
2SK1157, 2SK1158

Silicon N-Channel MOS FET

HITACHI

ADE-208-1248 (Z)
1st. Edition
Mar. 2001

Application

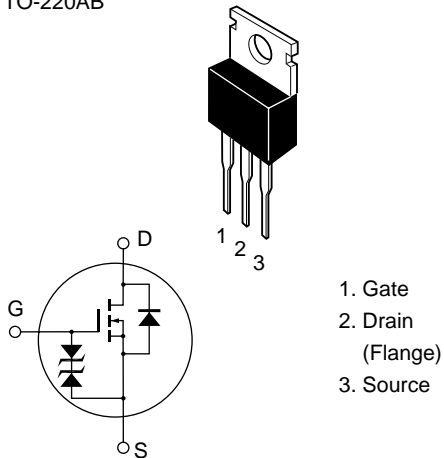
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter and motor driver

Outline

TO-220AB



2SK1157, 2SK1158

Absolute Maximum Ratings (Ta = 25°C)

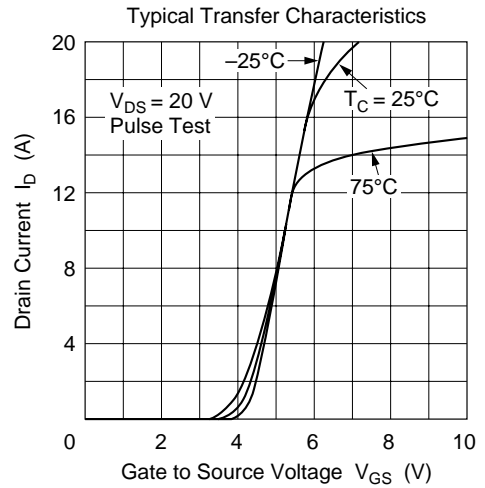
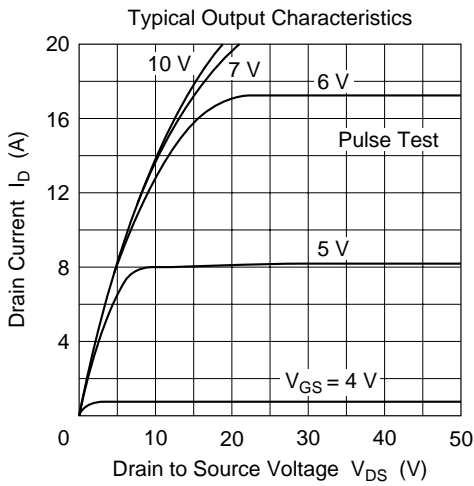
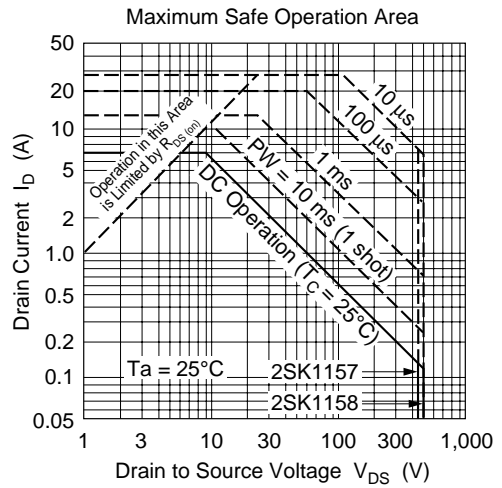
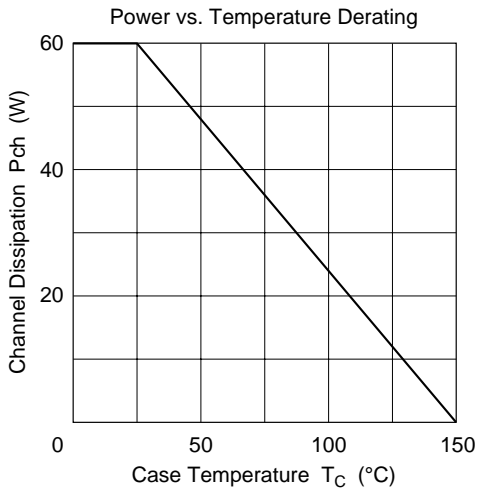
Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1157	V_{DSS}	450	V
	2SK1158		500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	7	A
Drain peak current		$I_{D(pulse)}^{*1}$	28	A
Body to drain diode reverse drain current		I_{DR}	7	A
Channel dissipation		Pch^{*2}	60	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

