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# 2SK2931

Silicon N Channel MOS FET  
High Speed Power Switching

# HITACHI

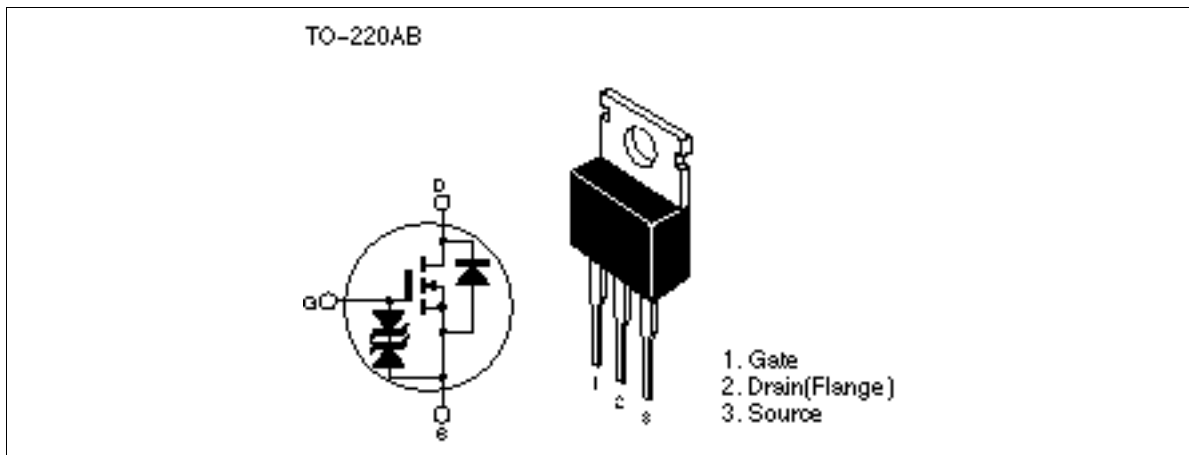
ADE-208-554  
Target Specification 1st. Edition

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## Features

- Low on-resistance  
 $R_{DS} = 0.010 \Omega$  typ.
- High speed switching
- 4V gate drive device can be driven from 5V source

## Outline



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### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	60	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	45	A
Drain peak current	I <sub>D(pulse)</sub> * <sup>1</sup>	180	A
Body to drain diode reverse drain current	I <sub>DR</sub>	45	A
Avalanche current	I <sub>AP</sub> * <sup>3</sup>	45	A
Avalanche energy	E <sub>AR</sub> * <sup>3</sup>	173	mJ
Channel dissipation	P <sub>ch</sub> * <sup>2</sup>	75	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Notes: 1. PW ≤ 10μs, duty cycle ≤ 1 %

2. Value at T<sub>c</sub> = 25°C

3. Value at T<sub>ch</sub> = 25°C, R<sub>g</sub> = 50Ω

## 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	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100\mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 16\text{V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	10	$\mu\text{A}$	$V_{DS} = 60\text{V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.5	—	2.5	V	$I_D = 1\text{mA}$ , $V_{DS} = 10\text{V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.010	0.013	$\Omega$	$I_D = 20\text{A}$ , $V_{GS} = 10\text{V}^{*1}$
	$R_{DS(on)}$	—	0.015	0.025	$\Omega$	$I_D = 20\text{A}$ , $V_{GS} = 4\text{V}^{*1}$
Forward transfer admittance	$ y_{fs} $	24	40	—	S	$I_D = 20\text{A}$ , $V_{DS} = 10\text{V}^{*1}$
Input capacitance	$C_{iss}$	—	2200	—	pF	$V_{DS} = 10\text{V}$
Output capacitance	$C_{oss}$	—	1050	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	320	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	25	—	ns	$I_D = 20\text{A}$ , $V_{GS} = 10\text{V}$
Rise time	$t_r$	—	200	—	ns	$R_L = 1.5\Omega$
Turn-off delay time	$t_{d(off)}$	—	320	—	ns	
Fall time	$t_f$	—	240	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.95	—	V	$I_F = 45\text{A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	60	—	ns	$I_F = 45\text{A}$ , $V_{GS} = 0$ $di_F/dt = 50\text{A}/\mu\text{s}$

