
HAT2040R

Silicon N Channel Power MOS FET
Power Switching

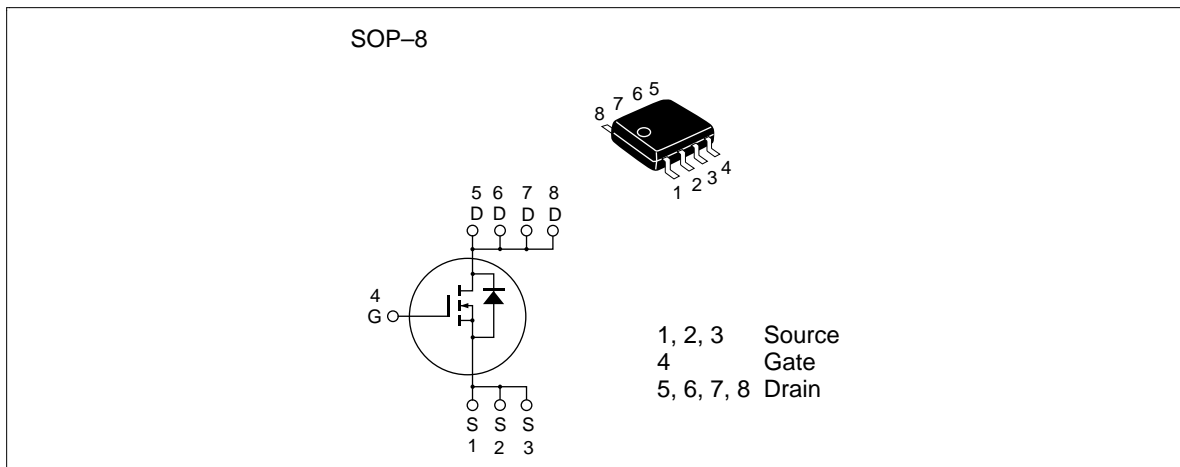
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ADE-208-565 A (Z)
Target specification 2nd. Edition
Sept. 1, 1997

Features

- Low on-resistance
 $R_{DS(on)} = 6.2 \text{ m}\Omega$ typ
- Capable of 4 V gate drive
- Low drive current
- High density mounting

Outline



HAT2040R

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	30	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	15	A
Drain peak current	I _{D(pulse)} *1	120	A
Body to drain diode reverse drain current	I _{DR}	15	A
Channel dissipation	Pch*2	2.5	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10μs, duty cycle ≤ 1 %

2. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW ≤ 10s

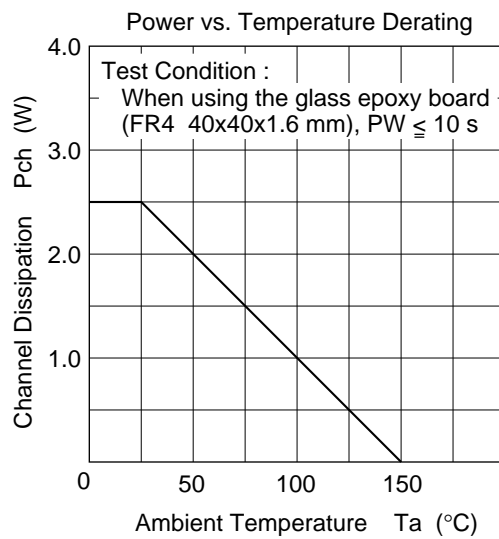
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 10mA, V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 20V, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 30V, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.5	V	$V_{DS} = 10V, I_D = 1mA$
Static drain to source on state resistance	$R_{DS(on)}$	—	6.2	8.0	$m\Omega$	$I_D = 8A, V_{GS} = 10V^{*1}$
	$R_{DS(on)}$	—	9.0	13.0	$m\Omega$	$I_D = 8A, V_{GS} = 4V^{*1}$
Forward transfer admittance	$ y_{fs} $	18	30	—	S	$I_D = 8A, V_{DS} = 10V^{*1}$
Input capacitance	C_{iss}	—	4400	—	pF	$V_{DS} = 10V$
Output capacitance	C_{oss}	—	1100	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	500	—	pF	$f = 1MHz$
Total gate charge	Q_g	—	90	—	nc	$V_{DD} = 10V$
Gate to source charge	Q_{gs}	—	15	—	nc	$V_{GS} = 10V$
Gate to drain charge	Q_{gd}	—	18	—	nc	$I_D = 15A$
Turn-on delay time	$t_{d(on)}$	—	110	—	ns	$V_{GS} = 4V, I_D = 8A$
Rise time	t_r	—	410	—	ns	$V_{DD} \cong 10V$
Turn-off delay time	$t_{d(off)}$	—	200	—	ns	
Fall time	t_f	—	230	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.9	—	V	$I_F = 15A, V_{GS} = 0^{*1}$
Body to drain diode reverse recovery time	t_{rr}	—	55	—	ns	$I_F = 15A, V_{GS} = 0$ $diF/dt = 20A/\mu s$

