

2SJ117

Silicon P-Channel MOS FET

HITACHI

ADE-208-1180 (Z)

1st. Edition

Mar. 2001

Application

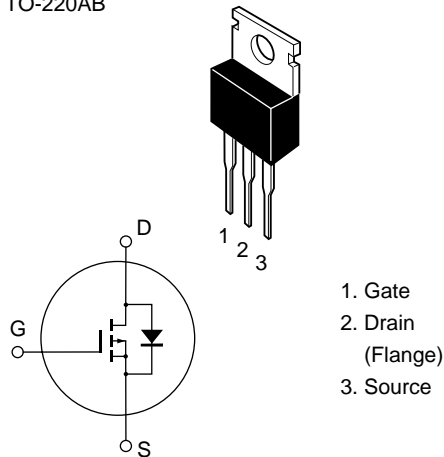
High speed power switching

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

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	$I_{\text{D(pulse)}}$	-4	A
Body to drain diode reverse drain current	I_{DR}	-2	A
Channel dissipation	P_{ch}^{*1}	40	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

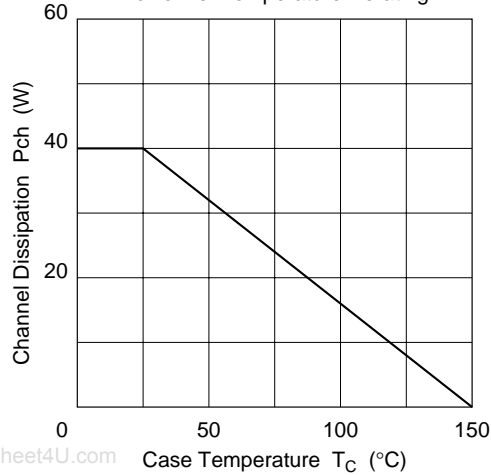
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Electrical Characteristics ($T_a = 25^\circ\text{C}$)

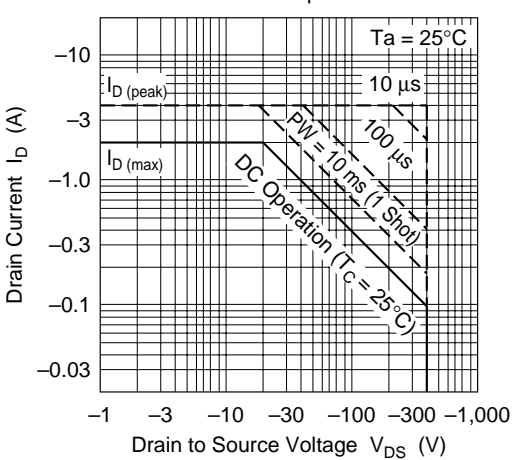
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(\text{BR})\text{DSS}}$	-400	—	—	V	$I_{\text{D}} = -10 \text{ mA}$, $V_{\text{GS}} = 0$
Gate to source leak current	I_{GSS}	—	—	± 1	μA	$V_{\text{GS}} = \pm 20 \text{ V}$, $V_{\text{DS}} = 0$
Zero gate voltage drain current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

