

To all our customers

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

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Keep safety first in your circuit designs!

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# 2SK2736

## Silicon N Channel DV-L MOS FET High Speed Power Switching

# RENESAS

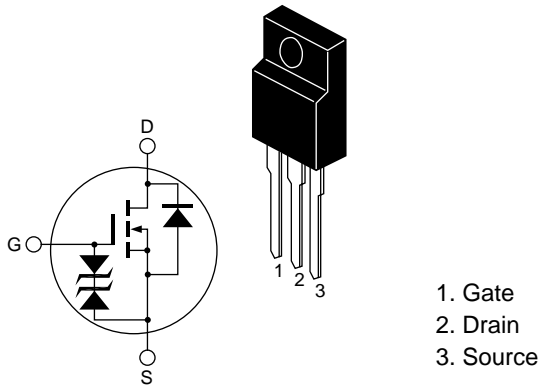
ADE-208-544 (Z)  
1st. Edition  
Sep. 1997

### Features

- Low on-resistance  
 $R_{DS(on)} = 20 \text{ m}\Omega$  typ. ( $V_{GS} = 10\text{V}$ ,  $I_D = 15 \text{ A}$ )
- 4V gate drive devices.
- High speed switching

### Outline

TO-220CFM



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

<b>Item</b>	<b>Symbol</b>	<b>Ratings</b>	<b>Unit</b>
Drain to source voltage	$V_{\text{DSS}}$	30	V
Gate to source voltage	$V_{\text{GSS}}$	$\pm 20$	V
Drain current	$I_{\text{D}}$	30	A
Drain peak current	$I_{\text{D(pulse)}}^{*1}$	120	A
Body to drain diode reverse drain current	$I_{\text{DR}}$	30	A
Channel dissipation	$P_{\text{ch}}^{*2}$	25	W
Channel temperature	$T_{\text{ch}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

Notes: 1.  $PW \leq 10\mu\text{s}$ , duty cycle  $\leq 1\%$

2. Value at  $T_c = 25^\circ\text{C}$

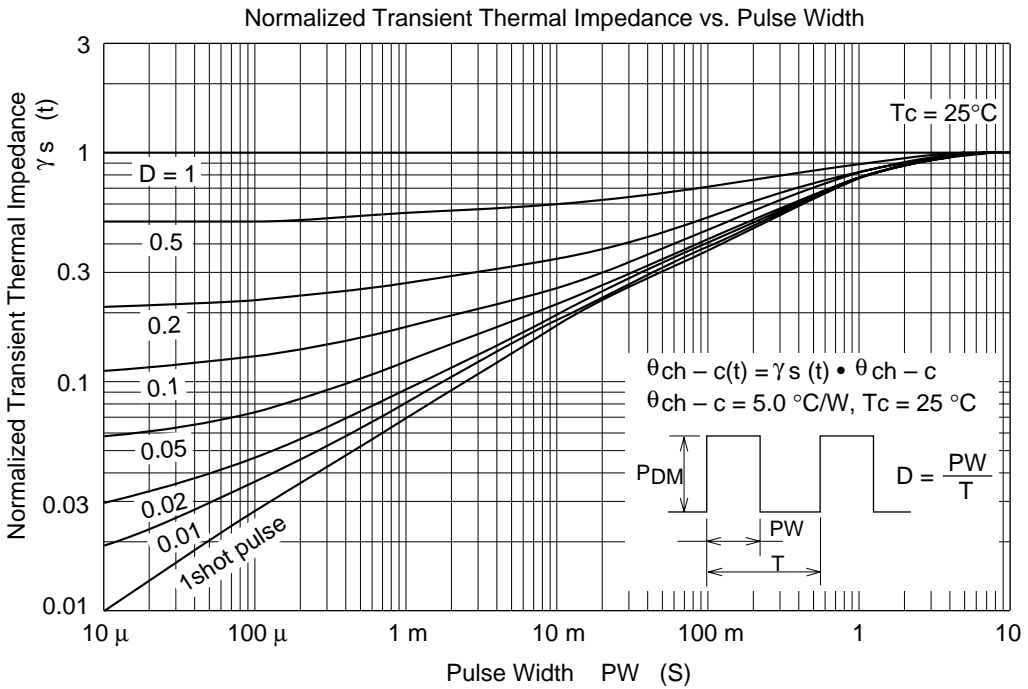
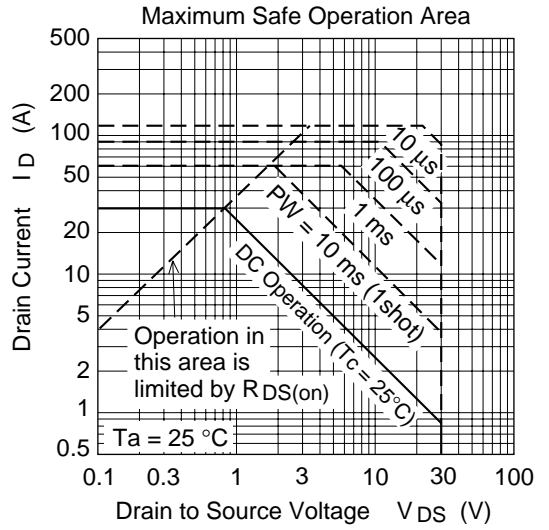
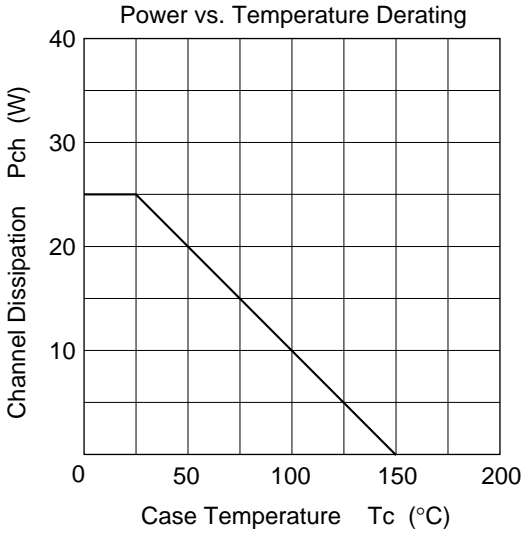
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 10\text{mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100\mu\text{A}, V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	10	$\mu\text{A}$	$V_{DS} = 30\text{V}, V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 16\text{V}, V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	20	28	$\text{m}\Omega$	$I_D = 15\text{A}, V_{GS} = 10\text{V}^{*1}$
	$R_{DS(on)}$	—	35	50	$\text{m}\Omega$	$I_D = 15\text{A}, V_{GS} = 4\text{V}^{*1}$
Forward transfer admittance	$ y_{fs} $	12	18	—	S	$I_D = 15\text{A}, V_{DS} = 10\text{V}^{*1}$
Input capacitance	$C_{iss}$	—	750	—	pF	$V_{DS} = 10\text{V}$
Output capacitance	$C_{oss}$	—	520	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	210	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	16	—	ns	$V_{GS} = 10\text{V}, I_D = 15\text{A}$
Rise time	$t_r$	—	260	—	ns	$R_L = 0.67\Omega$
Turn-off delay time	$t_{d(off)}$	—	85	—	ns	
Fall time	$t_f$	—	90	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	1.0	—	V	$I_F = 30\text{A}, V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	45	—	ns	$I_F = 30\text{A}, V_{GS} = 0$ $di_F/dt = 50\text{A}/\mu\text{s}$

