

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
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2SK1165, 2SK1166

Silicon N-Channel MOS FET

HITACHI

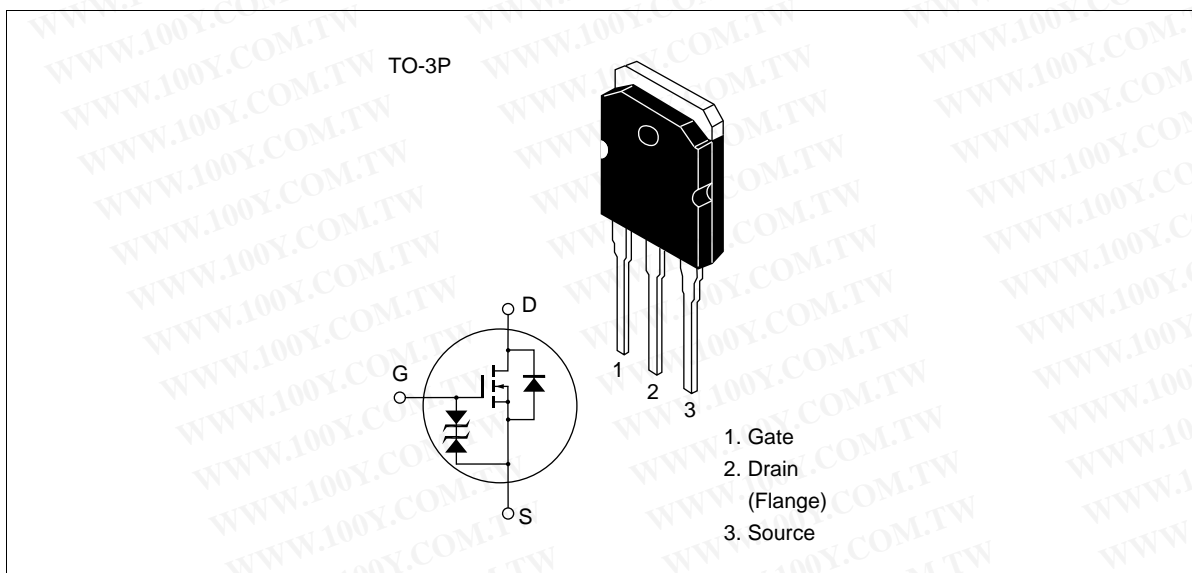
Application

High speed power switching

Features

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

Outline



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Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1165	V_{DSS}	450	V
	2SK1166		500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	12	A
Drain peak current		$I_{D(pulse)}^{*1}$	48	A
Body to drain diode reverse drain current		I_{DR}	12	A
Channel dissipation		Pch*2	100	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 $T_c = 25^\circ C$

