



# FS70KM-2

High-Speed Switching Use  
Nch Power MOS FET

REJ03G1428-0200

(Previous: MEJ02G0107-0101)

Rev.2.00

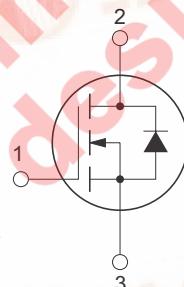
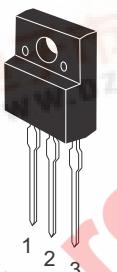
Aug 07, 2006

## Features

- Drive voltage : 10 V
- $V_{DSS}$  : 100 V
- $r_{DS(ON)}(\text{max})$  : 20 mΩ
- $I_D$  : 70 A
- Integrated Fast Recovery Diode (TYP.) : 120 ns
- $V_{iso}$  : 2000 V

## Outline

RENESAS Package code: PRSS0003AB-A  
(Package name: TO-220FN)



1. Gate
2. Drain
3. Source

## Applications

Motor control, Lamp control, Solenoid control, DC-DC converters, etc.

## Maximum Ratings

(T<sub>c</sub> = 25°C)

Parameter	Symbol	Ratings	Unit	Conditions
Drain-source voltage	$V_{DSS}$	100	V	$V_{GS} = 0$ V
Gate-source voltage	$V_{GSS}$	$\pm 20$	V	$V_{DS} = 0$ V
Drain current	$I_D$	70	A	
Drain current (Pulsed)	$I_{DM}$	280	A	
Avalanche drain current (Pulsed)	$I_{DA}$	70	A	$L = 100$ μH
Source current	$I_S$	70	A	
Source current (Pulsed)	$I_{SM}$	280	A	
Maximum power dissipation	$P_D$	35	W	
Channel temperature	T <sub>ch</sub>	− 55 to +150	°C	
Storage temperature	T <sub>stg</sub>	− 55 to +150	°C	
Isolation voltage	$V_{iso}$	2000	V	AC for 1 minute, Terminal to case
Mass	—	2.0	g	Typical value

