To all our customers

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

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2SK2726

Silicon N Channel MOS FET
High Speed Power Switching

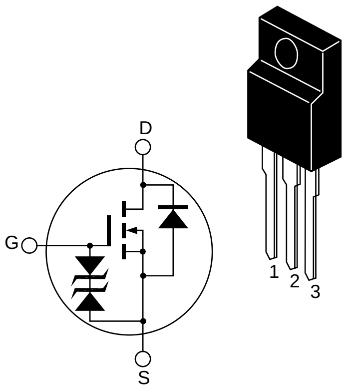
ADE-208-453B (Z)
3rd. Edition
Sep. 1997

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Avalanche ratings

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}	500	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D	7	A
Drain peak current	$I_{D(pulse)}$*[1]	28	A
Body to drain diode reverse drain current	I_{DR}	7	A
Avalanche current	I_{AP}*[3]	7	A
Avalanche energy	E_{AR}*[3]	2.7	mJ
Channel dissipation	Pch*[2]	30	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

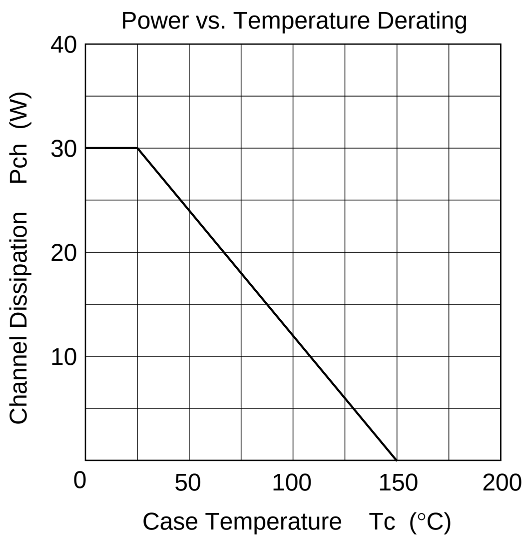
Notes: 1. PW ≤ 10µs, duty cycle ≤ 1 %
2. Value at Tc = 25°C
3. Value at Tch = 25°C, Rg ≥ 50Ω

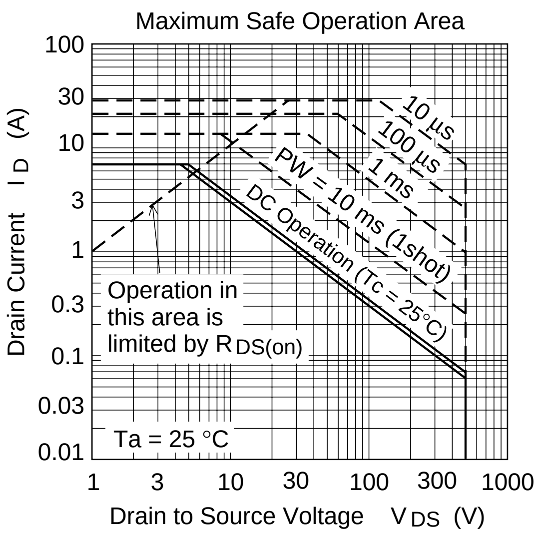
Electrical Characteristics (Ta = 25°C)