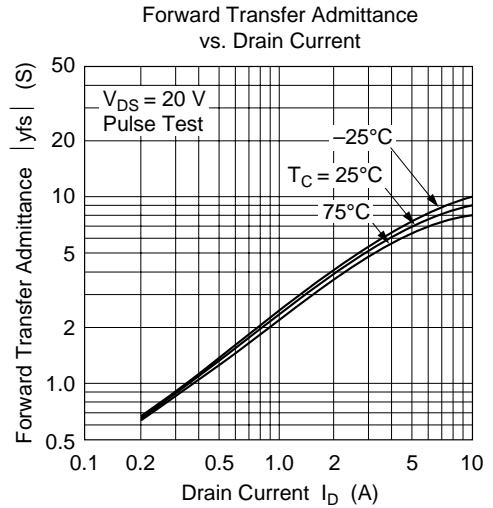
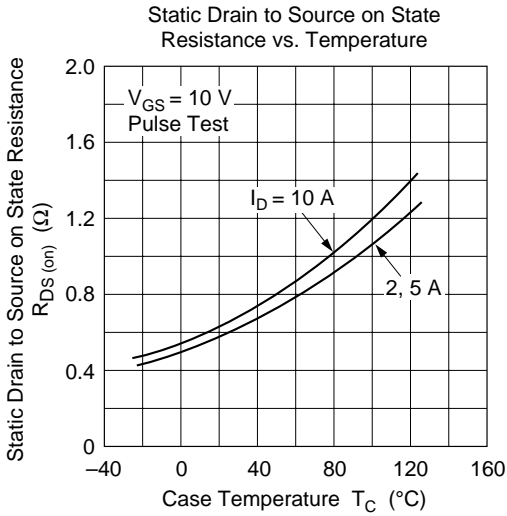
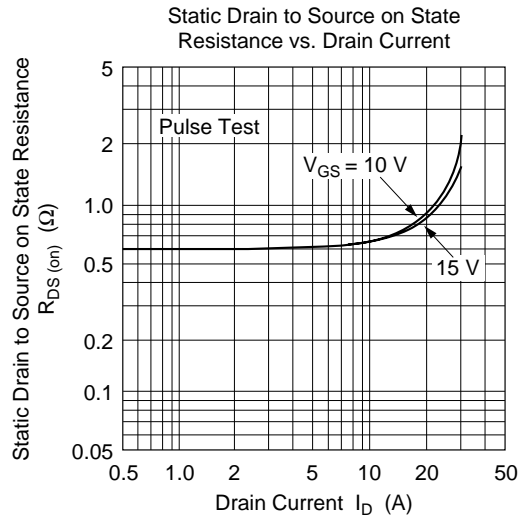
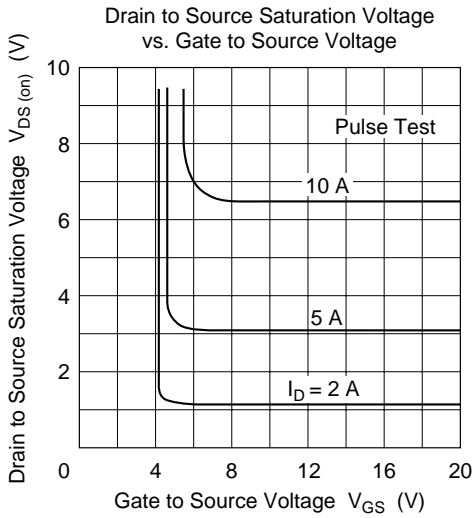
Note: 1. PW 10 μ s, duty cycle 1%
2. Value at T_c = 25°C

