
2SJ450

Silicon P-Channel MOS FET

HITACHI

ADE-208-381 (Z)
1st. Edition
Aug. 1995

Application

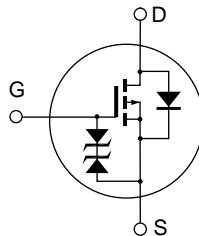
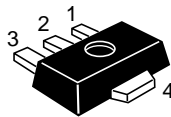
High speed power switching

Features

- Low on-resistance.
- Low drive power
- High speed switching
- 2.5 V gate drive device.

Outline

UPAK



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

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	-60	V
Gate to source voltage	V_{GSS}	± 20	V
Drain current	I_{D}	-1	A
Drain peak current	$I_{\text{D(pulse)}}^{*1}$	-2	A
Drain peak current	I_{DR}	-1	A
Channel dissipation	P_{ch}^{*2}	1	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes: 1. $PW \leq 100 \mu\text{s}$, duty cycle $\leq 10\%$

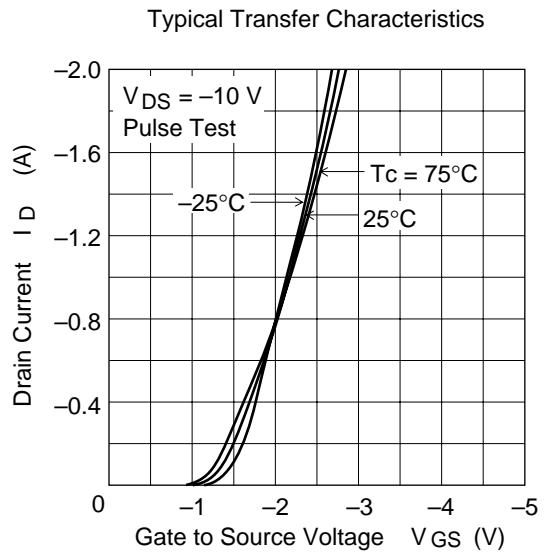
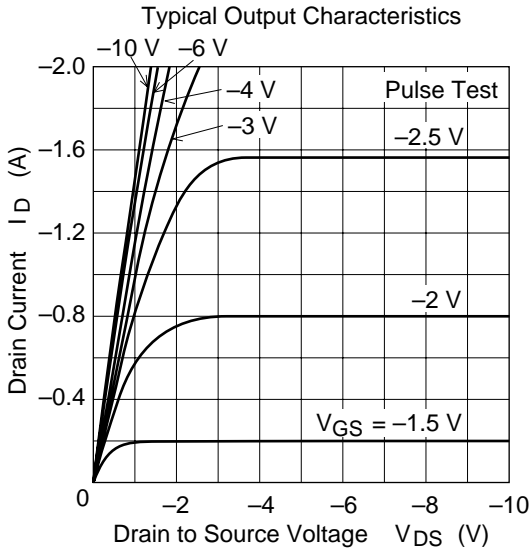
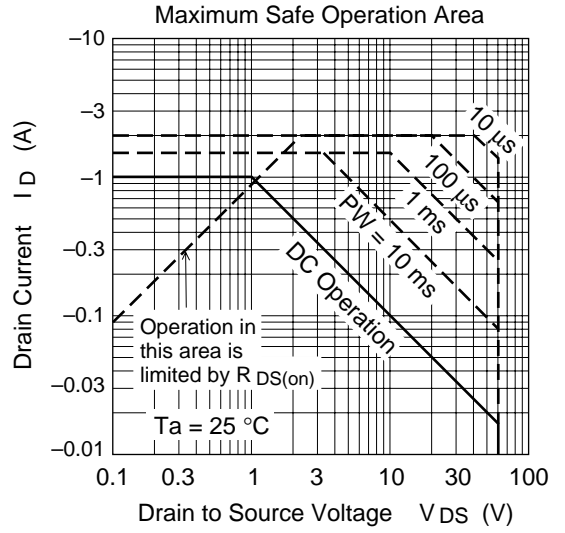
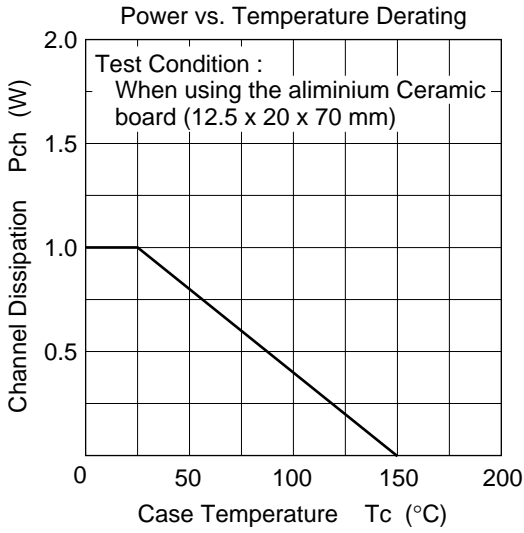
2. When using aluminium ceramic board ($12.5 \times 20 \times 70 \text{ mm}$)

