2SJ517

Silicon P Channel MOS FET
High Speed Power Switching

HITACHI

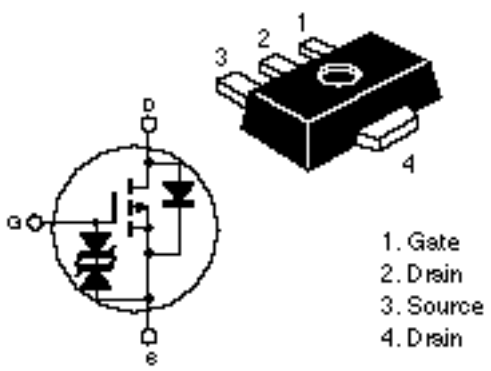
ADE-208-575B (Z)
3rd. Edition
Jun 1998

Features

- Low on-resistance
  $R_{DS(on)}$ = 0.18 Ω typ. (at V_{GS} =–4V, I_D =–1A)
- Low drive current
- High speed switching
- 2.5V gate drive devices.

Outline

UPAK



1. Gate
2. Drain
3. Source
4. Drain

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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	–20	V
Gate to source voltage	V_{GSS}	±10	V
Drain current	I_D	–2	A
Drain peak current	$I_{D(pulse)}$ Note1	–4	A
Body-drain diode reverse drain current	I_{DR}	–2	A
Channel dissipation	Pch Note2	1	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

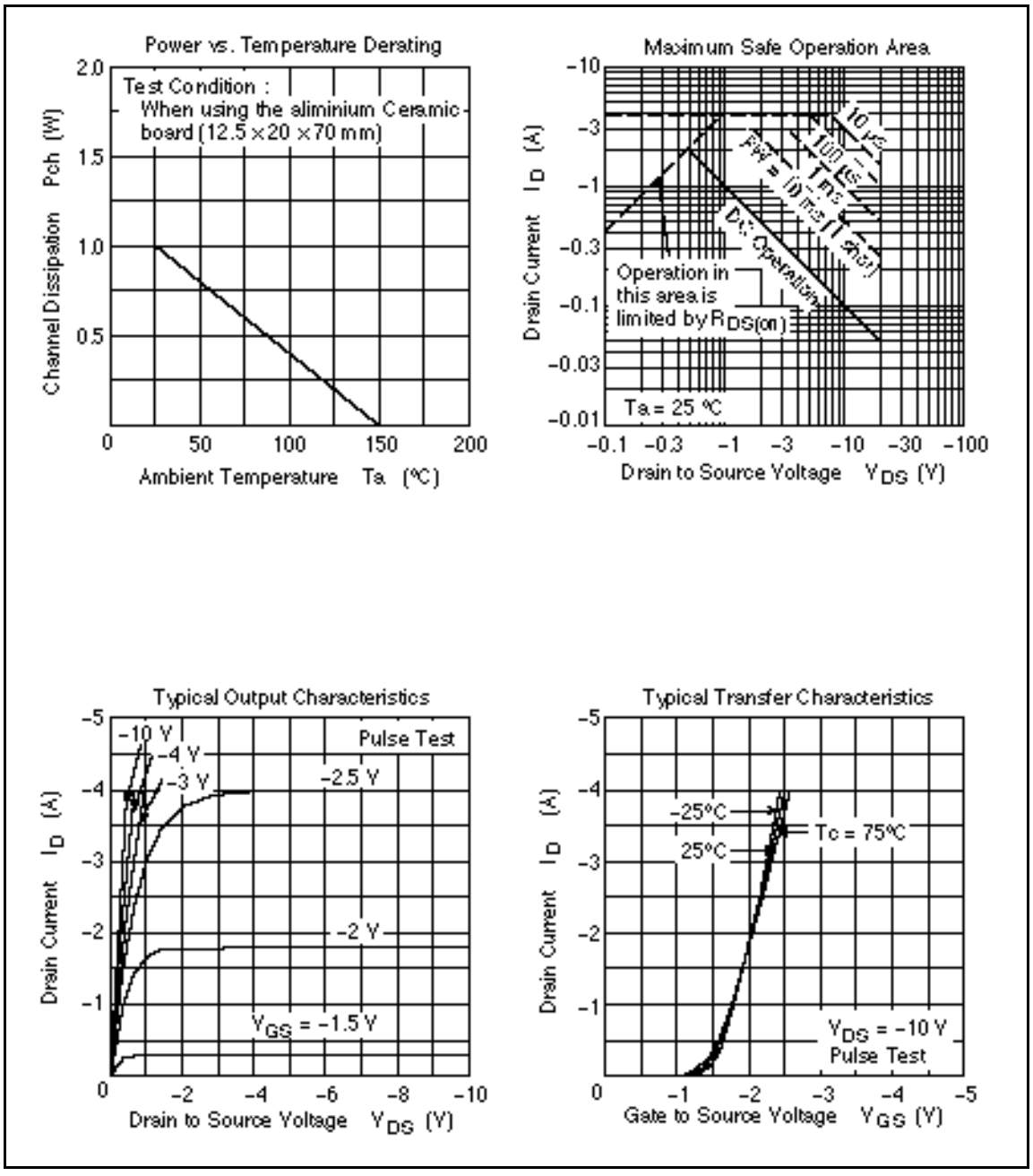
Note: 1. PW ≤ 100µs, duty cycle ≤ 10 %
2. When using aluminium ceramic board (12.5 x 20 x 0.7 mm)