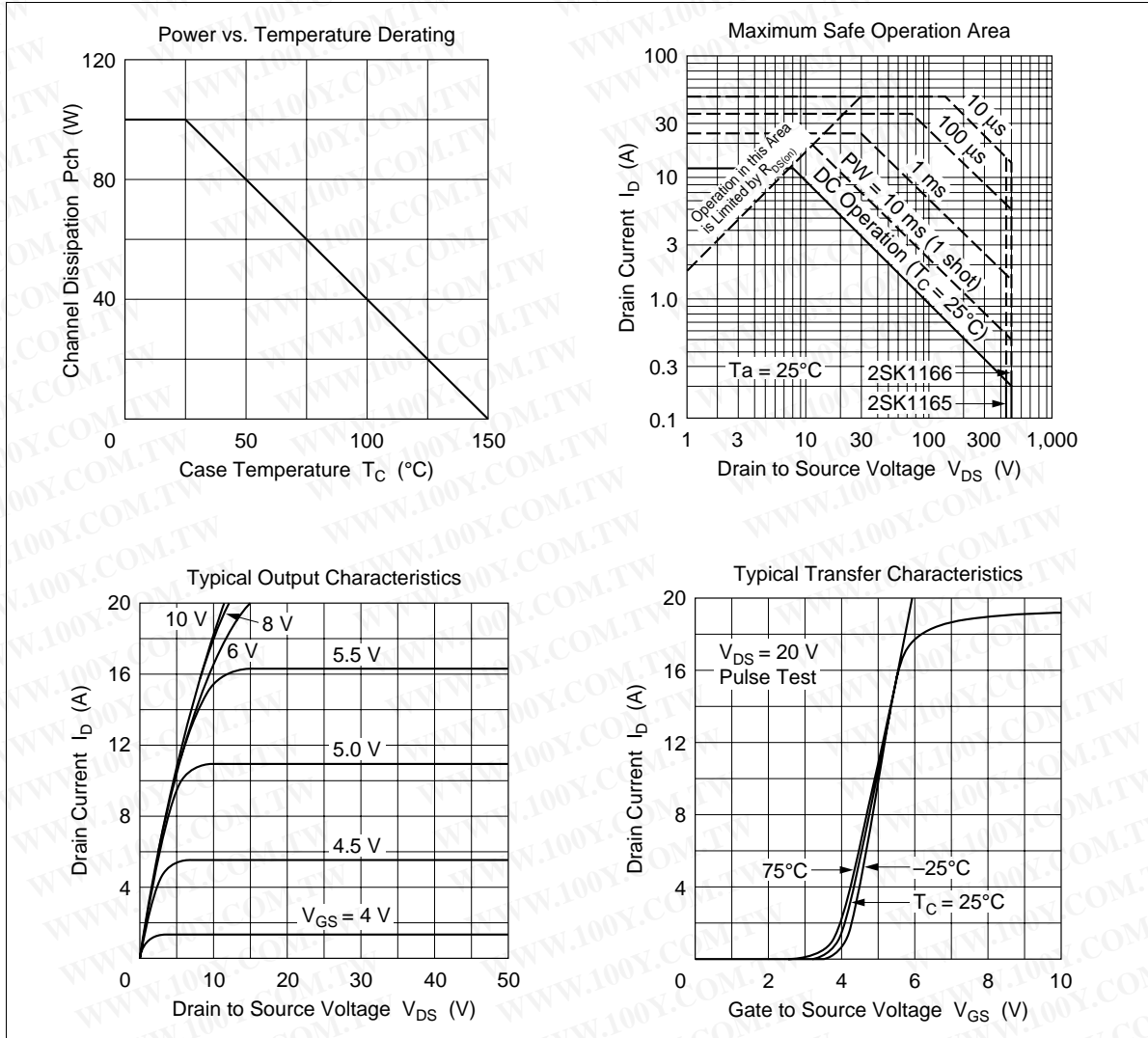
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Electrical Characteristics (T_a = 25°C)

