
2SK2116, 2SK2117

Silicon N-Channel MOS FET

HITACHI

Application

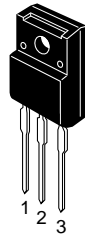
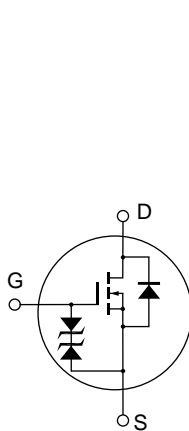
High speed power switching

Features

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

Outline

TO-220CFM



1. Gate
2. Drain
3. Source

2SK2116, 2SK2117

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		P_{ch}^{*2}	35	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

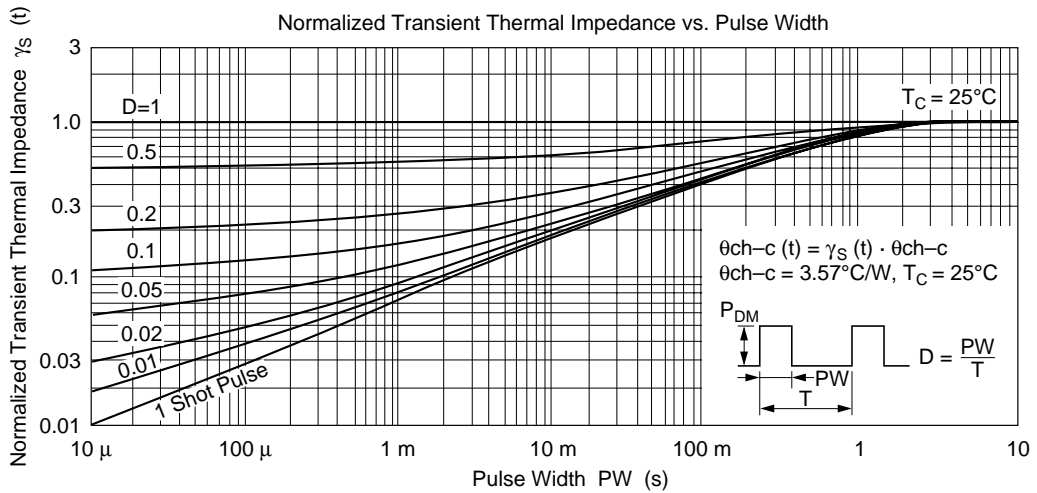
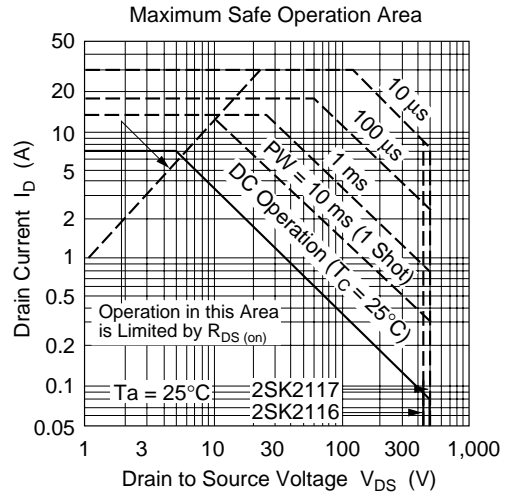
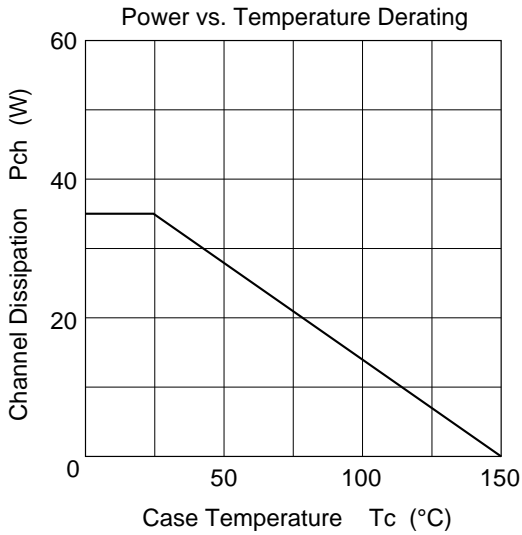
- Notes 1. $PW \leq 10 \mu s$, duty cycle $\leq 1 \%$
2. Value at $T_c = 25 \text{ }^\circ\text{C}$

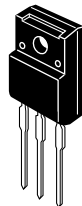
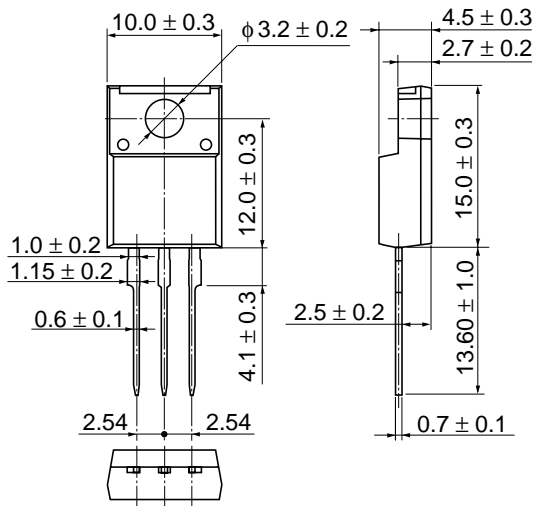
Electrical Characteristics (Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	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	$I_G = \pm 100 \text{ } \mu\text{A}, V_{DS} = 0$
Gate to source leak current		I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	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	Ω	$I_D = 4 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance		$ y_{fs} $	4.0	6.5	—	S	$I_D = 4 \text{ A}$ $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance		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	$I_D = 4 \text{ A}$
Rise time		t_r	—	55	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time		$t_{d(off)}$	—	95	—	ns	$R_L = 7.5 \text{ } \Omega$
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	$I_F = 7 \text{ A}, V_{GS} = 0,$ $di_F / dt = 100 \text{ A} / \mu\text{s}$

Note 1. Pulse Test

See characteristic curve of 2SK1157, 2SK1158.





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

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Hitachi, Ltd.

Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL North America : <http://semiconductor.hitachi.com/>
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For further information write to:

Hitachi Semiconductor
(America) Inc.
179 East Tasman Drive,
San Jose, CA 95134
Tel: <1> (408) 433-1990
Fax: <1> (408) 433-0223

Hitachi Europe GmbH
Electronic components Group
Dornacher Straße 3
D-85622 Feldkirchen, Munich
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.
Electronic Components Group.
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 049318
Tel: 535-2100
Fax: 535-1533

Hitachi Asia Ltd.
Taipei Branch Office
3F, Hung Kuo Building, No.167,
Tun-Hwa North Road, Taipei (105)
Tel: <886> (2) 2718-3666
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower, World Finance Centre,
Harbour City, Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong
Tel: <852> (2) 735 9218
Fax: <852> (2) 730 0281
Telex: 40815 HITEC HX

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