Electrical Characteristics (Ta = 25°C)

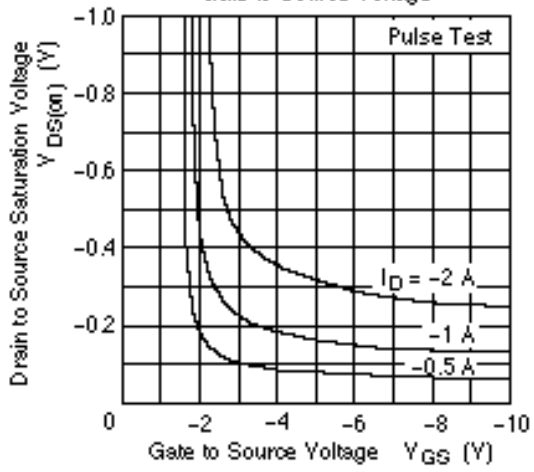
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	–20	—	—	V	I_D = –10mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±10	—	—	V	I_G = ±100µA, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	–10	µA	V_{DS} = –20 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±8V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	–0.5	—	–1.5	V	I_D = –1mA, V_{DS} = –10V
Static drain to source on state resistance	$R_{DS(on)}$	—	0.18	0.24	Ω	I_D = –1A, V_{GS} = –4V Note3
Static drain to source on state resistance	$R_{DS(on)}$	—	0.27	0.43	Ω	I_D = –1A, V_{GS} = –2.5V Note3
Forward transfer admittance	$\|y_{fs}\|$	1.8	3.0	—	S	I_D = –1A, V_{DS} = –10V Note3
Input capacitance	Ciss	—	320	—	pF	V_{DS} = –10V
Output capacitance	Coss	—	190	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	90	—	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	—	14	—	ns	I_D = –1A, R_L = 10Ω
Rise time	t_r	—	75	—	ns	V_{GS} = –4V
Turn-off delay time	$t_{d(off)}$	—	90	—	ns	
Fall time	t_f	—	90	—	ns	
Body–drain diode forward voltage	V_{DF}	—	–0.95	—	V	I_F = –2A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	70	—	ns	I_F = –2A, V_{GS} = 0 diF/ dt =50A/µs

Note: 3. Pulse test
4. Marking is “YY”.

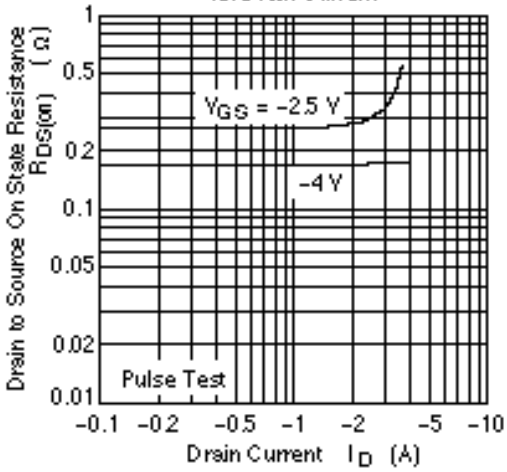
Main Characteristics



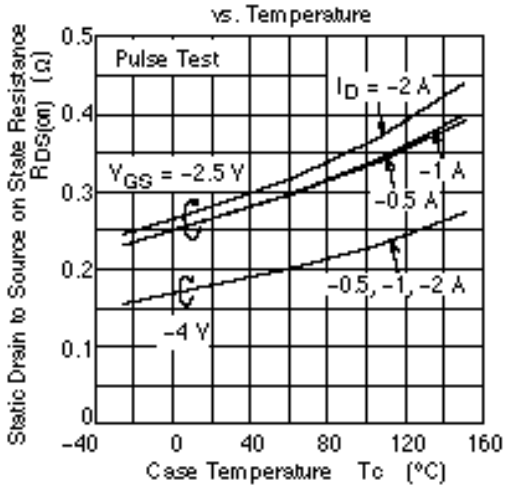
Drain to Source Saturation Voltage vs. Gate to Source Voltage