Electrical Characteristics (Ta = 25°C)

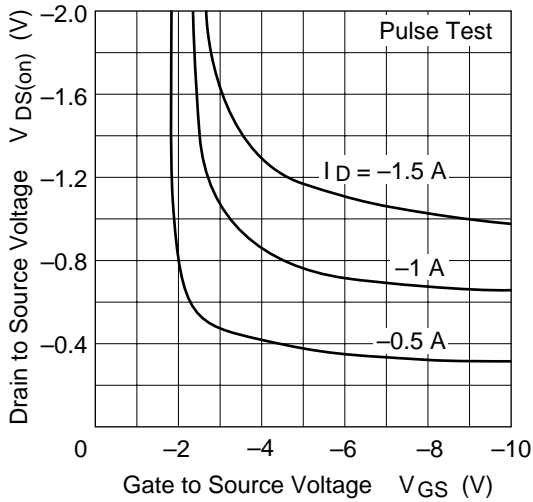
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-60	—	—	V	$I_D = -10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-50	μA	$V_{DS} = -50 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-0.5	—	-1.5	V	$V_{DS} = -10 \text{ V}$, $I_D = -1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.85	1.2	Ω	$I_D = -0.5 \text{ A}$ $V_{GS} = -4 \text{ V}^{*1}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.1	1.9	Ω	$I_D = -0.3 \text{ A}$ $V_{GS} = -2.5 \text{ V}^{*1}$
Power transfer admittance	$ y_{fs} $	0.6	1.0	—	S	$I_D = -0.5 \text{ A}$ $V_{DS} = -10 \text{ V}$
Input capacitance	C_{iss}	—	150	—	pF	$V_{DS} = -10 \text{ V}$
Output capacitance	C_{oss}	—	72	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	24	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	6	—	ns	$V_{GS} = -10 \text{ V}$, $I_D = -0.5 \text{ A}$
Rise time	t_r	—	9	—	ns	$R_L = 60 \text{ }\Omega$
Turn-off delay time	$t_{d(off)}$	—	50	—	ns	
Fall time	t_f	—	35	—	ns	
Body to drain diode forward voltage	V_{DF}	—	-0.9	—	V	$I_F = -1 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	100	—	ns	$I_F = -1 \text{ A}$, $V_{GS} = 0$ $diF/dt = 50 \text{ A}/\mu\text{s}$

Note: 1. Pulse Test

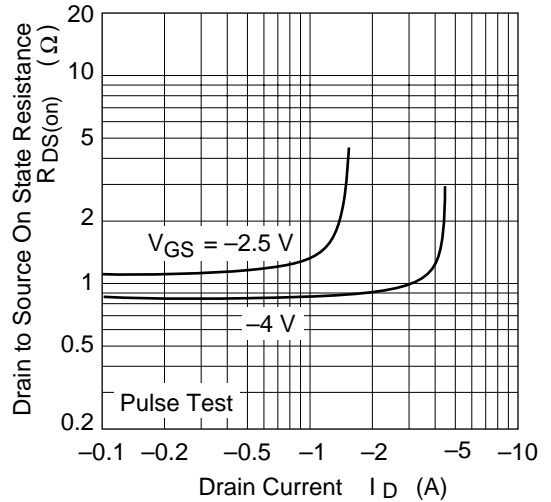
Marking is "UY".