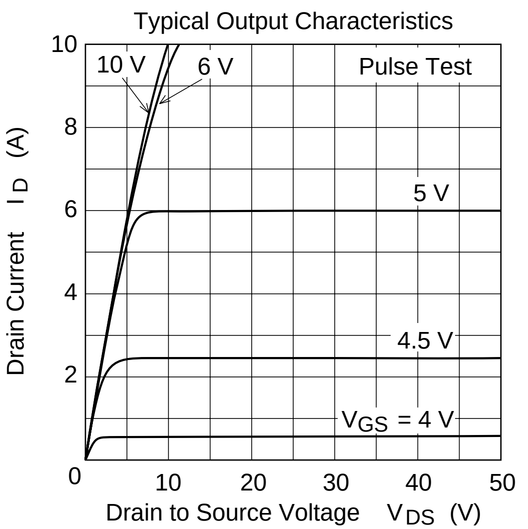
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	500	—	—	V	I_D = 10mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	I_G = ±100µA, V_{DS} = 0
Gate to source leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±25V, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	10	µA	V_{DS} = 500 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	2.5	—	3.5	V	I_D = 1mA, V_{DS} = 10V*[1]
Static drain to source on state resistance	$R_{DS(on)}$	—	0.75	0.95	Ω	I_D = 4A, V_{GS} = 10V*[1]
Forward transfer admittance	$\|y_{fs}\|$	3.5	6.0	—	S	I_D = 4A, V_{DS} = 10V*[1]
Input capacitance	Ciss	—	1100	—	pF	V_{DS} = 10V
Output capacitance	Coss	—	330	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	65	—	pF	f = 1MHz
Total gate charge	Qg	—	21	—	nc	V_{DD} = 400V
Gate to source charge	Qgs	—	5	—	nc	V_{GS} = 10V
Gate to drain charge	Qgd	—	8	—	nc	I_D = 7A
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	V_{GS} = 10V, I_D = 4A
Rise time	t_r	—	65	—	ns	R_L = 7.5Ω
Turn-off delay time	$t_{d(off)}$	—	60	—	ns	
Fall time	t_f	—	40	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.95	—	V	I_D = 7A, V_{GS} = 0
Body to drain diode reverse recovery time	t_{rr}	—	260	—	ns	I_F = 7A, V_{GS} = 0 diF/ dt = 100A/µs

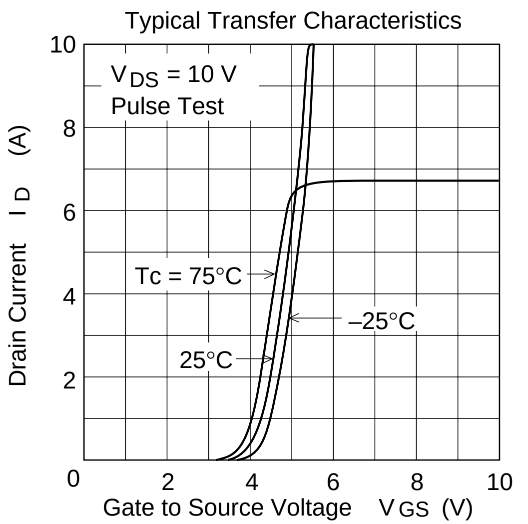
Note: 1. Pulse test

Main Characteristics

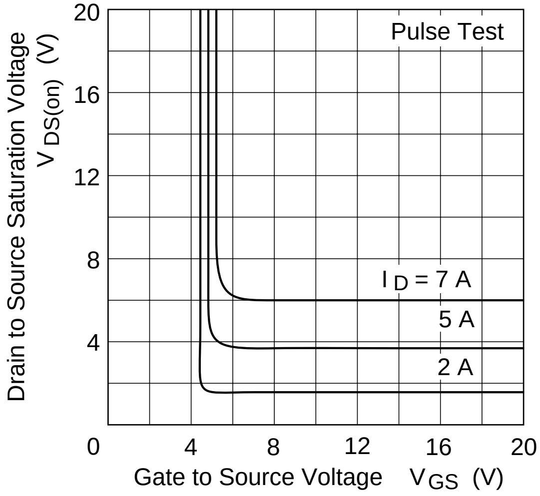




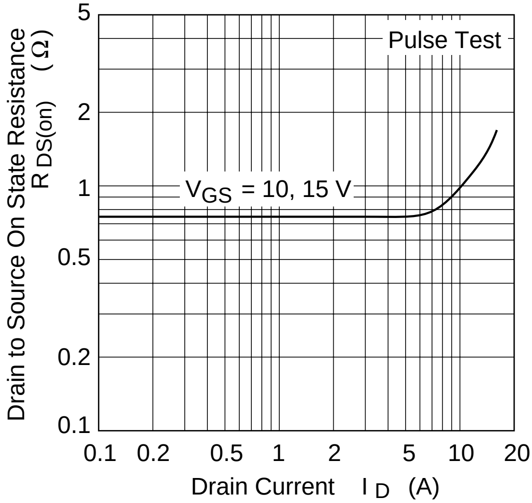




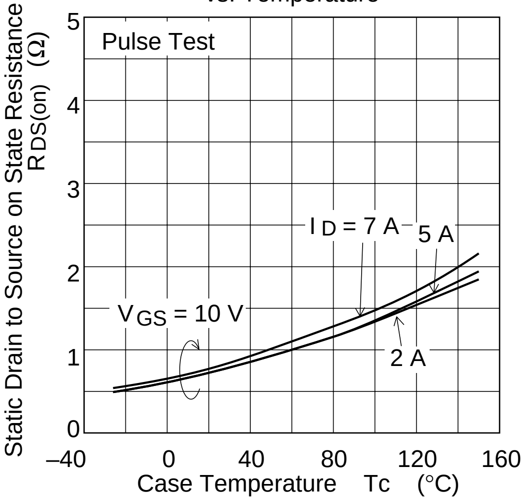
Drain to Source Saturation Voltage vs. Gate to Source Voltage