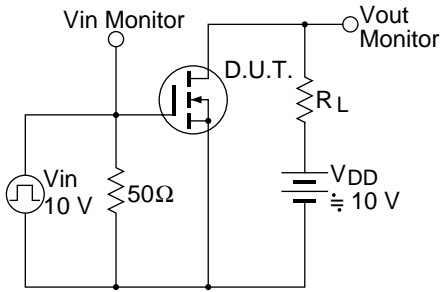
Note: 1. Pulse test

See characteristics curves of 2SK2684

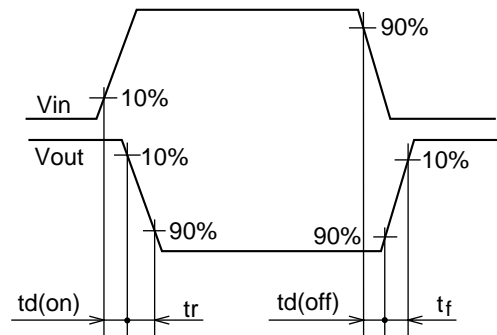
Main Characteristics



Switching Time Test Circuit



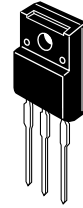
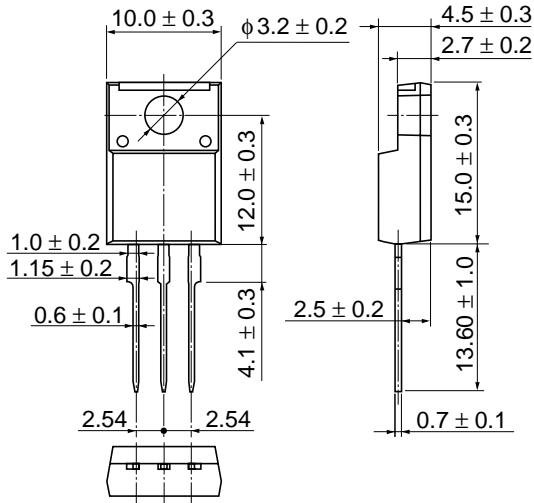
Waveform



Package Dimensions

As of January, 2001

Unit: mm



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



## Cautions

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