
2SJ117

Silicon P-Channel MOS FET

HITACHI

ADE-208-1180 (Z)
1st. Edition
Mar. 2001

Application

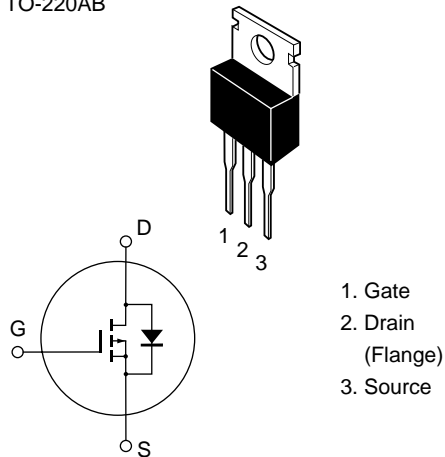
High speed power switching

Features

- High speed switching
- Good frequency characteristics
- Wide area of safe operation
- Suitable for switching regulator, DC-DC converter and ultrasonic power oscillators.

Outline

TO-220AB



Absolute Maximum Ratings (Ta = 25°C)

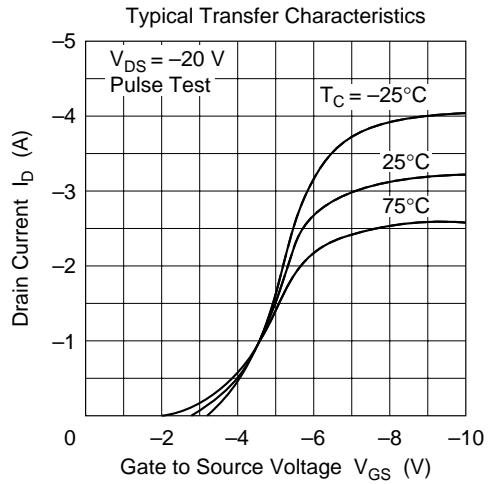
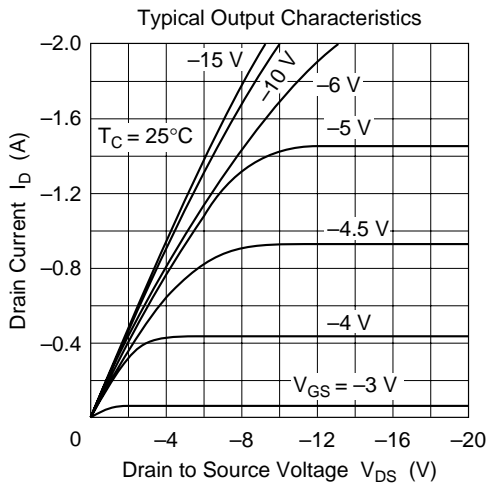
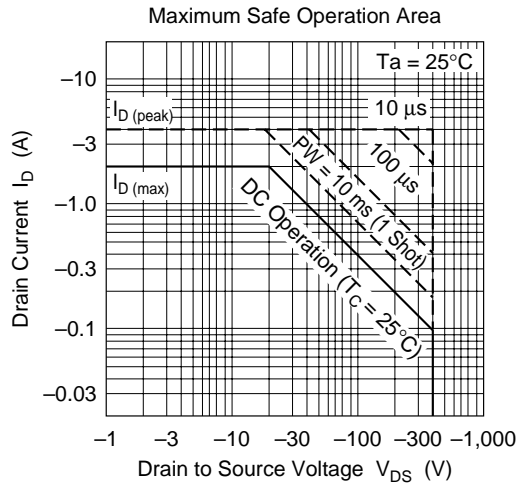
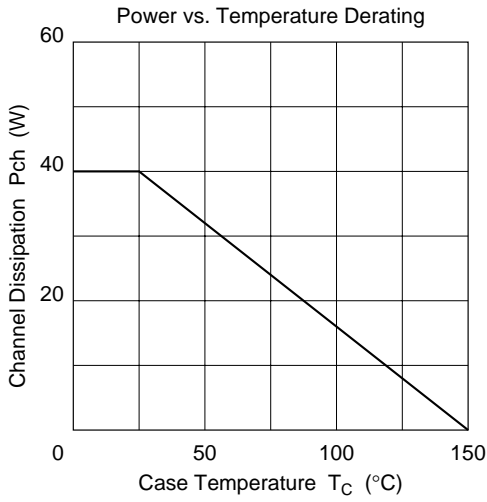
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	-400	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	-2	A
Drain peak current	$I_{D(pulse)}$	-4	A
Body to drain diode reverse drain current	I_{DR}	-2	A
Channel dissipation	Pch^{*1}	40	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