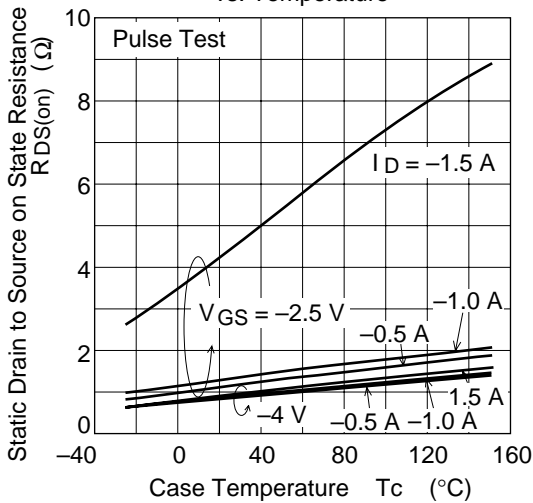
Drain to Source Saturation Voltage vs. Gate to Source Voltage



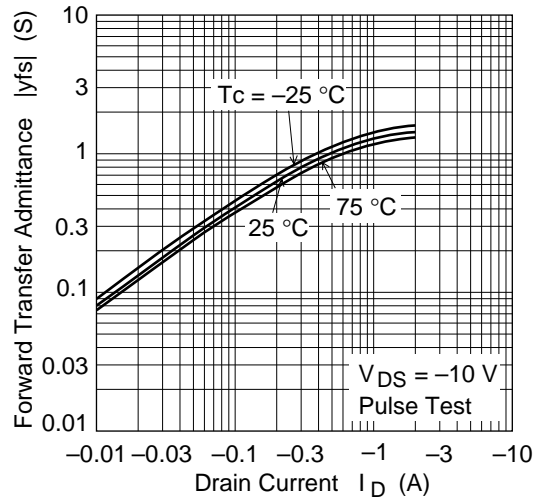
Static Drain to Source on State Resistance vs. Drain Current



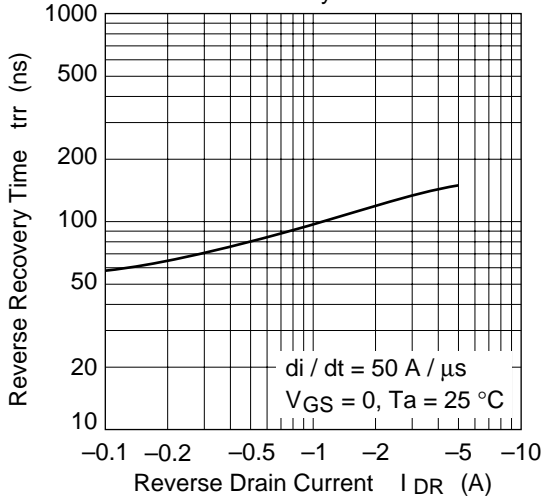
Static Drain to Source on State Resistance vs. Temperature



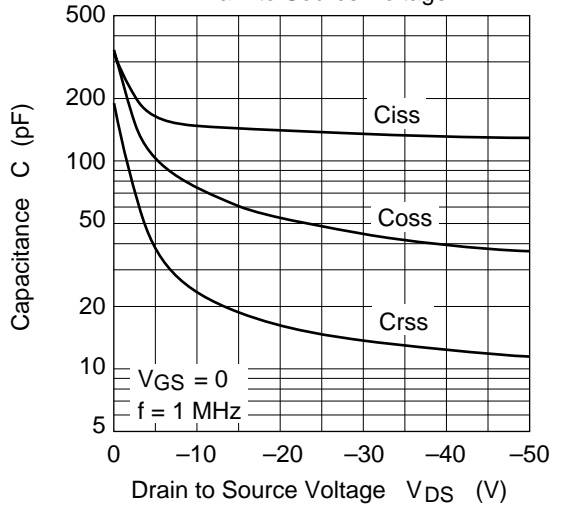
Forward Transfer Admittance vs. Drain Current



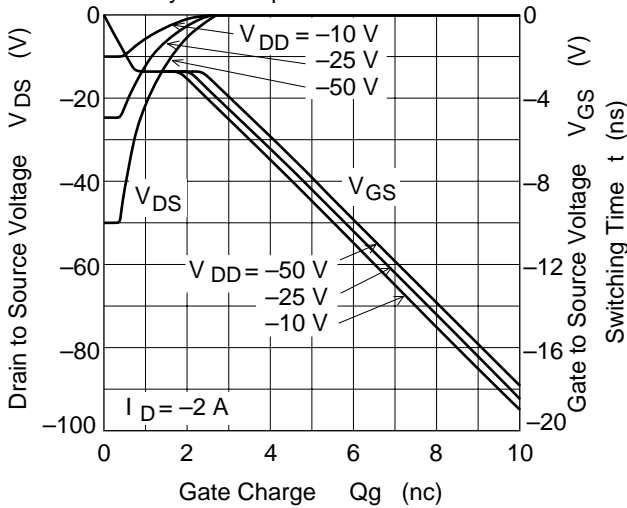
Body to Drain Diode Reverse Recovery Time



