
2SJ174

Silicon P-Channel MOS FET

HITACHI

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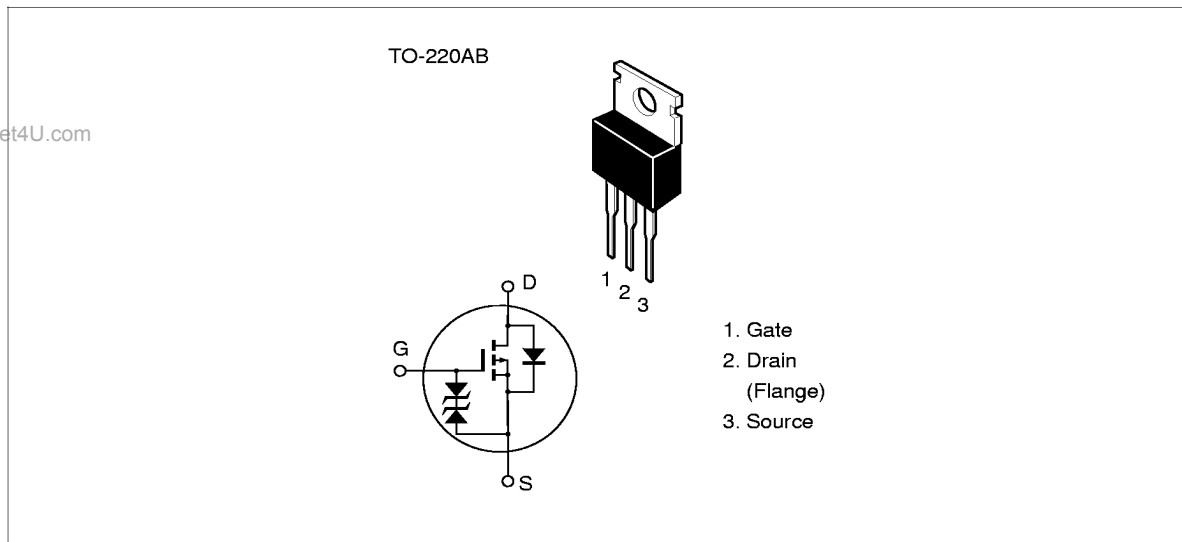
Application

High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device
 - Can be driven from 5 V source
- Suitable for motor drive, DC-DC converter, power switch and solenoid drive

Outline



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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	-60	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	-20	A
Drain peak current	I _{D(pulse)} ^{*1}	-80	A
Body to drain diode reverse drain current	I _{DR}	-20	A
Channel dissipation	Pch ^{*2}	75	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

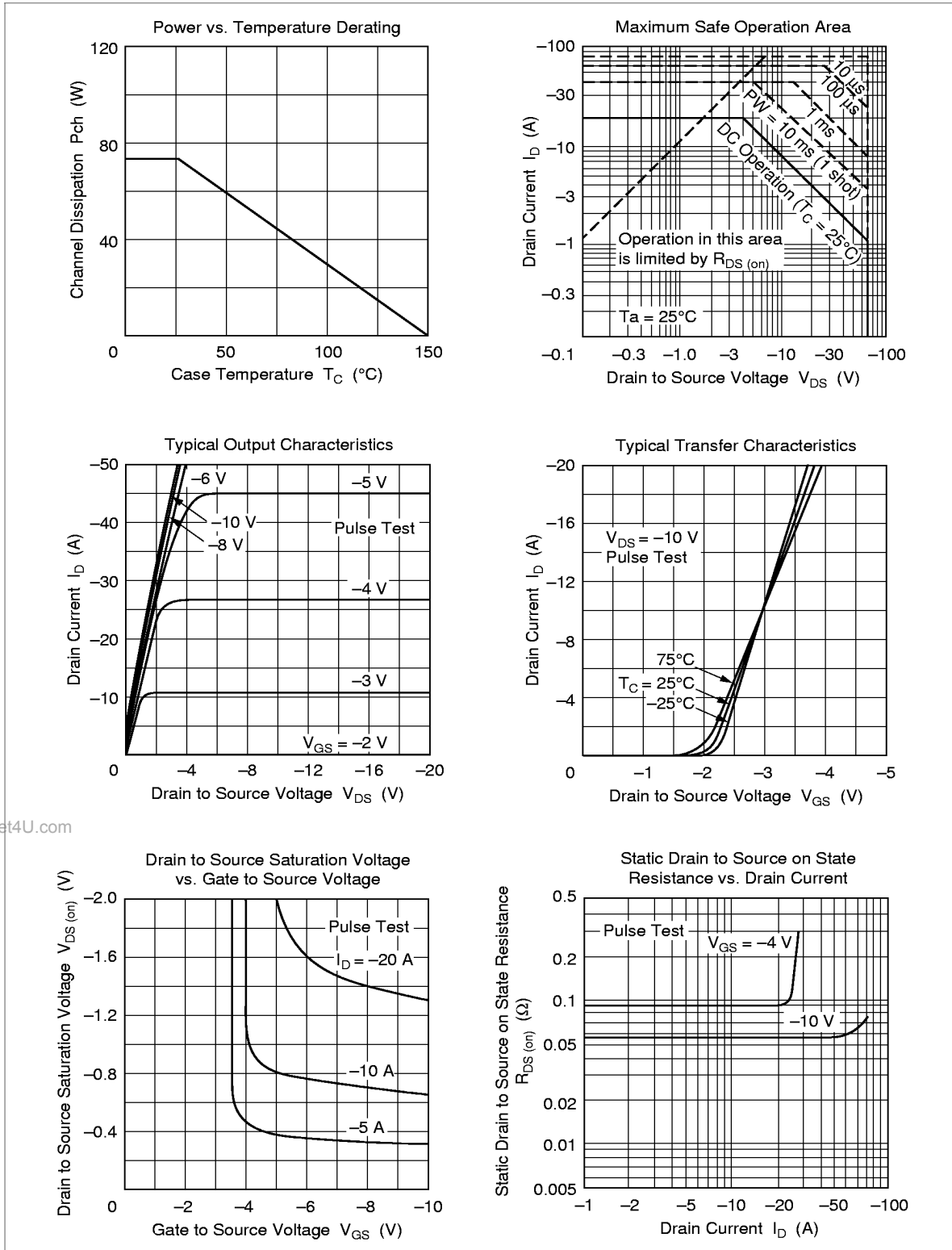
Notes 1. PW ≤ 10 μs, duty cycle ≤ 1%
2. Value at T_C = 25°C

