To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

Cautions

Keep safety first in your circuit designs!

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2SK3229

Silicon N Channel MOS FET
High Speed Power Switching

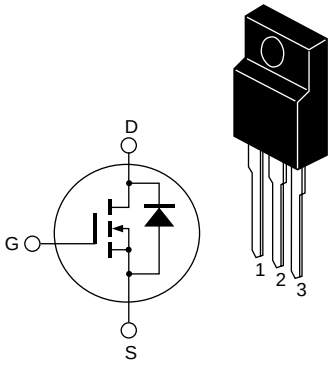
ADE-208-766(Z)
Target specification 1st. Edition
Dec. 1998

Features

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

Outline

TO–220CFM



1. Gate
2. Drain
3. Source

Absolute Maximum Ratings (Ta = 25°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	Pch*[2]	35	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. PW ≤ 10μs, duty cycle ≤ 1 %
2. Value at Tc = 25°C
3. Value at Tch = 25°C, Rg ≥ 50Ω

Electrical Characteristics (Ta = 25°C)

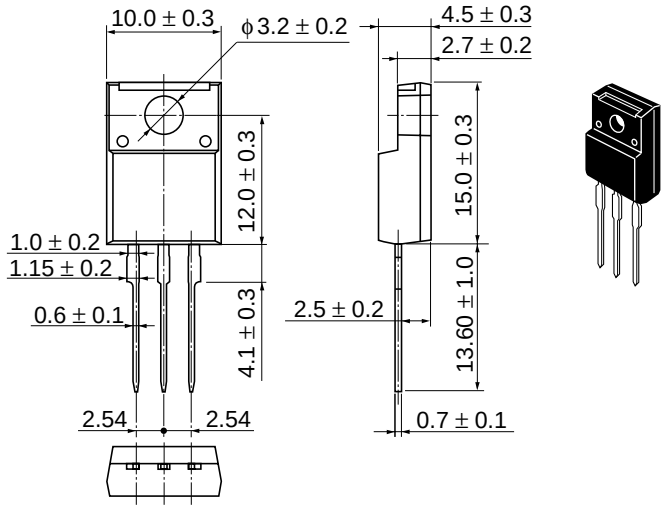
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	80	—	—	V	I_D = 10mA, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±20V, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	10	µA	V_{DS} = 80 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.5	V	I_D = 1mA, V_{DS} = 10V*[1]
Static drain to source on state resistance	$R_{DS(on)}$	—	6.0	7.5	mΩ	I_D = 30A, V_{GS} = 10V*[1]
		—	8.0	12	mΩ	I_D = 30A, V_{GS} = 4V*[1]
Forward transfer admittance	$\|y_{fs}\|$	50	85	—	S	I_D = 30A, V_{DS} = 10V*[1]
Input capacitance	Ciss	—	9700	—	pF	V_{DS} = 10V
Output capacitance	Coss	—	1250	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	290	—	pF	f = 1MHz
Total gate charge	Qg	—	150	—	nc	V_{DD} = 25V
Gate to source charge	Qgs	—	30	—	nc	V_{GS} = 25V
Gate to drain charge	Qgd	—	30	—	nc	I_D = 60A
Turn-on delay time	$t_{d(on)}$	—	80	—	ns	V_{GS} = 10V, I_D = 30A
Rise time	t_r	—	280	—	ns	R_L = 1Ω
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 = 60A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	80	—	ns	I_F = 60A, V_{GS} = 0 diF/ dt = 50A/µs

Note: 1. Pulse test

Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-220CFM
JEDEC	—
EIAJ	—
Mass (reference value)	1.9 g

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