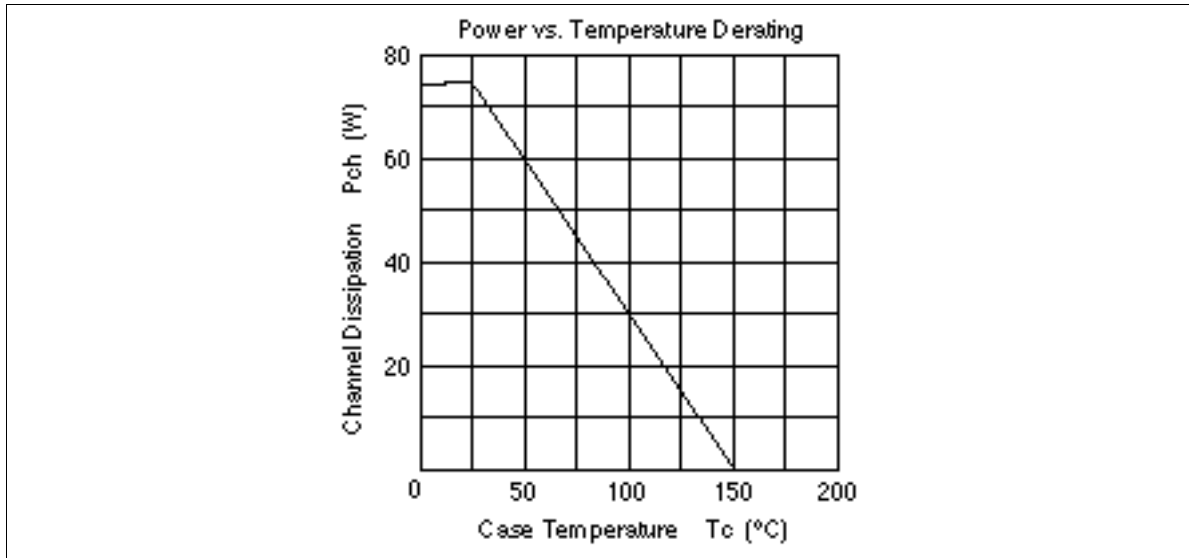
Note: 1. Pulse test

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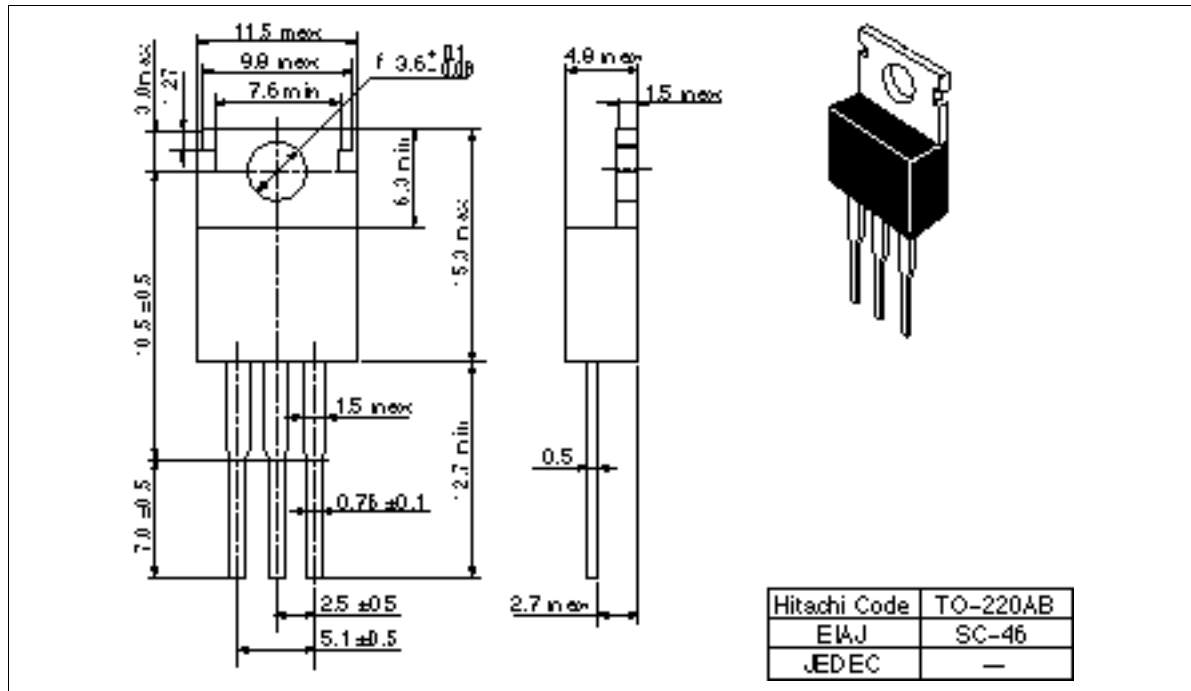
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### Main Characteristics



Package Dimentions

Unit: mm



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