

# 2SJ471

Silicon P Channel DV-L MOS FET  
High Speed Power Switching

# HITACHI

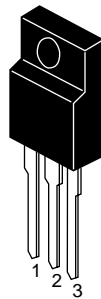
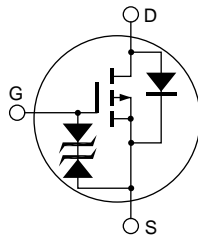
ADE-208-540  
1st. Edition

## Features

- Low on-resistance  
 $R_{DS(on)} = 25 \text{ m}\Omega$  typ.
- 4V gate drive devices.
- High speed switching

## Outline

TO-220CFM



1. Gate
2. Drain
3. Source

**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	$V_{DSS}$	-30	V
Gate to source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	$I_D$	-30	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	-120	A
Body to drain diode reverse drain current	$I_{DR}$	-30	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	30	W
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

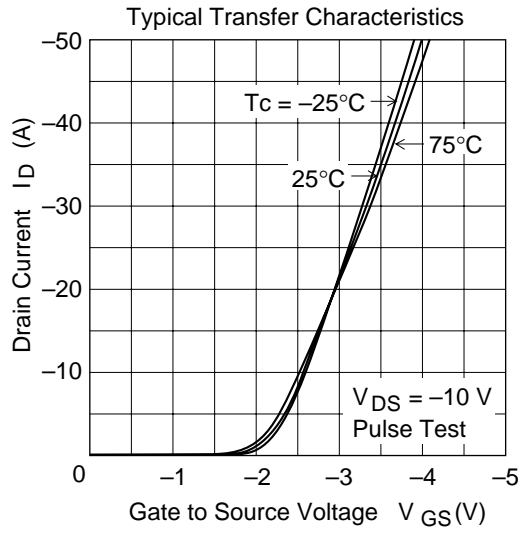
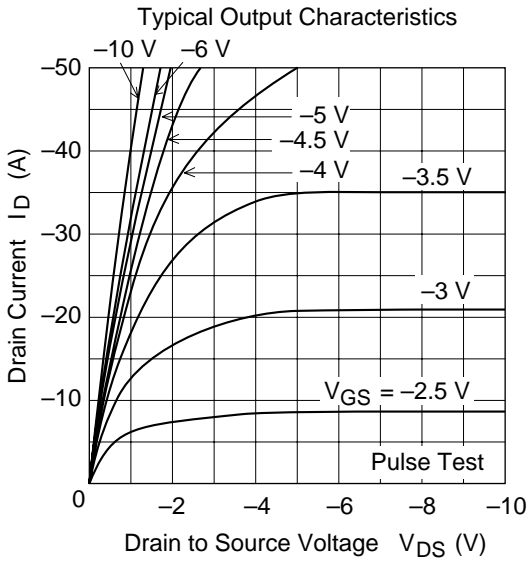
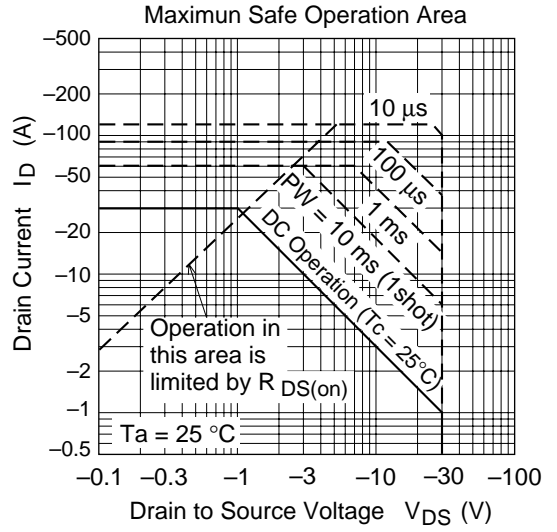
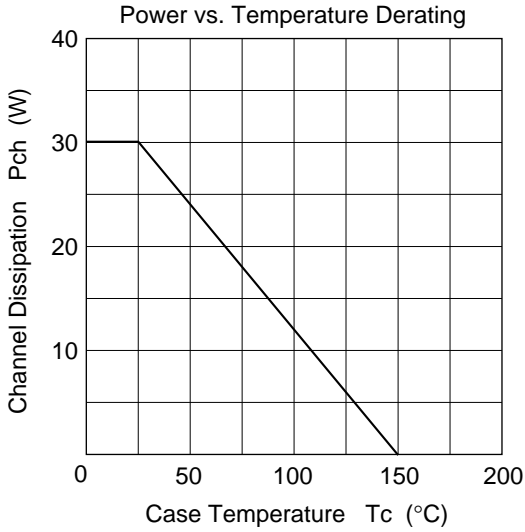
2. Value at  $T_c = 25^\circ\text{C}$