Note: 1. Pulse test

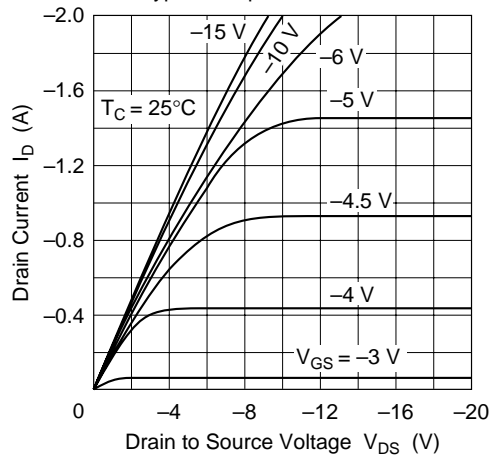
Power vs. Temperature Derating



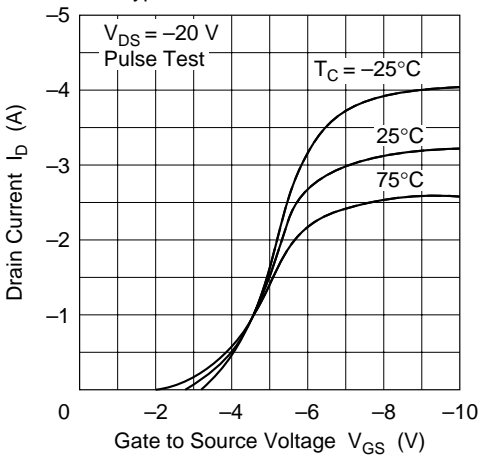
Maximum Safe Operation Area

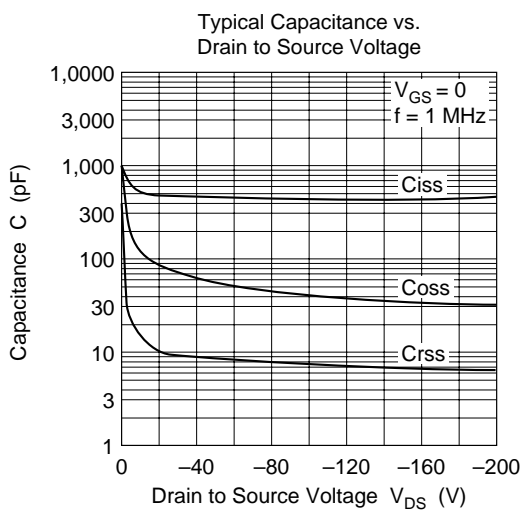
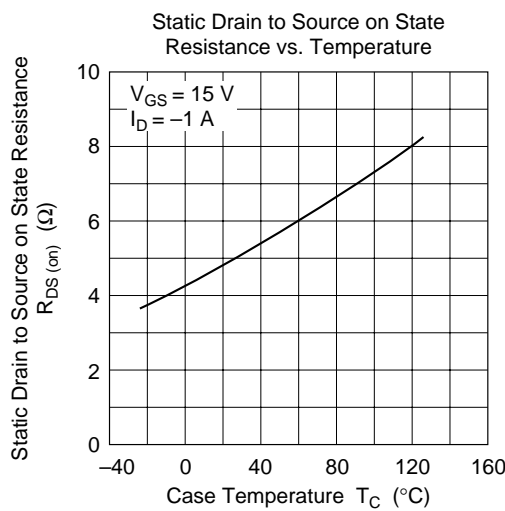
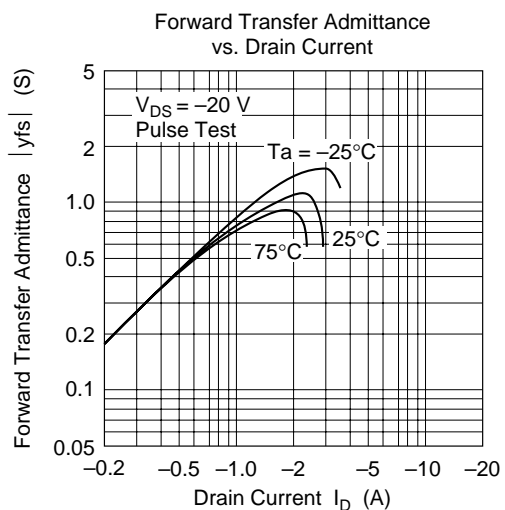
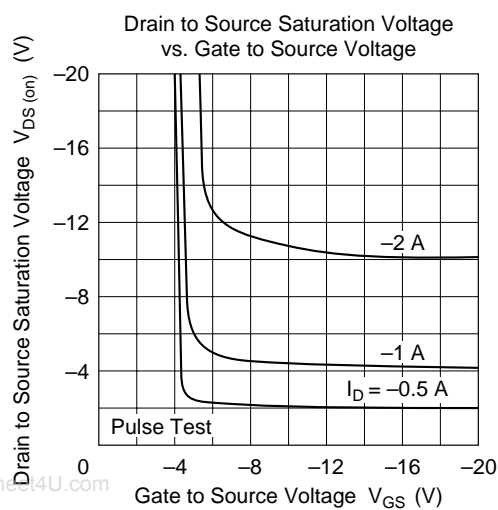