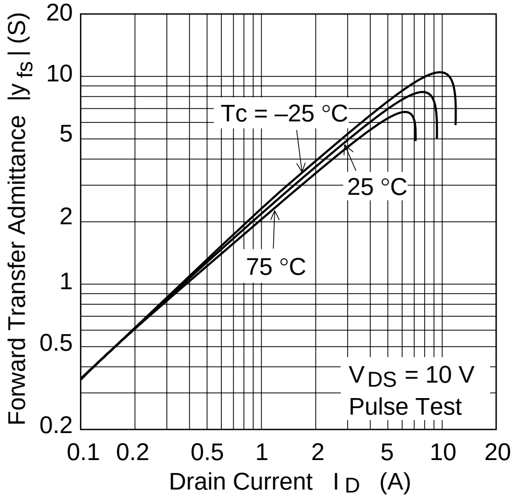
Static Drain to Source on State Resistance vs. Drain Current



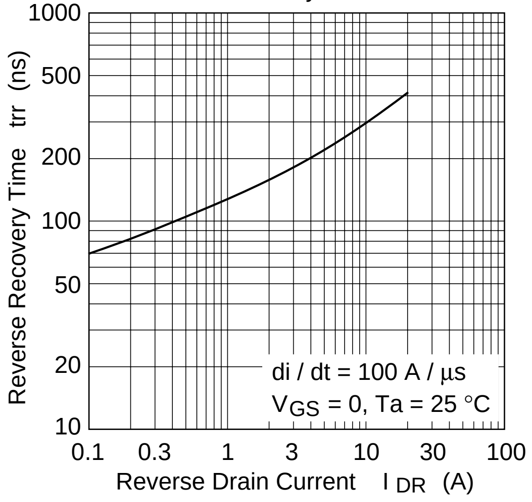
Static Drain to Source on State Resistance vs. Temperature



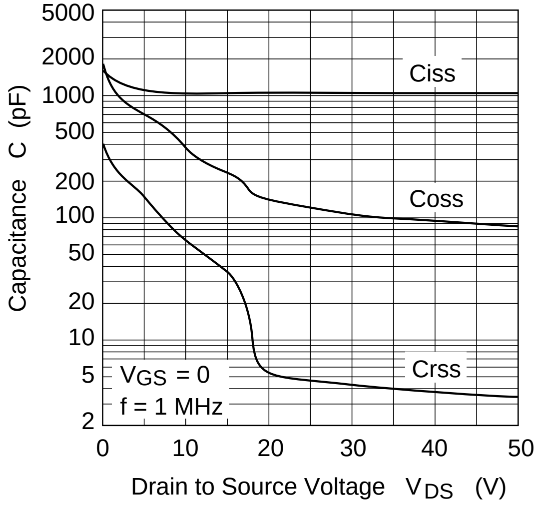
Forward Transfer Admittance vs. Drain Current



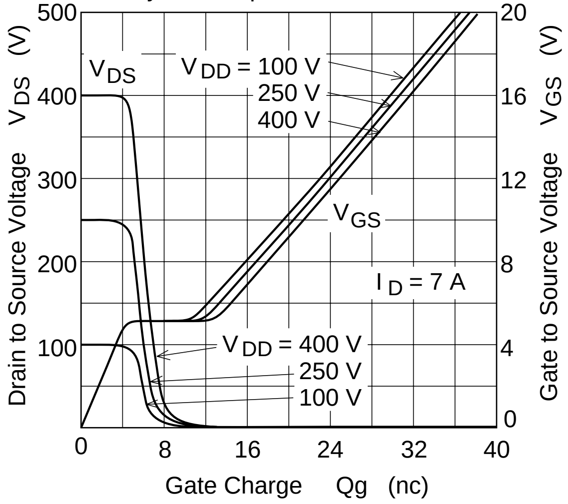
Body to Drain Diode Reverse Recovery Time