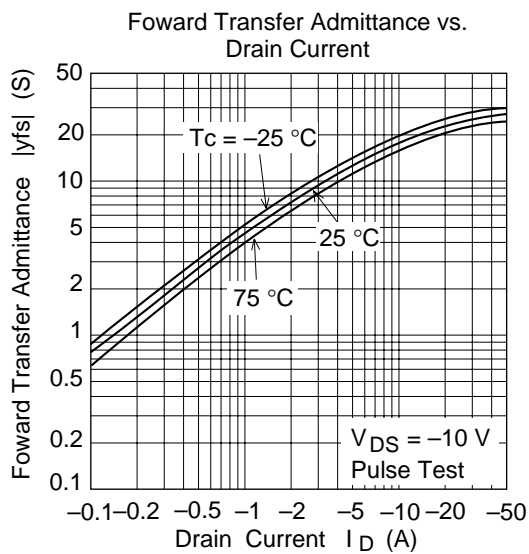
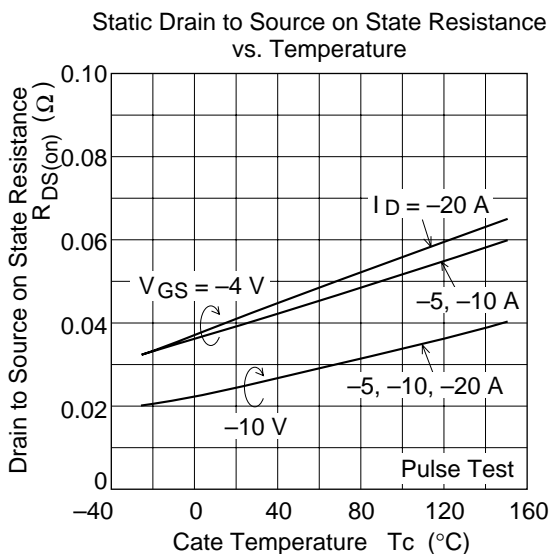
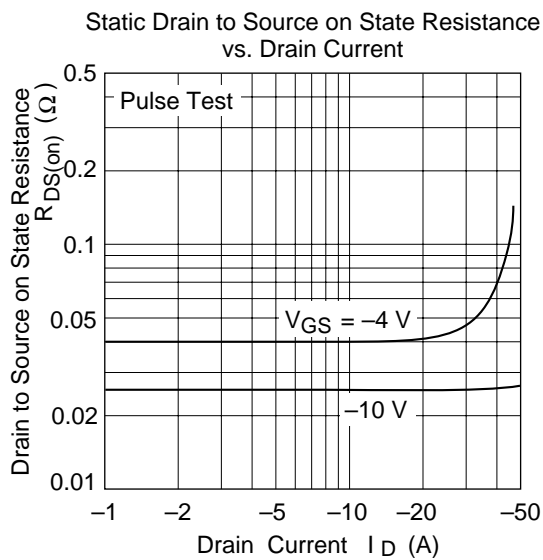
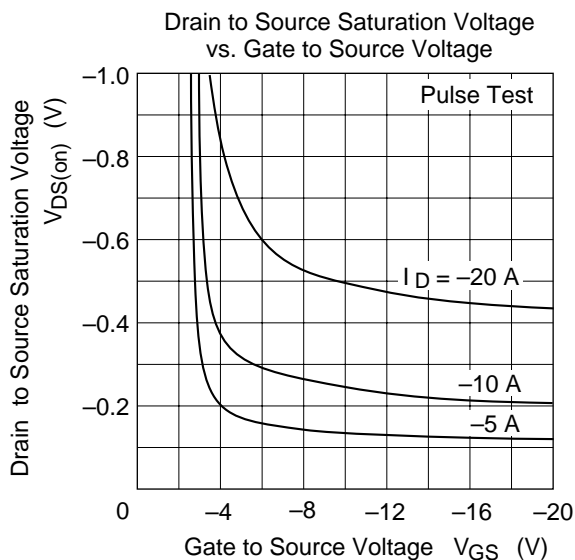
## Electrical Characteristics (Ta = 25°C)