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	V _{(BR)DSS}	-60	—	—	V	I _D = -10 mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±20	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±16 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	-250	μA	V _{DS} = -50 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	-1.0	—	-2.0	V	I _D = -1 mA, V _{DS} = -10 V
Static drain to source on state resistance	R _{DS(on)}	—	0.065	0.085	Ω	I _D = -10 A, V _{GS} = -10 V ^{*1}
		—	0.09	0.13		I _D = -10 A, V _{GS} = -4 V ^{*1}
Forward transfer admittance	y _{fs}	8	13	—	S	I _D = -10 A, V _{DS} = -10 V ^{*1}
Input capacitance	Ciss	—	1850	—	pF	V _{DS} = -10 V, V _{GS} = 0,
Output capacitance	Coss	—	990	—	pF	f = 1 MHz
Reverse transfer capacitance	Crss	—	265	—	pF	
Turn-on delay time	t _{d(on)}	—	15	—	ns	I _D = -10 A, V _{GS} = -10 V,
Rise time	t _r	—	125	—	ns	R _L = 3 Ω
Turn-off delay time	t _{d(off)}	—	345	—	ns	
Fall time	t _f	—	235	—	ns	
Body to drain diode forward voltage	V _{DF}	—	-1.2	—	V	I _F = -20 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	230	—	ns	I _F = -20 A, V _{GS} = 0, di _F /dt = 50 A/μs