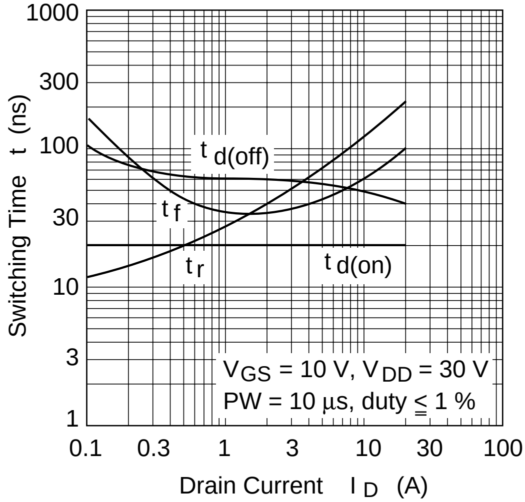
Typical Capacitance vs. Drain to Source Voltage



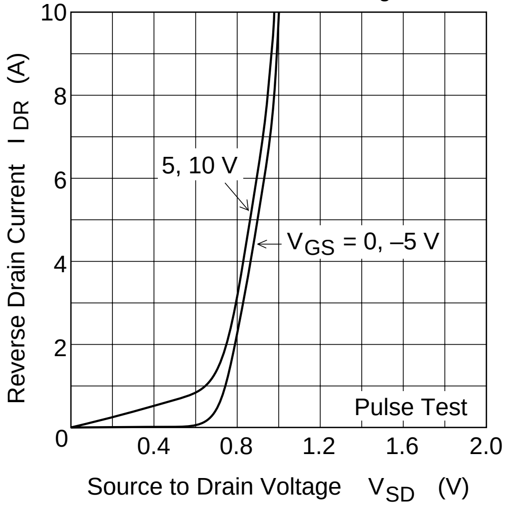
Dynamic Input Characteristics



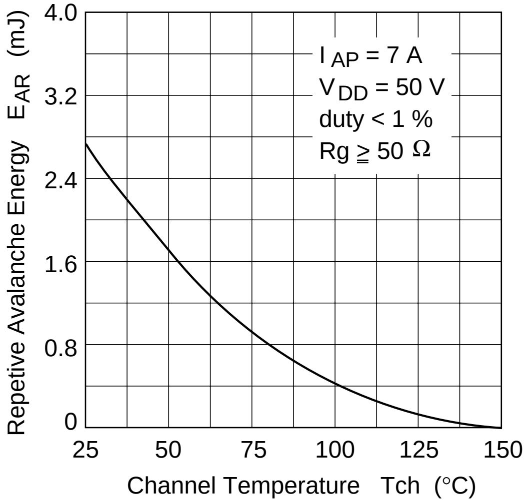
Switching Characteristics



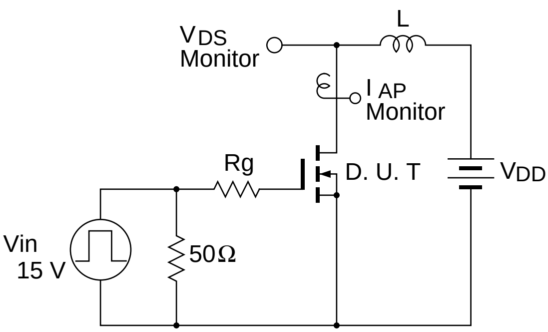
Reverse Drain Current vs.
Source to Drain Voltage