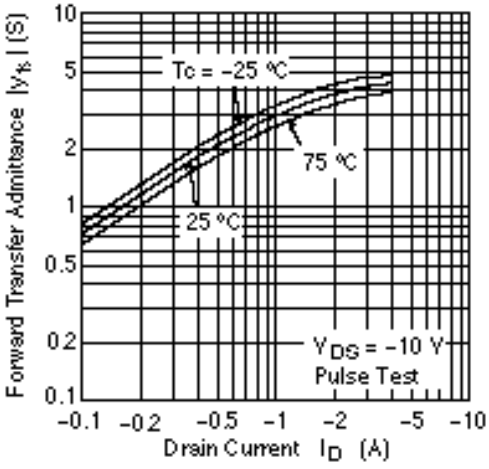
Static Drain to Source on State Resistance vs. Drain Current



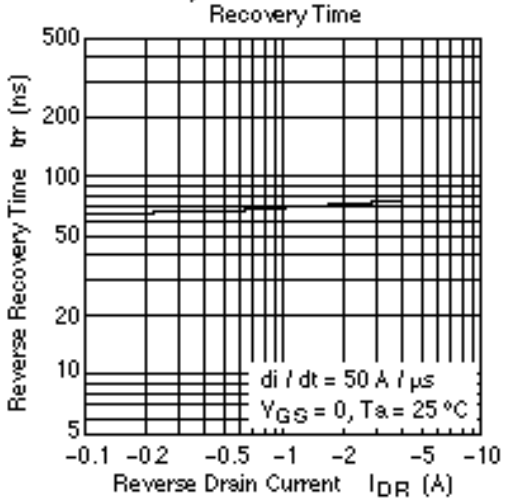
Static Drain to Source on State Resistance vs. Temperature



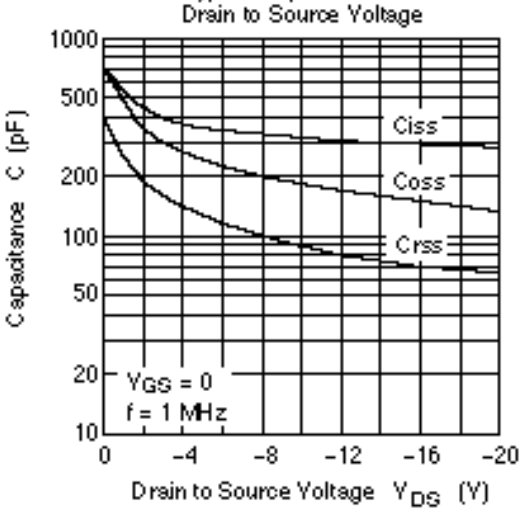
Forward Transfer Admittance vs. Drain Current



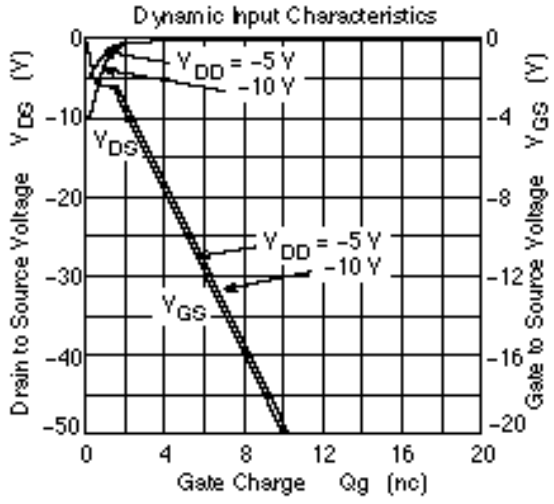
Body–Drain Diode Reverse Recovery Time



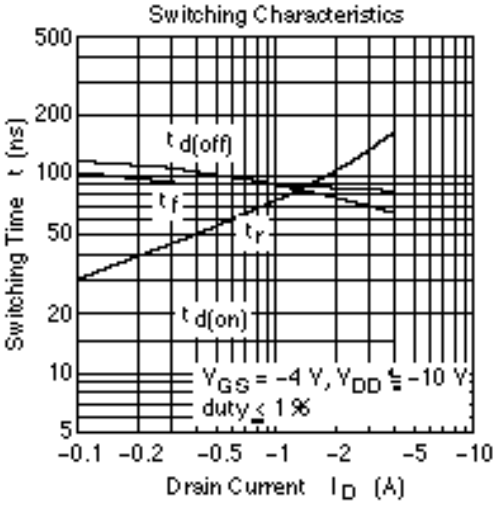
Typical Capacitance vs. Drain to Source Voltage