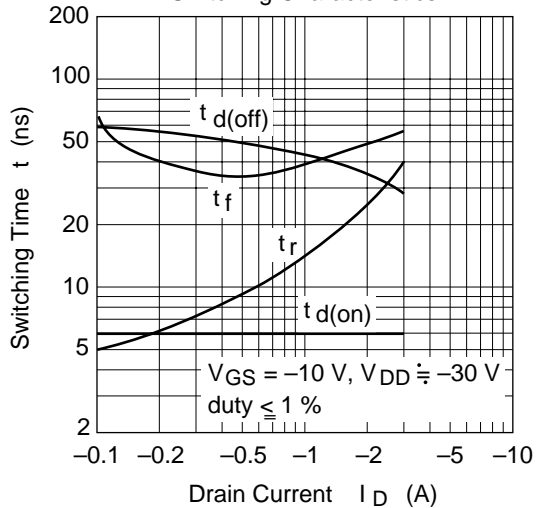
Typical Capacitance vs. Drain to Source Voltage

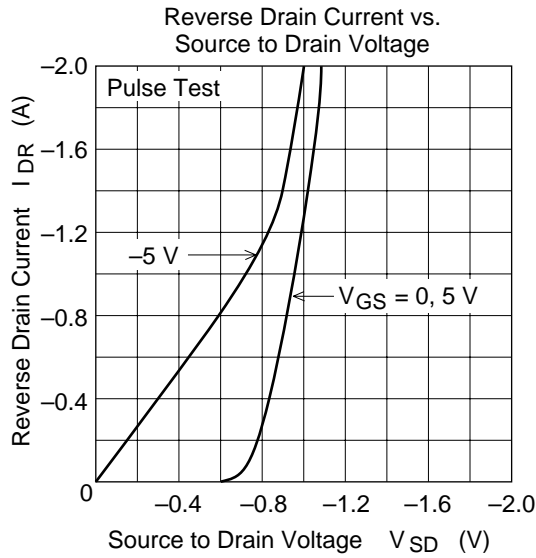


Dynamic Input Characteristics

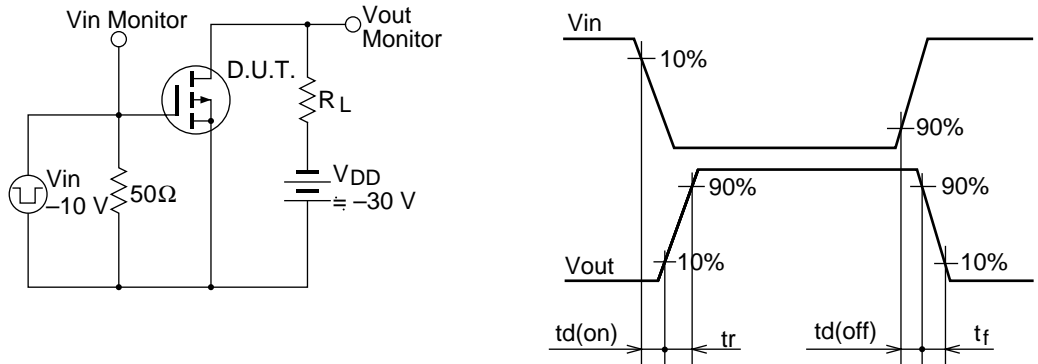


Switching Characteristics





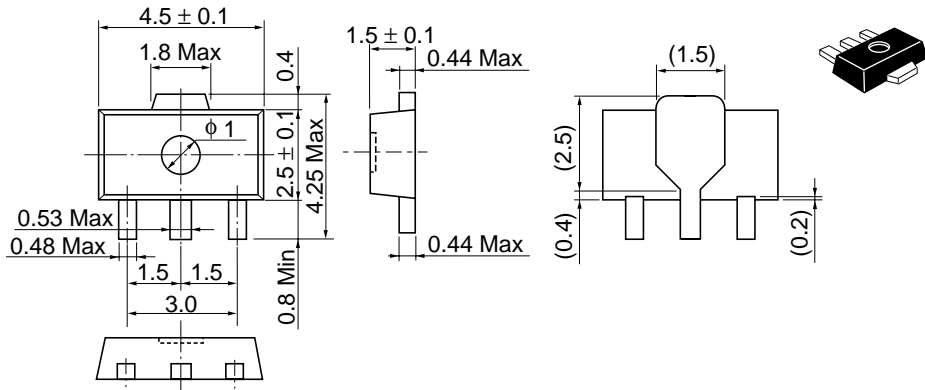
Avalanche Test Circuit and Waveform



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	UPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.050 g

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