Maximum Avalanche Energy vs.
Channel Temperature Derating

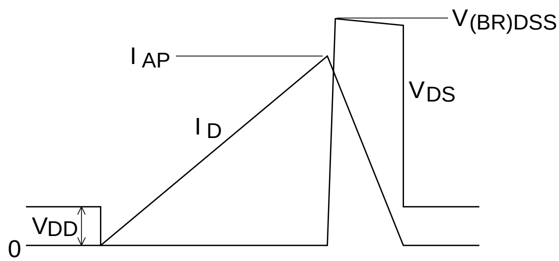


Avalanche Test Circuit

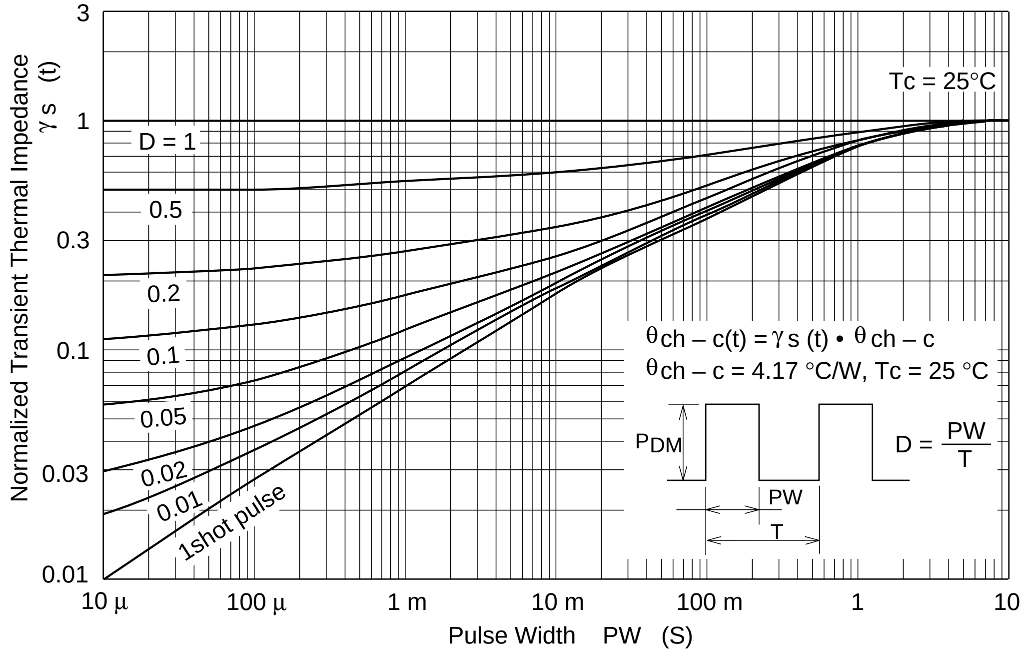


Avalanche Waveform

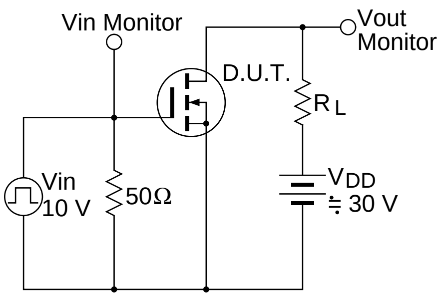
$$E_{AR} = \frac{1}{2} \cdot L \cdot I_{AP}^2 \cdot \frac{V_{DSS}}{V_{DSS} - V_{DD}}$$



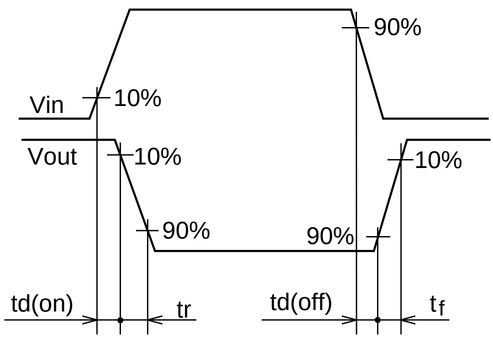
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit

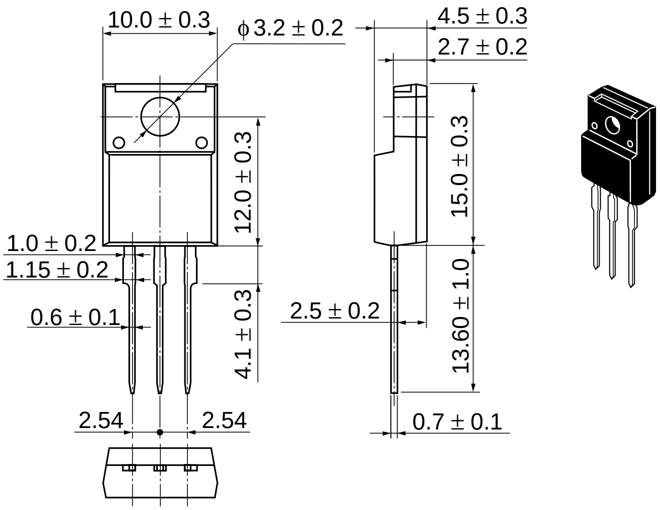


Switching Time Waveforms



Package Dimensions

As of January, 2001
Unit: mm



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

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