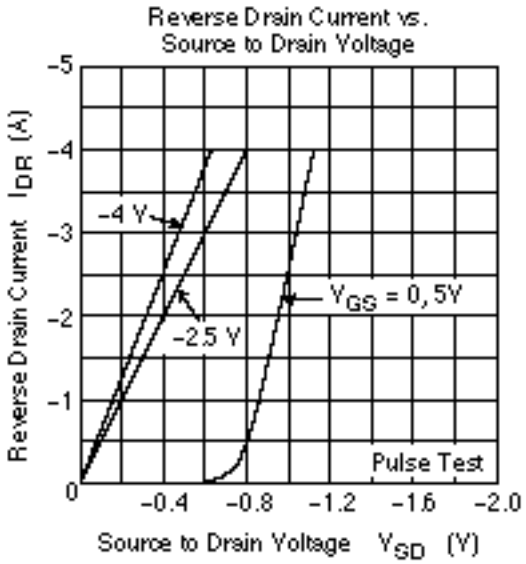


Dynamic Input Characteristics

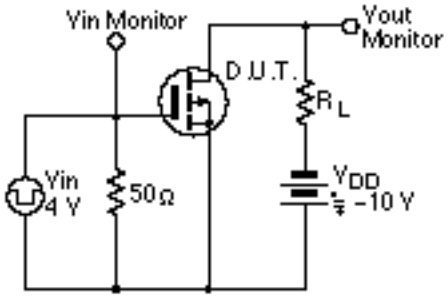


Switching Characteristics

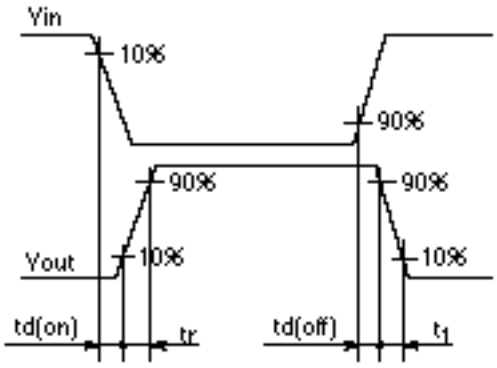




Switching Time Test Circuit

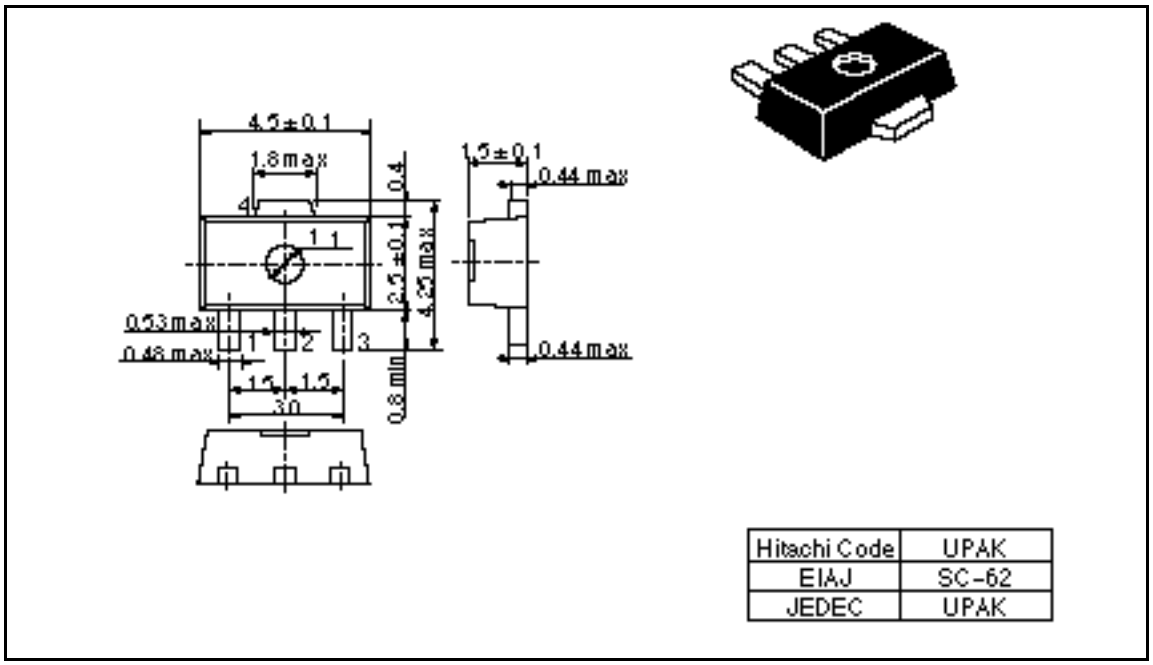


Waveform



Package Dimensions

Unit: mm



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