

2SK3229

Silicon N Channel MOS FET
High Speed Power Switching

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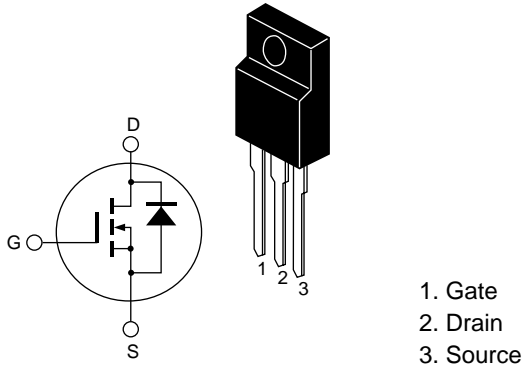
ADE-208-766(Z)
Target specification
1st. Edition
December 1998

Features

- Low on-resistance
 $R_{DS(on)} = 6m\Omega$ typ.
- Low drive current
- 4V gate drive device can be driven from 5V source

Outline

TO-220CFM



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

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	80	V
Gate to source voltage	V_{GSS}	± 20	V
Drain current	I_D	60	A
Drain peak current	$I_{D(pulse)}^{*1}$	240	A
Body-drain diode reverse drain current	I_{DR}	60	A
Avalanche current	I_{AP}^{*3}	50	A
Avalanche energy	E_{AR}^{*3}	181	mJ
Channel dissipation	P_{ch}^{*2}	35	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

- Note:
1. $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$
 2. Value at $T_c = 25^\circ\text{C}$
 3. Value at $T_{ch} = 25^\circ\text{C}$, $R_g \geq 50\Omega$

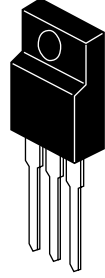
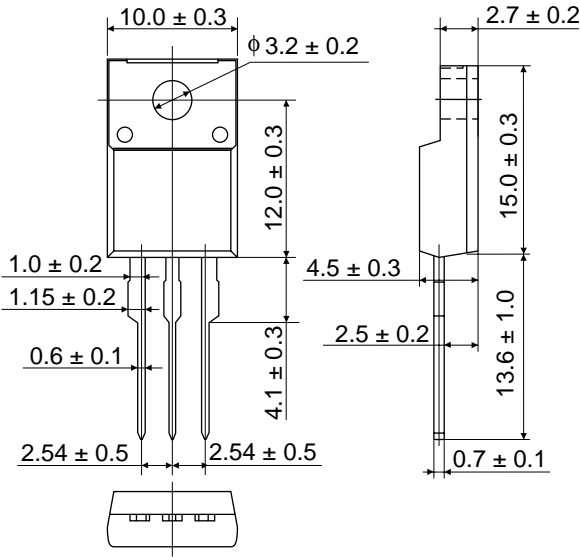
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	80	—	—	V	$I_D = 10\text{mA}, V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 80\text{V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.5	V	$I_D = 1\text{mA}, V_{DS} = 10\text{V}^{*1}$
Static drain to source on state resistance	$R_{DS(on)}$	—	6.0	7.5	$\text{m}\Omega$	$I_D = 30\text{A}, V_{GS} = 10\text{V}^{*1}$
		—	8.0	12	$\text{m}\Omega$	$I_D = 30\text{A}, V_{GS} = 4\text{V}^{*1}$
Forward transfer admittance	$ y_{fs} $	50	85	—	S	$I_D = 30\text{A}, V_{DS} = 10\text{V}^{*1}$
Input capacitance	C_{iss}	—	9700	—	pF	$V_{DS} = 10\text{V}$
Output capacitance	C_{oss}	—	1250	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	290	—	pF	$f = 1\text{MHz}$
Total gate charge	Q_g	—	150	—	nc	$V_{DD} = 25\text{V}$
Gate to source charge	Q_{gs}	—	30	—	nc	$V_{GS} = 25\text{V}$
Gate to drain charge	Q_{gd}	—	30	—	nc	$I_D = 60\text{A}$
Turn-on delay time	$t_{d(on)}$	—	80	—	ns	$V_{GS} = 10\text{V}, I_D = 30\text{A}$
Rise time	t_r	—	280	—	ns	$R_L = 1\Omega$
Turn-off delay time	$t_{d(off)}$	—	780	—	ns	
Fall time	t_f	—	340	—	ns	
Body-drain diode forward voltage	V_{DF}	—	1.0	—	V	$I_F = 60\text{A}, V_{GS} = 0$
Body-drain diode reverse recovery time	t_{rr}	—	80	—	ns	$I_F = 60\text{A}, V_{GS} = 0$ $diF/dt = 50\text{A}/\mu\text{s}$

Note: 1. Pulse test

Package Dimensions

Unit: mm



Hitachi Code	TO-220CFM
EIAJ	—
JEDEC	—

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