Note: 1. Pulse test

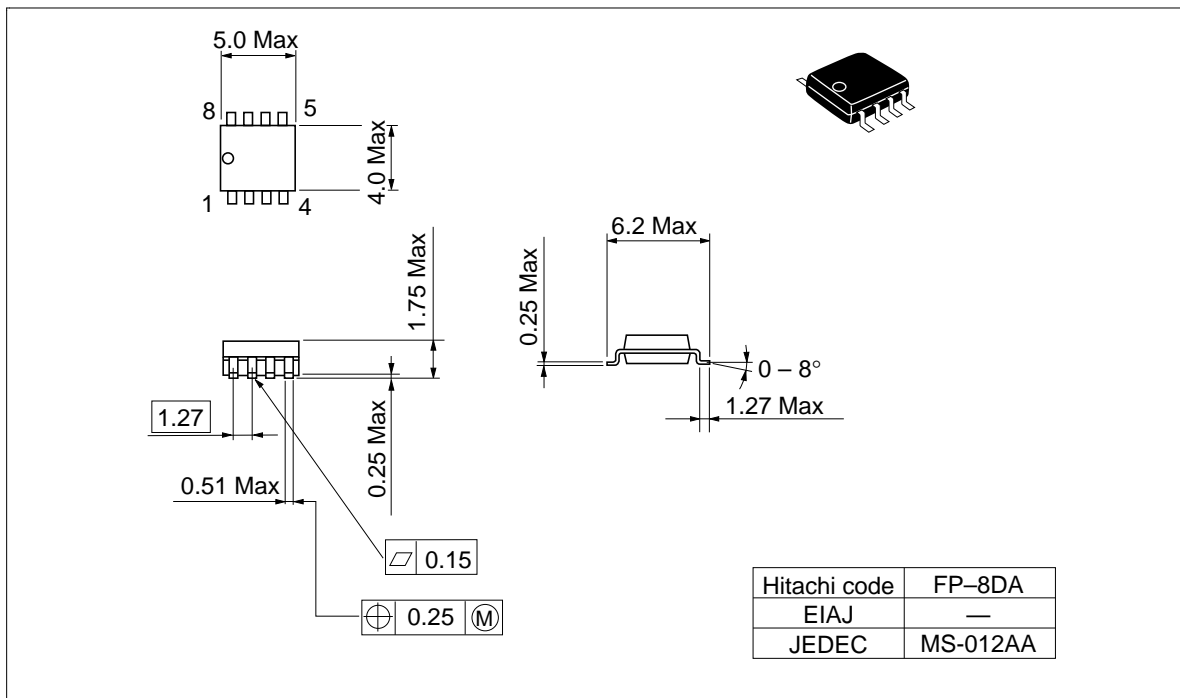
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Main Characteristics



Package Dimensions

Unit: mm



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HITACHI

Hitachi, Ltd.

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

For further information write to:

Hitachi America, Ltd.
Semiconductor & IC Div.
2000 Sierra Point Parkway
Brisbane, CA. 94005-1835
U S A
Tel: 415-589-8300
Fax: 415-583-4207

Hitachi Europe GmbH
Electronic Components Group
Continental Europe
Dornacher Straße 3
D-85622 Feldkirchen
München
Tel: 089-9 91 80-0
Fax: 089-9 29 30 00

Hitachi Europe Ltd.
Electronic Components Div.
Northern Europe Headquarters
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA
United Kingdom
Tel: 0628-585000
Fax: 0628-778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 0104
Tel: 535-2100
Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd.
Unit 706, North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon
Hong Kong
Tel: 27359218
Fax: 27306071