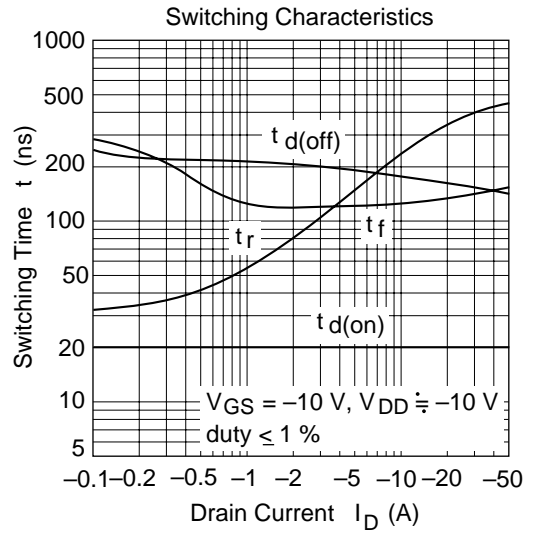
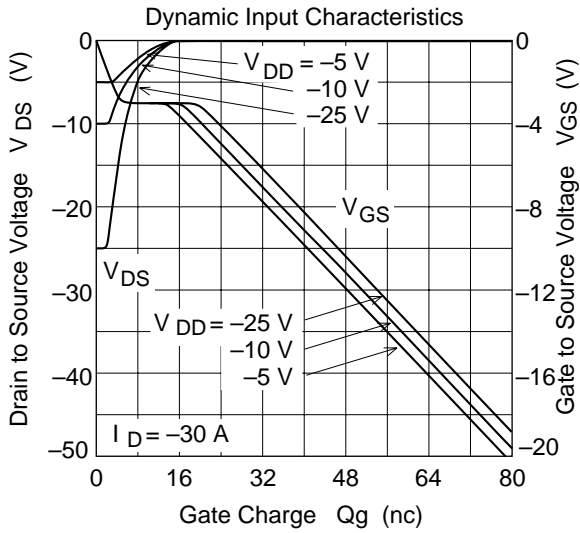
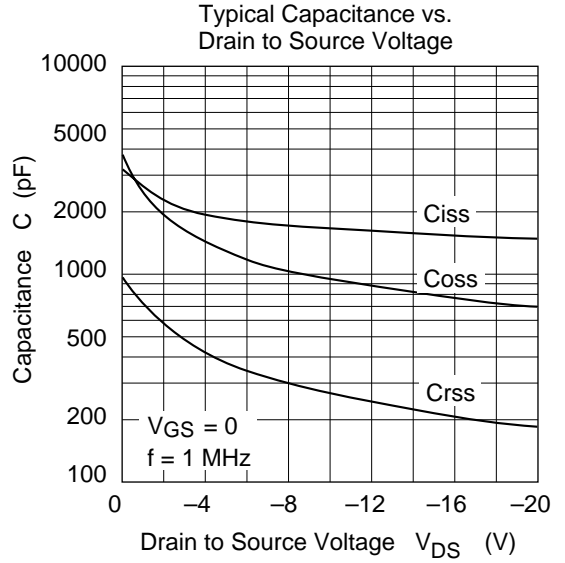
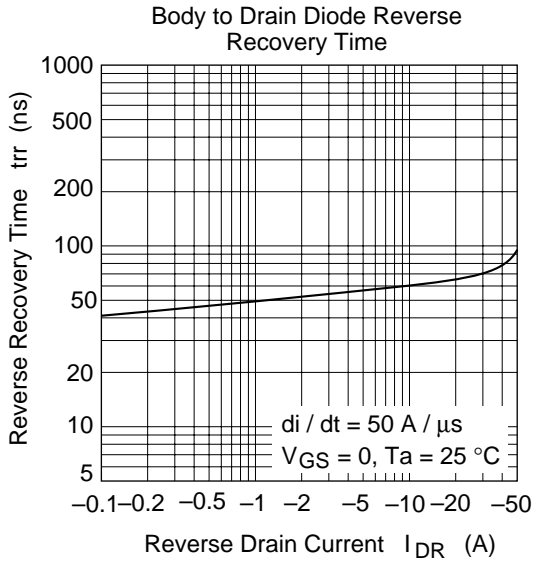
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10\text{mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100\mu\text{A}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	-10	$\mu\text{A}$	$V_{DS} = -30\text{V}$ , $V_{GS} = 0$
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	$R_{DS(on)}$	—	25	35	$\text{m}\Omega$	$I_D = -15\text{A}$ , $V_{GS} = -10\text{V}$ <sup>Note3</sup>
	$R_{DS(on)}$	—	40	60	$\text{m}\Omega$	$I_D = -15\text{A}$ , $V_{GS} = -4\text{V}$ <sup>Note3</sup>
Forward transfer admittance	$ y_{fs} $	12	20	—	S	$I_D = -15\text{A}$ , $V_{DS} = -10\text{V}$ <sup>Note3</sup>
Input capacitance	$C_{iss}$	—	1700	—	pF	$V_{DS} = -10\text{V}$
Output capacitance	$C_{oss}$	—	950	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	260	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$V_{GS} = -10\text{V}$ , $I_D = -15\text{A}$
Rise time	$t_r$	—	290	—	ns	$R_L = 0.67\Omega$
Turn-off delay time	$t_{d(off)}$	—	170	—	ns	
Fall time	$t_f$	—	130	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	-1.1	—	V	$I_F = -30\text{A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	70	—	ns	$I_F = -30\text{A}$ , $V_{GS} = 0$ $diF/dt = 50\text{A}/\mu\text{s}$