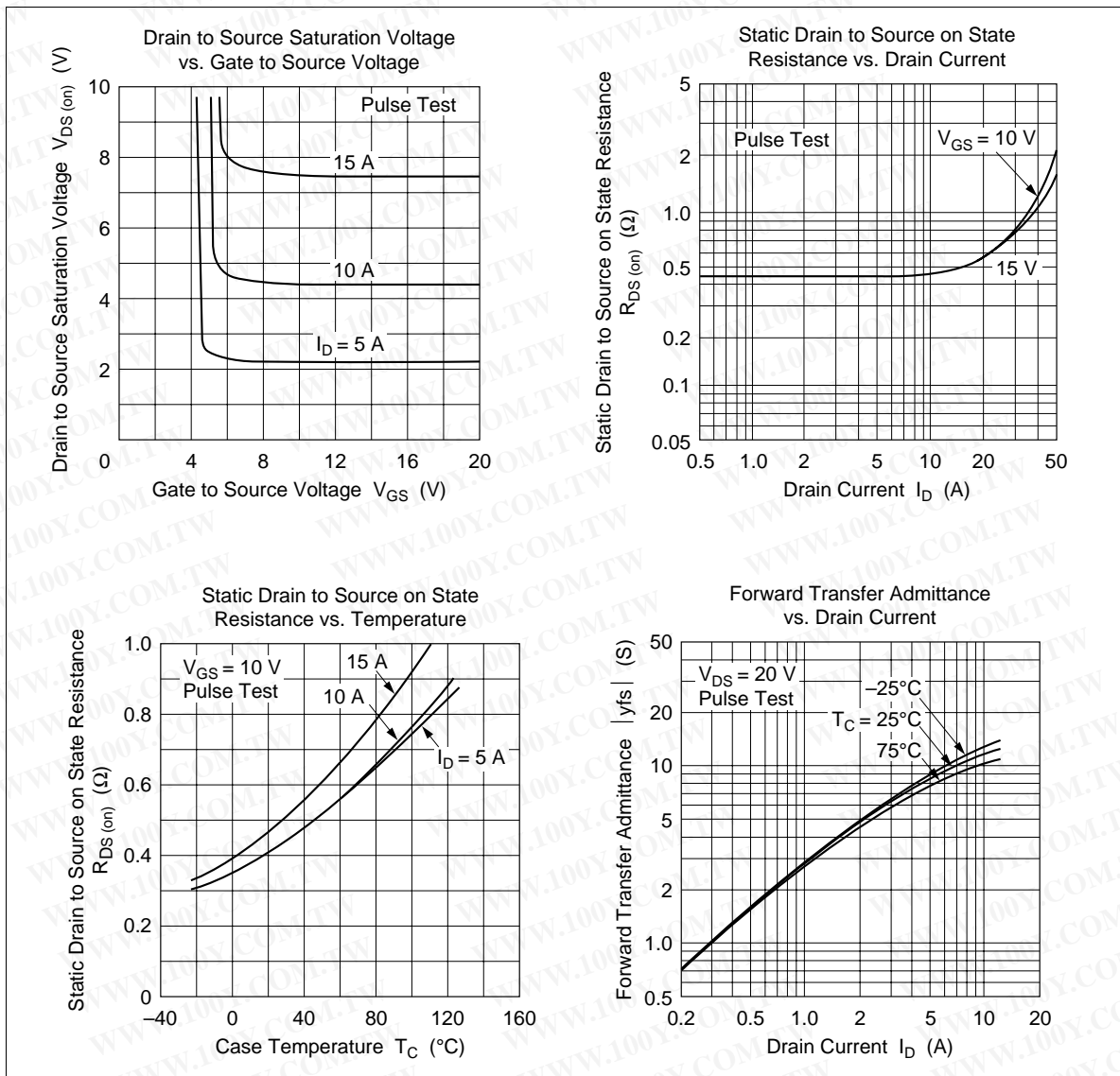
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1165 V _{(BR)DSS}	450	—	—	V	I _D = 10 mA, V _{GS} = 0
	2SK1166	500				
Gate to source breakdown voltage	V _{(BR)GSS}	±30	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±25 V, V _{DS} = 0
Zero gate voltage drain current	2SK1165 I _{DSS}	—	—	250	μA	V _{DS} = 360 V, V _{GS} = 0
	2SK1166					V _{DS} = 400 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	2.0	—	3.0	V	I _D = 1 mA, V _{DS} = 10 V
Static Drain to source on state resistance	2SK1165 R _{DS(on)}	—	0.40	0.55	Ω	I _D = 6 A, V _{GS} = 10 V *1
	2SK1166	—	0.45	0.60		
Forward transfer admittance	y _{fs}	6.0	10	—	S	I _D = 6 A, V _{DS} = 10 V *1
Input capacitance	C _{iss}	—	1450	—	pF	V _{DS} = 10 V, V _{GS} = 0,
Output capacitance	C _{oss}	—	410	—	pF	f = 1 MHz
Reverse transfer capacitance	C _{rss}	—	55	—	pF	
Turn-on delay time	t _{d(on)}	—	20	—	ns	I _D = 6 A, V _{GS} = 10 V,
Rise time	t _r	—	70	—	ns	R _L = 5 Ω
Turn-off delay time	t _{d(off)}	—	120	—	ns	
Fall time	t _f	—	60	—	ns	
Body to drain diode forward voltage	V _{DF}	—	1.0	—	V	I _F = 12 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	450	—	ns	I _F = 12 A, V _{GS} = 0, di _F /dt = 100 A/μs