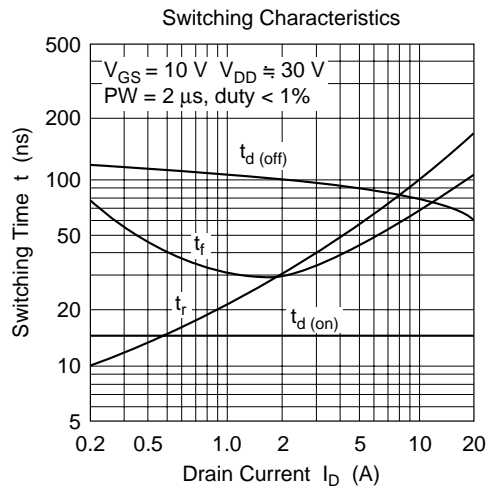
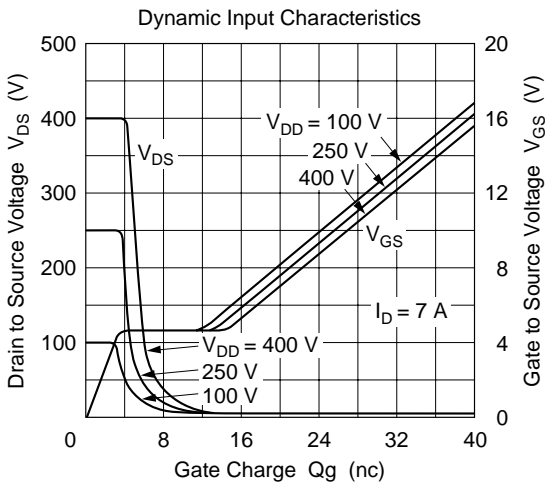
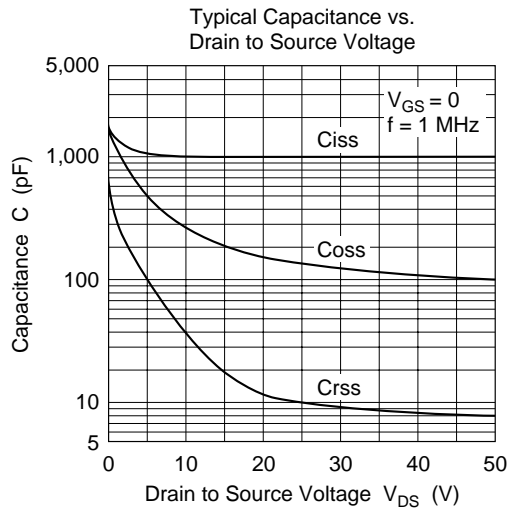
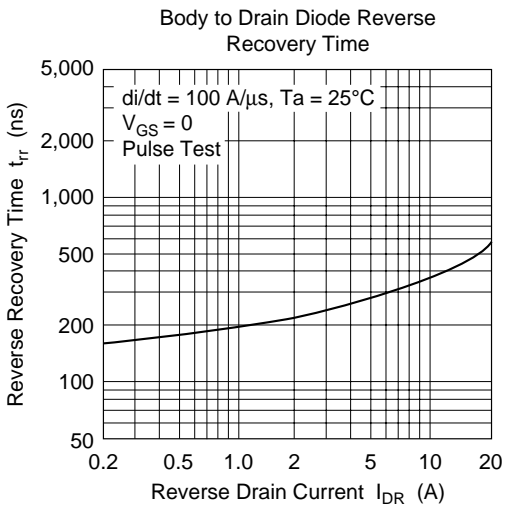
Electrical Characteristics (Ta = 25°C)