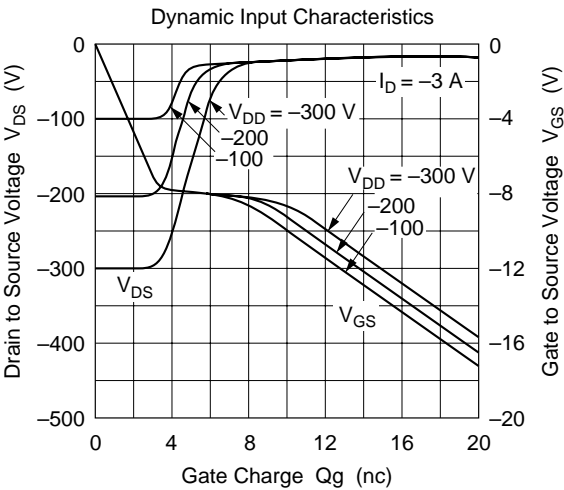
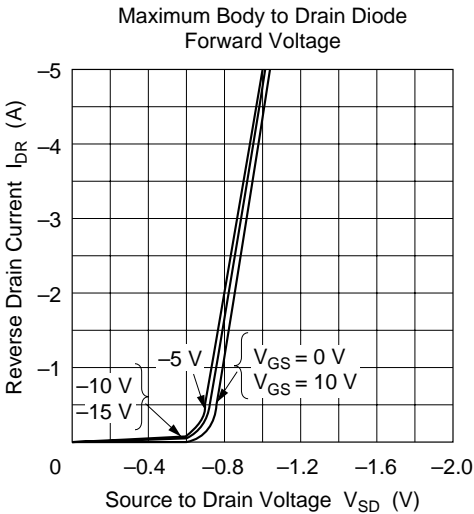
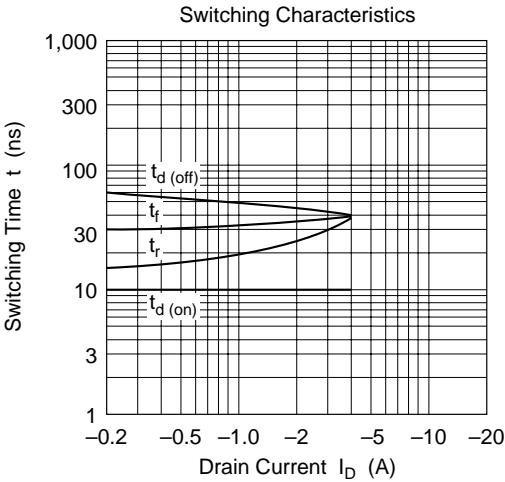
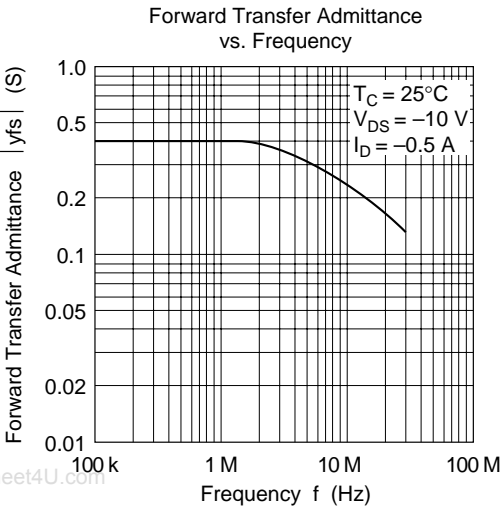
Typical Output Characteristics