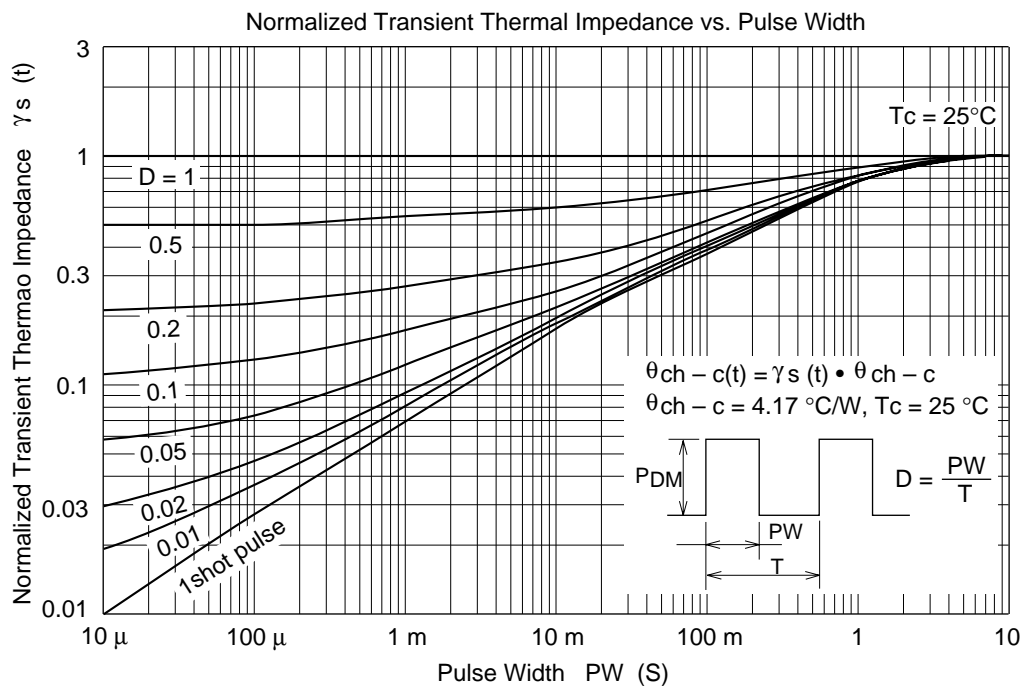
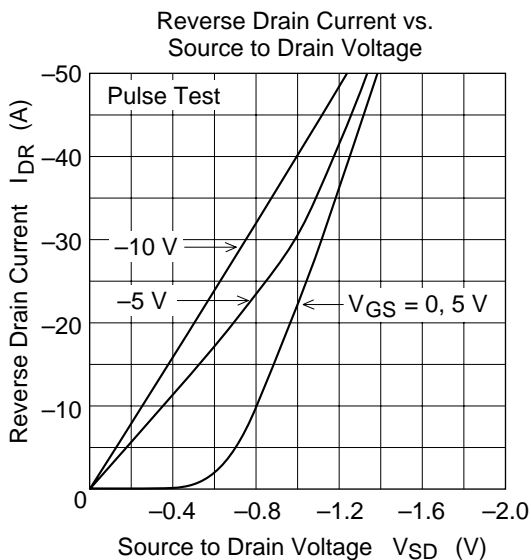
Note: 3. Pulse test