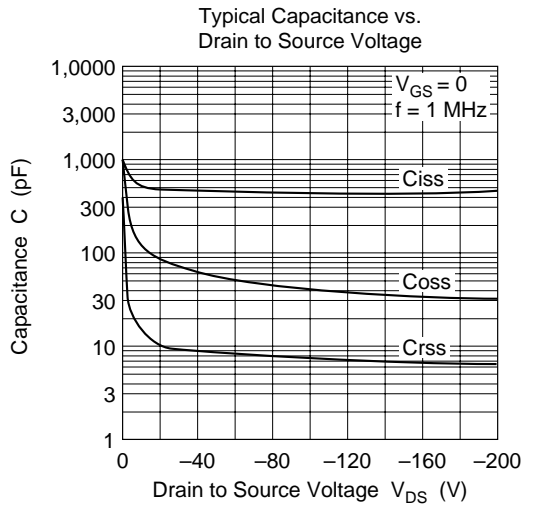
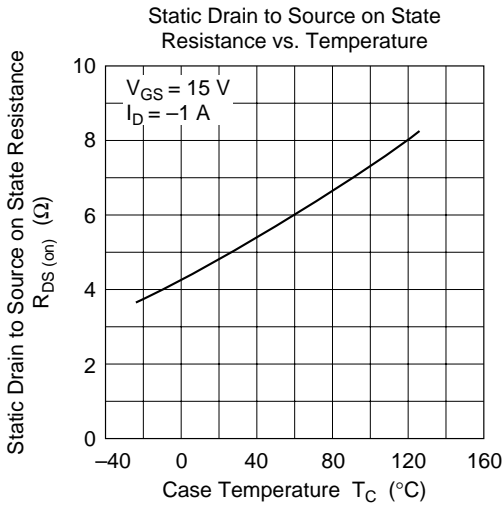
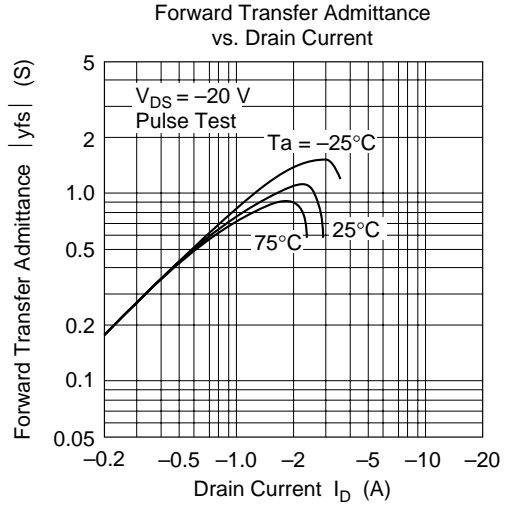
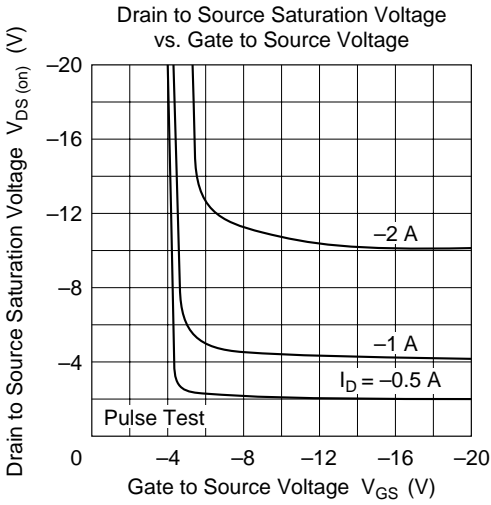
Notes: 1. Value at $T_c = 25^\circ\text{C}$

Electrical Characteristics (Ta = 25°C)