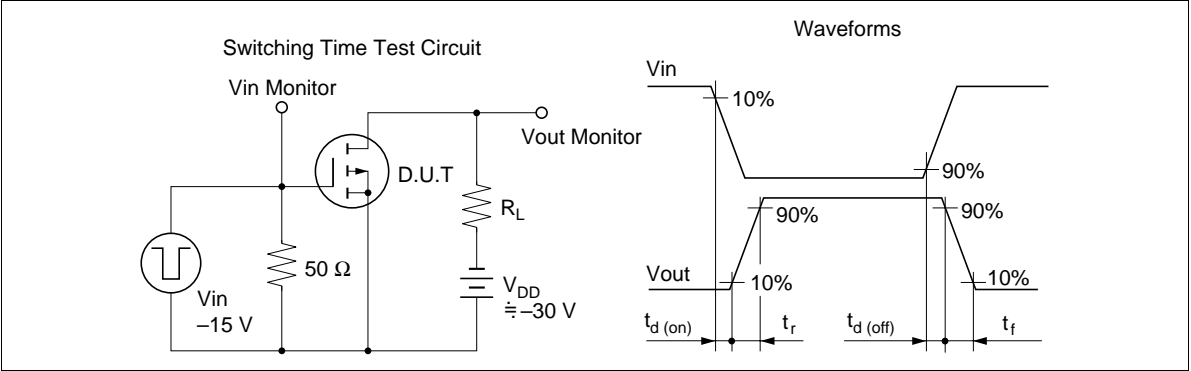


Typical Transfer Characteristics



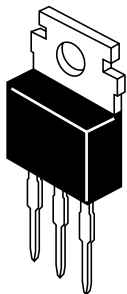
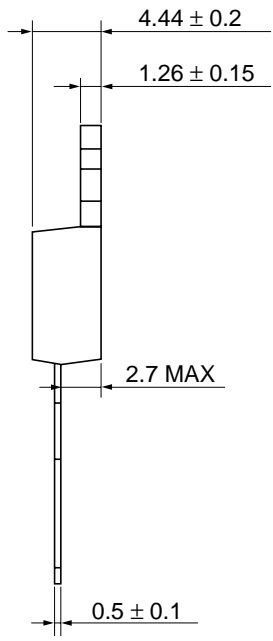
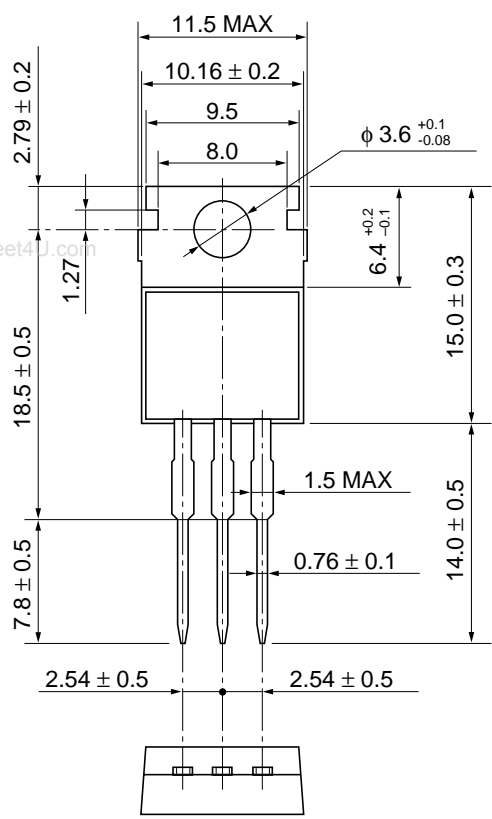






Package Dimensions

As of January, 2001
Unit: mm



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

Cautions

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