Main Characteristics

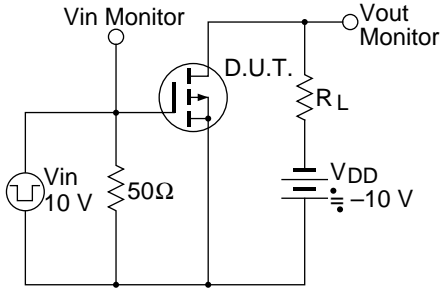




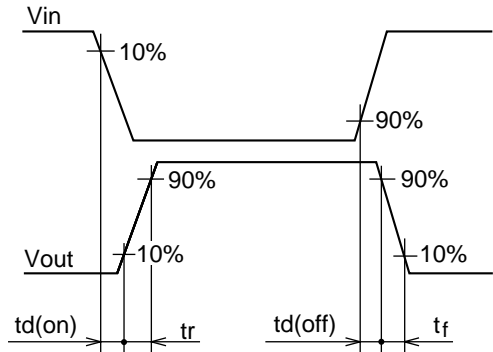




Switching Timen Test Circuit



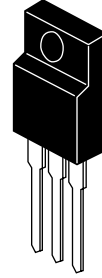
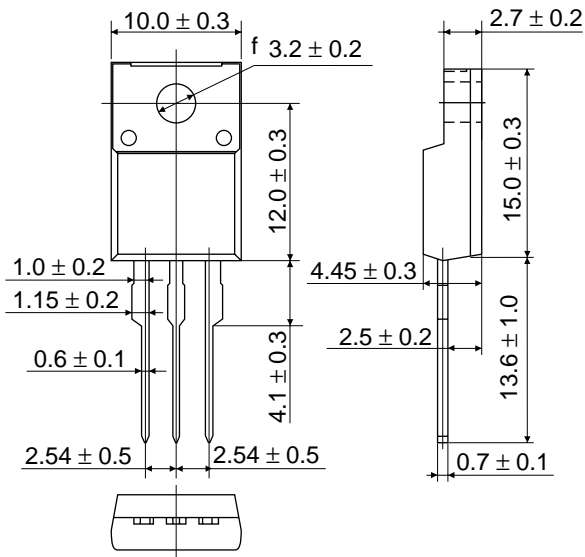
Waveform





## Package Dimensions

Unit: mm



Hitachi Code	TO-220CFM
EIAJ	—
JEDEC	—

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