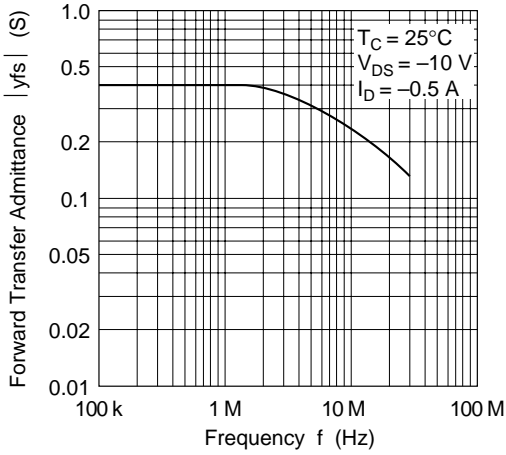
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-400	—	—	V	$I_D = -10\text{ mA}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	±1	µA	$V_{GS} = \pm 20\text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-1	mA	$V_{DS} = -320\text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-2.0	—	-5.0	V	$I_D = -1\text{ mA}$, $V_{DS} = -10\text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	5	7		$I_D = -1\text{ A}$, $V_{GS} = -15\text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	0.4	0.7	—	S	$I_D = -1\text{ A}$, $V_{DS} = -20\text{ V}^{*1}$
Input capacitance	Ciss	—	520	—	pF	$V_{DS} = -10\text{ V}$, $V_{GS} = 0$,
Output capacitance	Coss	—	110	—	pF	$f = 1\text{ MHz}$
Reverse transfer capacitance	Crss	—	15	—	pF	
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = -2\text{ A}$, $V_{GS} = -15\text{ V}$,
Rise time	t_r	—	25	—	ns	$R_L = 15$
Turn-off delay time	$t_{d(off)}$	—	45	—	ns	
Fall time	t_f	—	35	—	ns	
Body to drain diode forward voltage	V_{DF}	—	-0.8	—	V	$I_F = -1\text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	300	—	ns	$I_F = -1\text{ A}$, $V_{GS} = 0$, $di_F/dt = 100\text{ A}/\mu\text{s}$

Note: 1. Pulse test

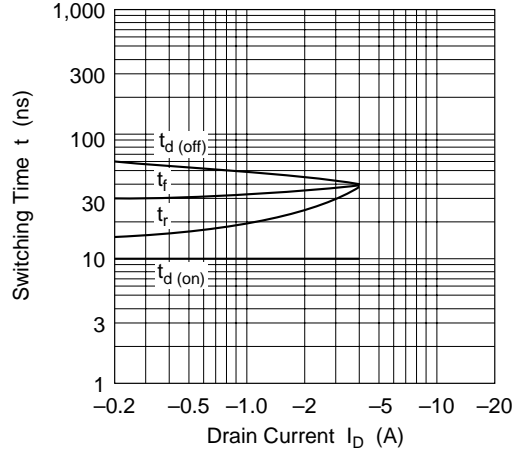




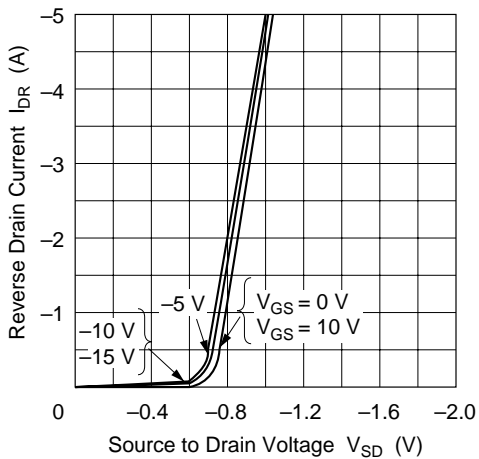
Forward Transfer Admittance vs. Frequency