Note: 1. Pulse test

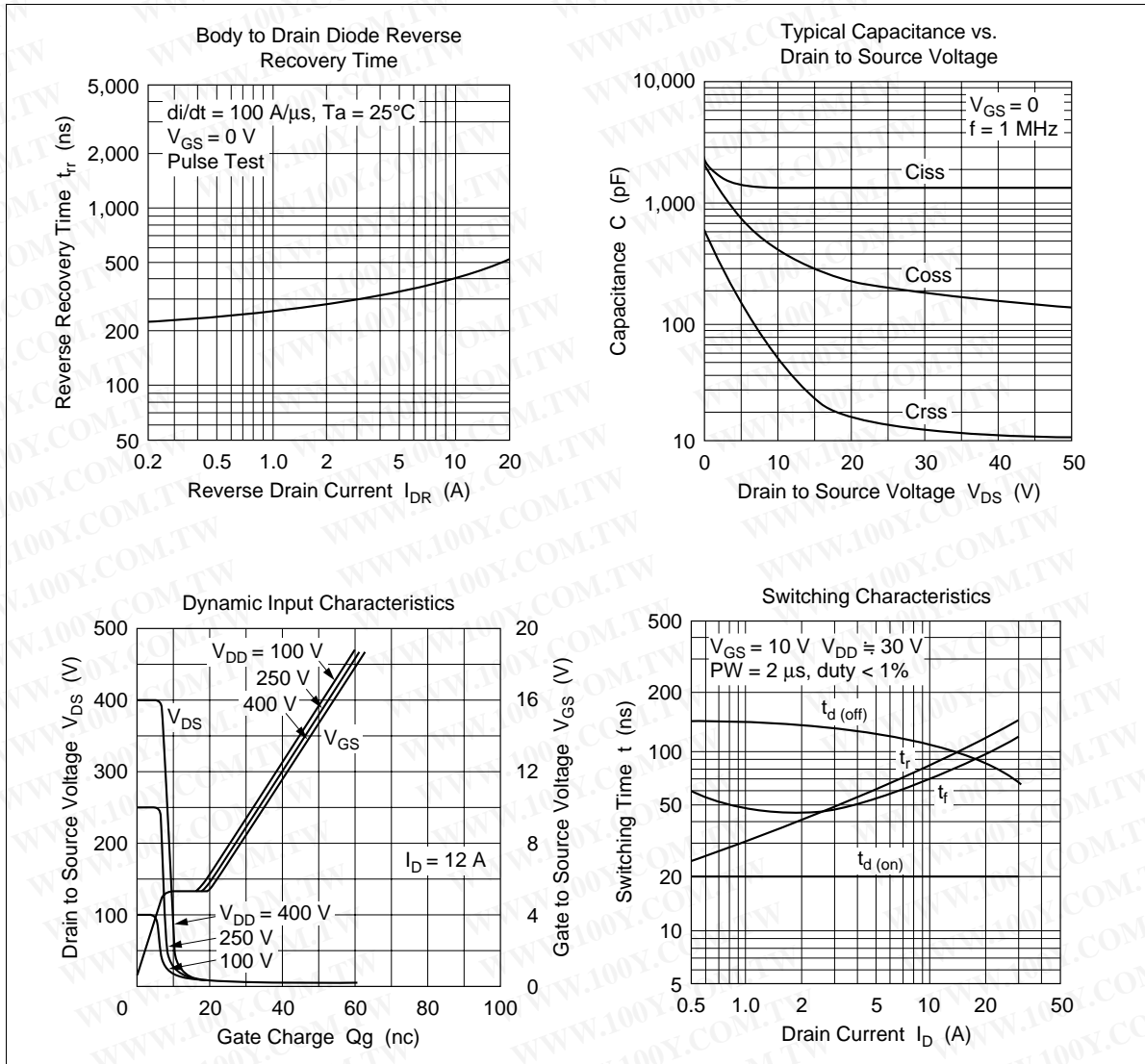
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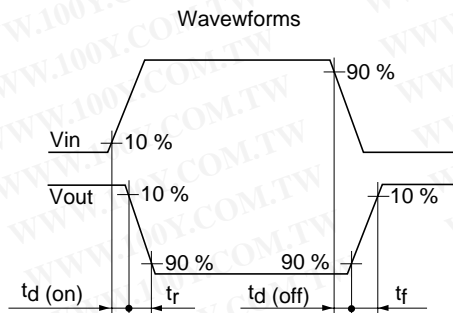
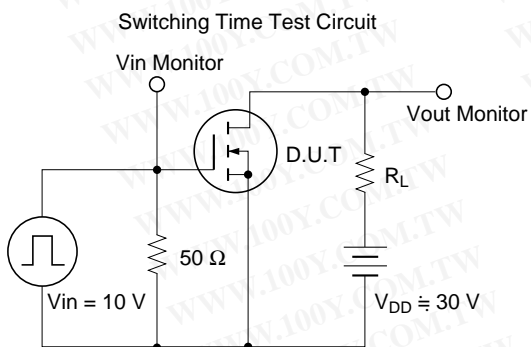
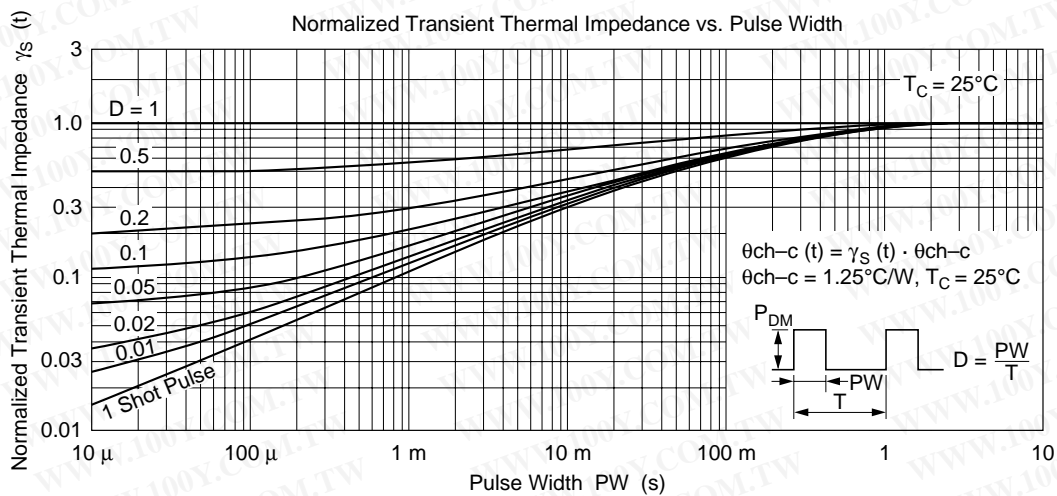
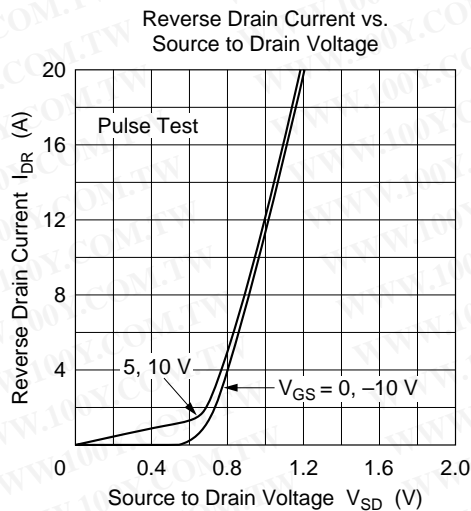