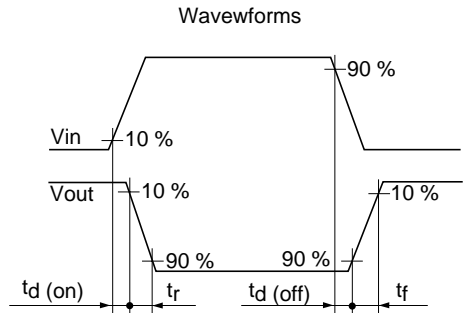
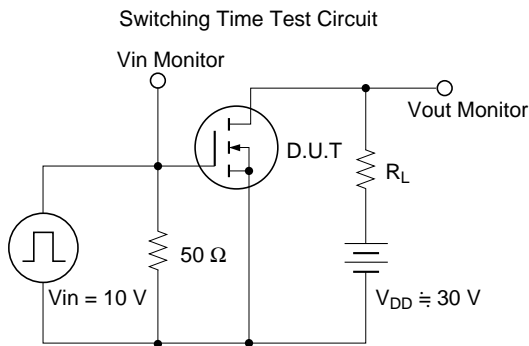
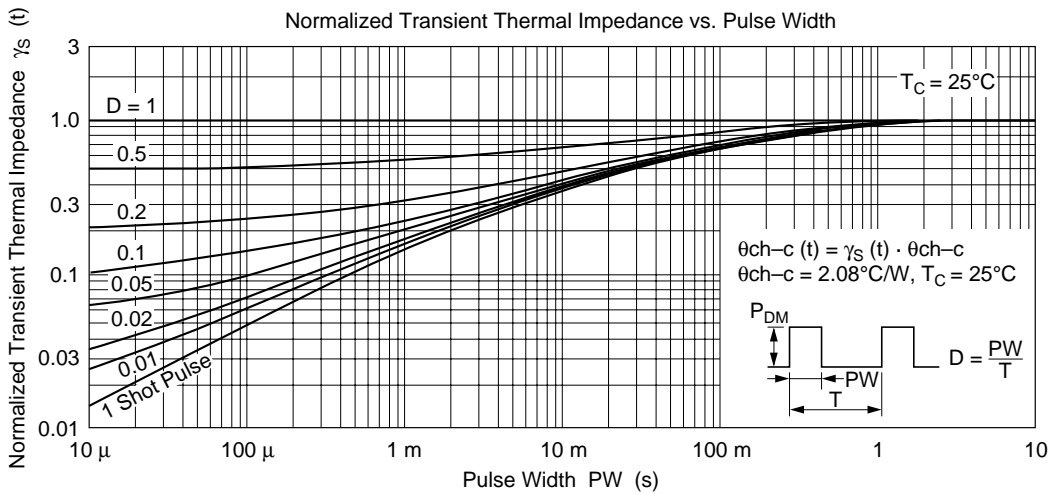
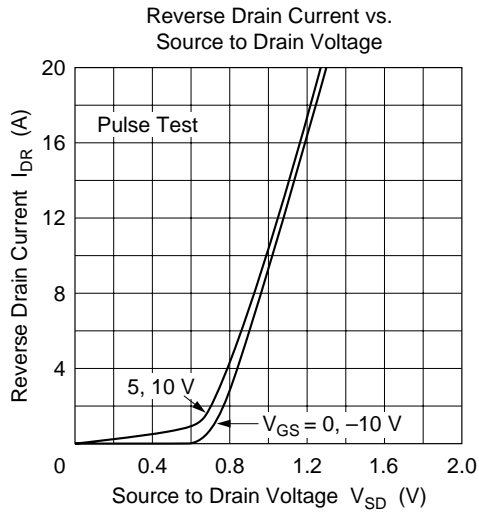
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1157 $V_{(BR)DSS}$ 2SK1158	450 500	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100 \text{ } \mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	2SK1157 I_{DSS} 2SK1158	—	—	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	2SK1157 $R_{DS(on)}$ 2SK1158	—	0.6 0.7	0.8 0.9		$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	yfs	4.0	6.5	—	S	$I_D = 4 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	Ciss	—	1050	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$,
Output capacitance	Coss	—	280	—	pF	f = 1 MHz
Reverse transfer capacitance	Crss	—	40	—	pF	
Turn-on delay time	$t_{d(on)}$	—	15	—	ns	$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}$,
Rise time	t_r	—	55	—	ns	$R_L = 7.5$
Turn-off delay time	$t_{d(off)}$	—	95	—	ns	
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









2SK1157, 2SK1158

Package Dimensions

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HITACHI

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	NorthAmerica	: http://semiconductor.hitachi.com/
	Europe	: http://www.hitachi-eu.com/hel/ecg
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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) 585160

Hitachi Asia Ltd.
Hitachi Tower
16 Collyer Quay #20-00,
Singapore 049318
Tel : <65>-538-6533/538-8577
Fax : <65>-538-6933/538-3877
URL : <http://www.hitachi.com.sg>

Hitachi Asia Ltd.
(Taipei Branch Office)
4/F, No. 167, Tun Hwa North Road,
Hung-Kuo Building,
Taipei (105), Taiwan
Tel : <886>-(2)-2718-3666
Fax : <886>-(2)-2718-8180
Telex : 23222 HAS-TP
URL : <http://www.hitachi.com.tw>

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
URL : <http://www.hitachi.com.hk>

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