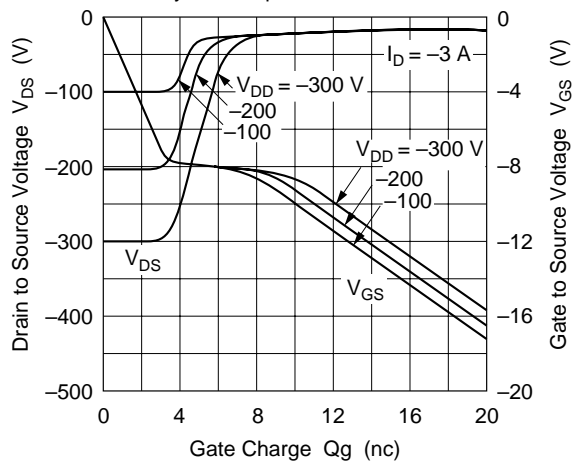
Switching Characteristics

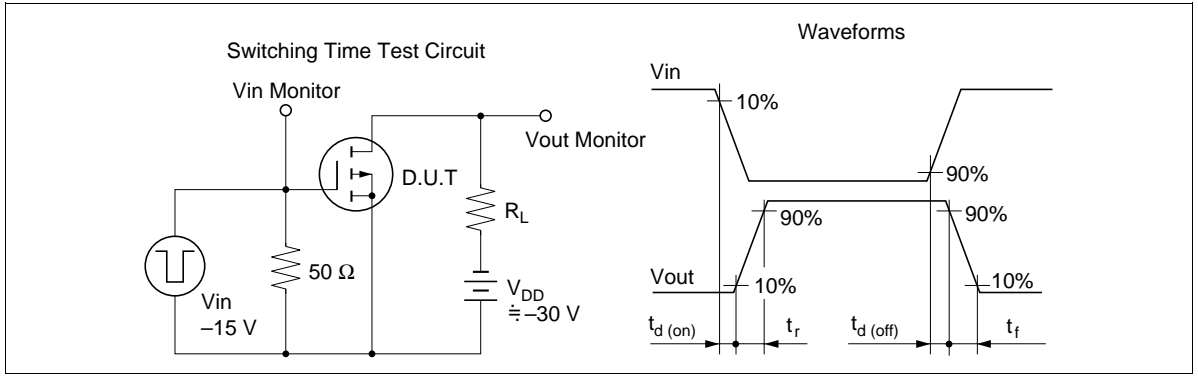


Maximum Body to Drain Diode Forward Voltage



Dynamic Input Characteristics

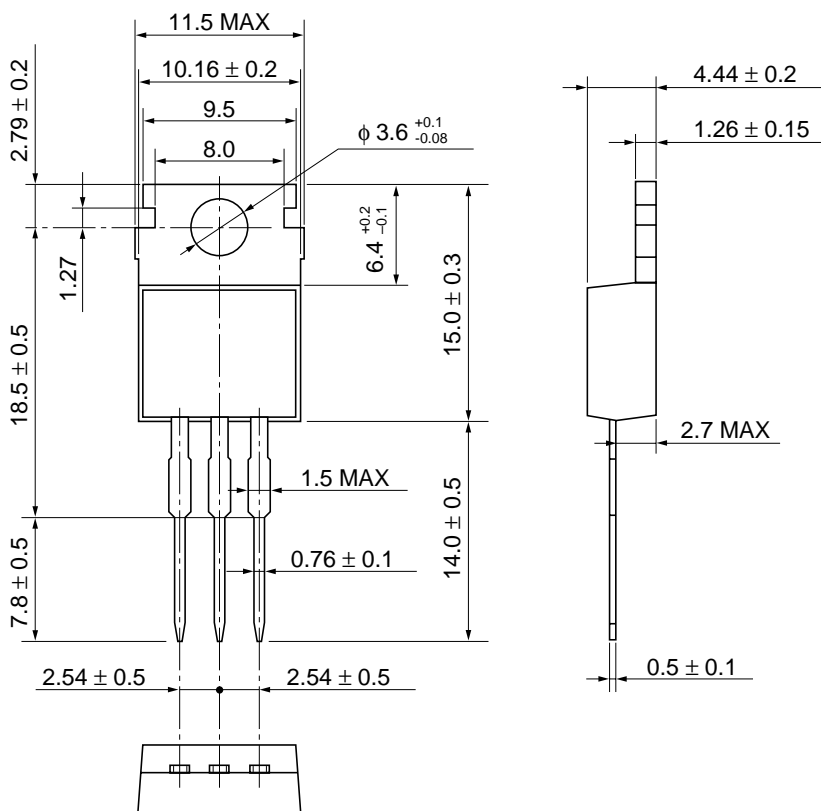




Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-220AB
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	1.8 g

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