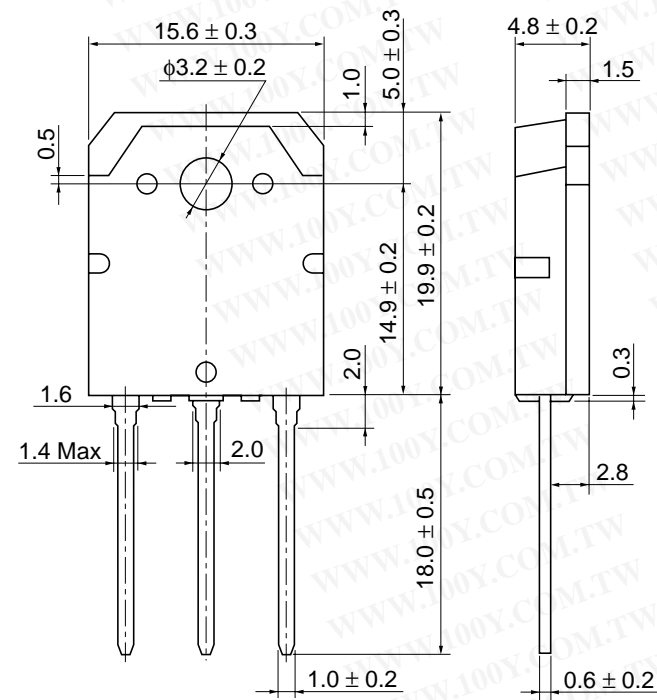
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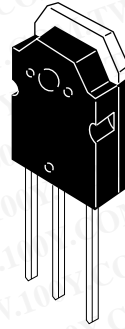
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Unit: mm



Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Weight (reference value)	5.0 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 StraÙe 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

勝特力材料 886-3-5753170
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勝特力电子(深圳) 86-755-83298787
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