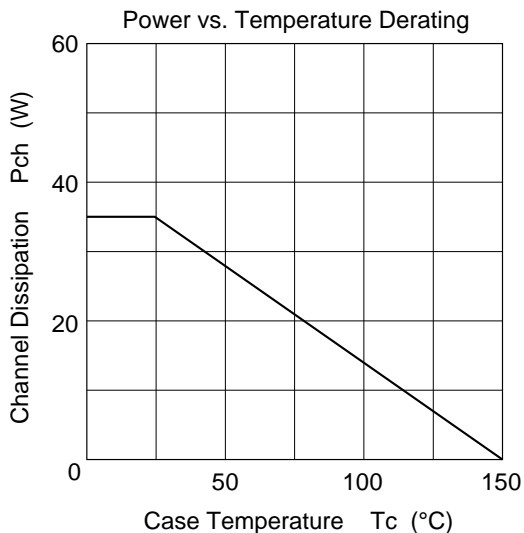
2. Value at Tc = 25 °C

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

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK2116 2SK2117 $V_{(BR)DSS}$	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	2SK2116 2SK2117 $I_{DSS}$	—	—	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	2SK2116 2SK2117 $R_{DS(on)}$	—	0.6 0.7	0.8 0.9		$I_D = 4 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	4.0	6.5	—	S	$I_D = 4 \text{ A}$ $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	Ciss	—	1050	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	Coss	—	280	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	40	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	15	—	ns	$I_D = 4 \text{ A}$
Rise time	$t_r$	—	55	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	95	—	ns	$R_L = 7.5$
Fall time	$t_f$	—	40	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.95	—	V	$I_F = 7 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	320	—	ns	$I_F = 7 \text{ A}, V_{GS} = 0,$ $diF / dt = 100 \text{ A} / \mu\text{s}$

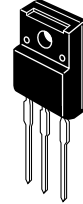
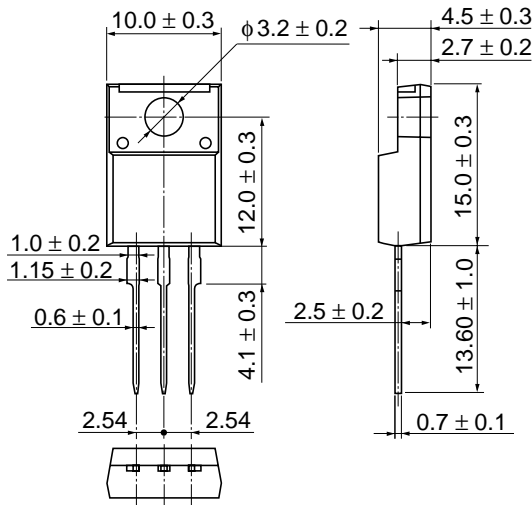
Note 1. Pulse Test

See characteristic curve of 2SK1157, 2SK1158.



Package Dimensions

As of January, 2001  
Unit: mm



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

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