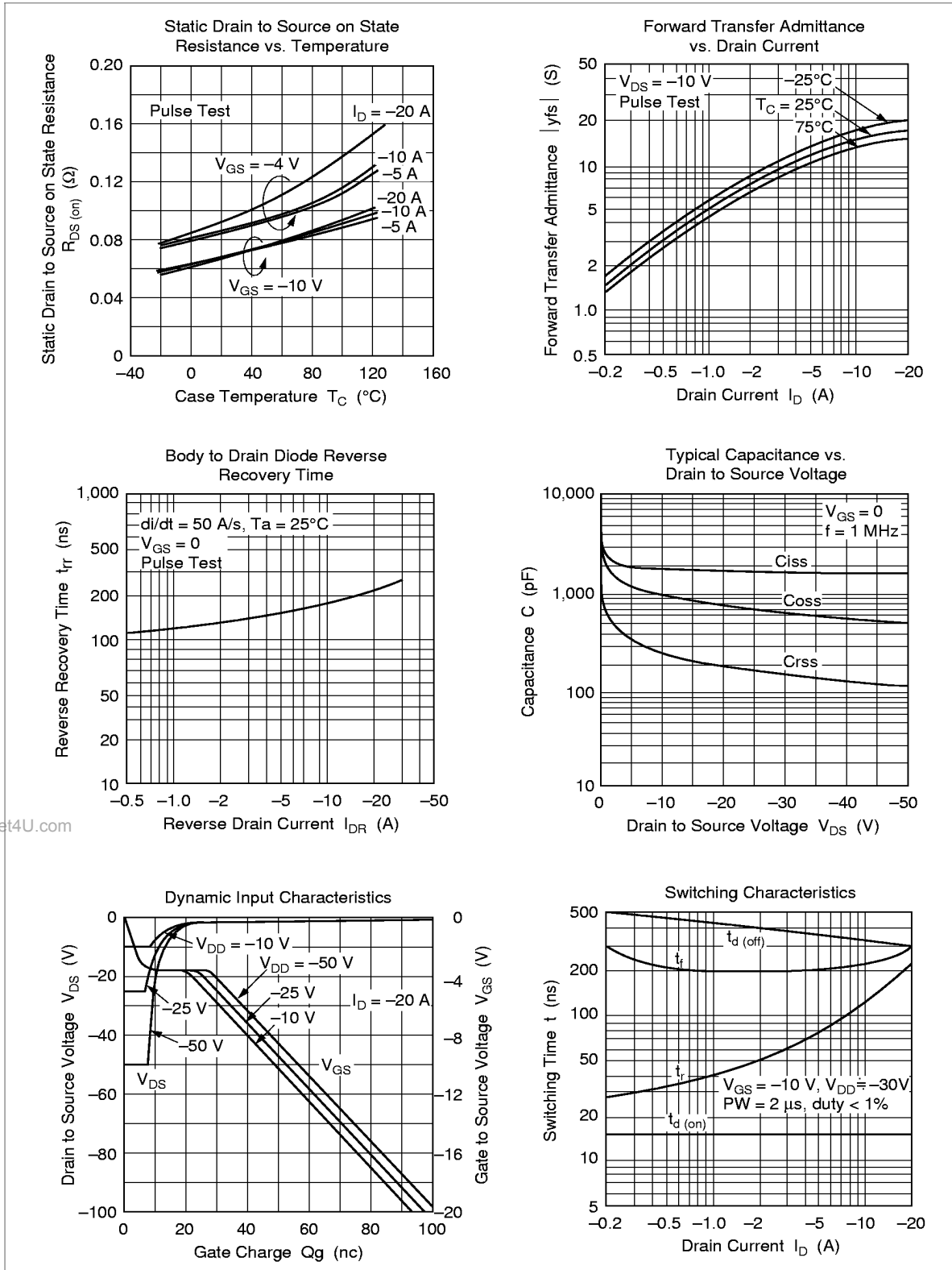
Note 1. Pulse test

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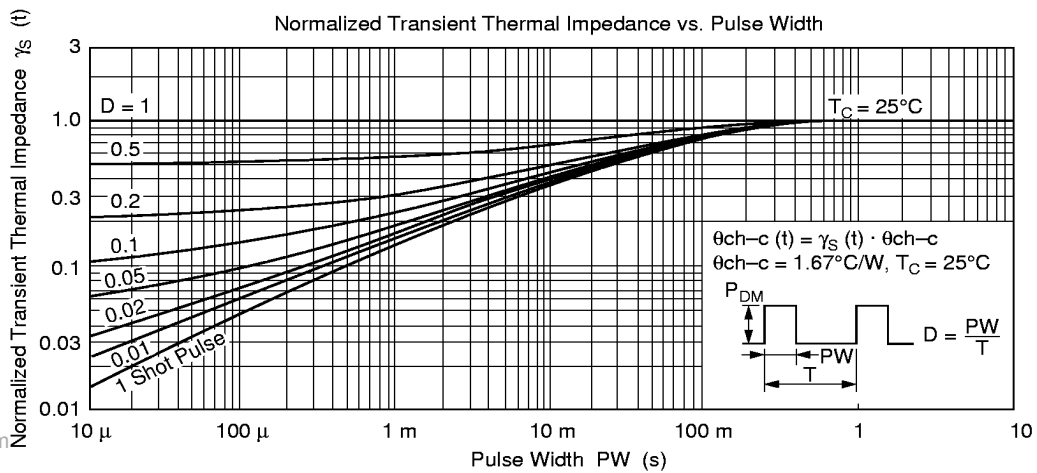
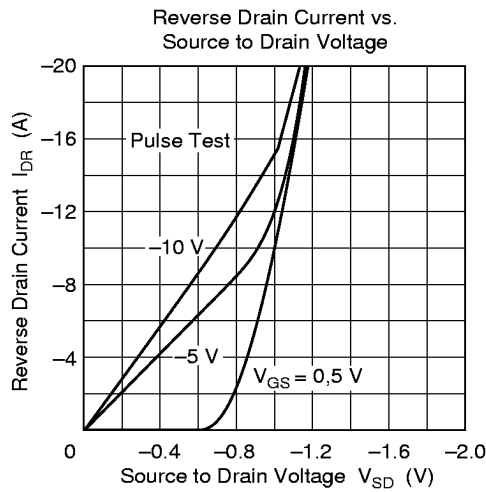
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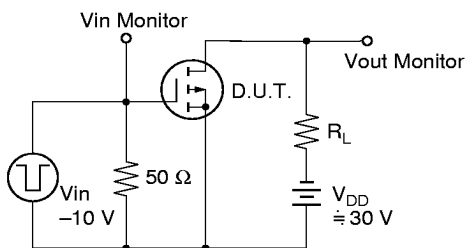


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Switching Time Test Circuit



Waveforms