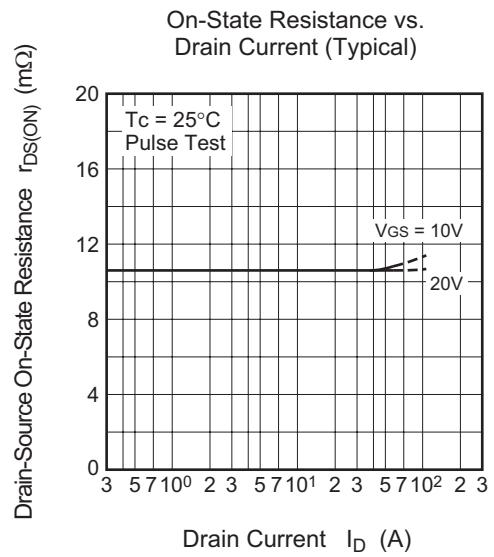
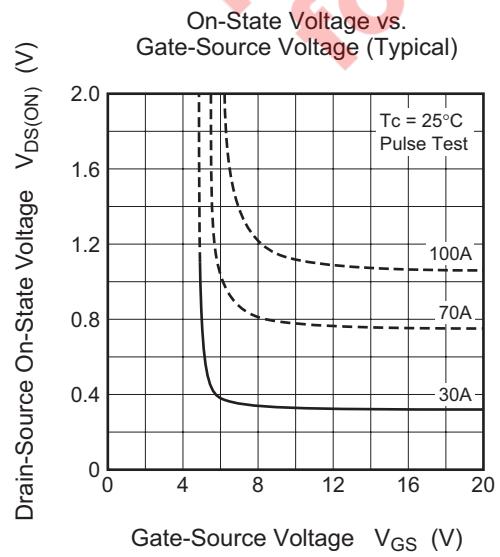
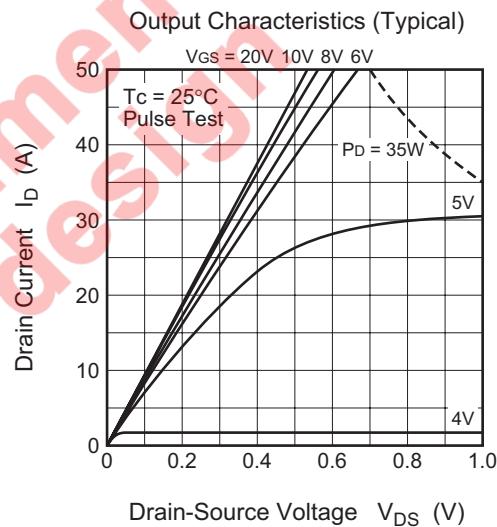
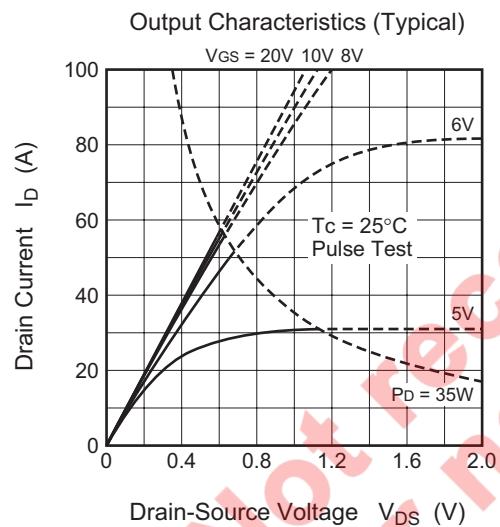
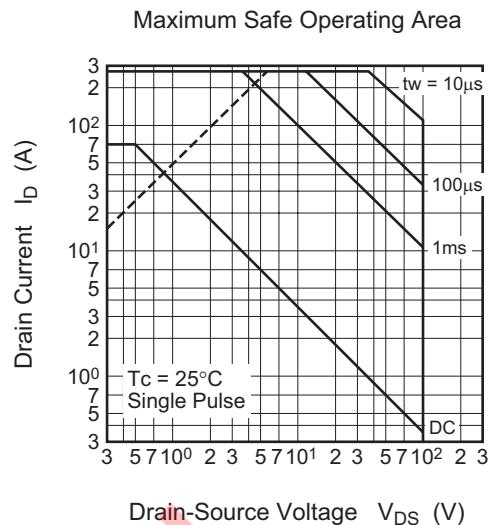
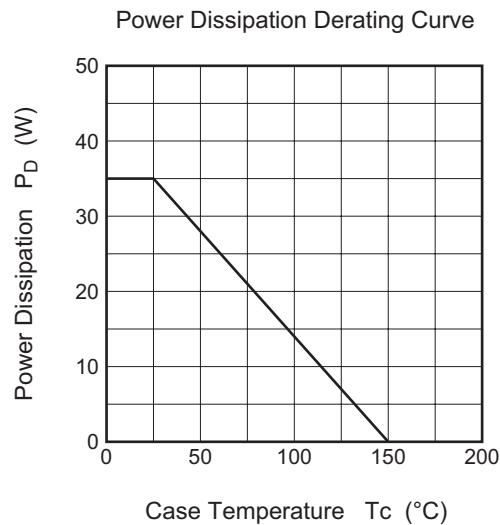
## Electrical Characteristics

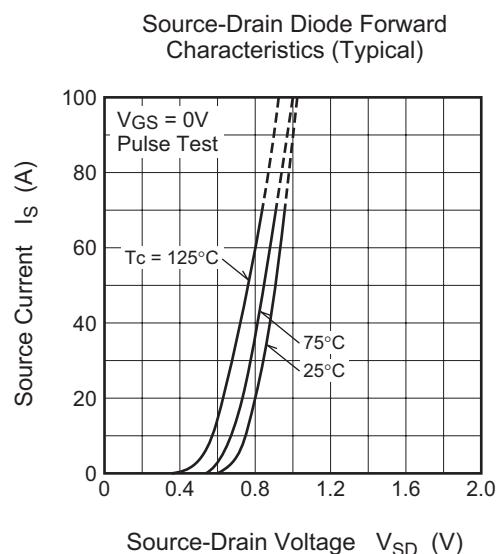
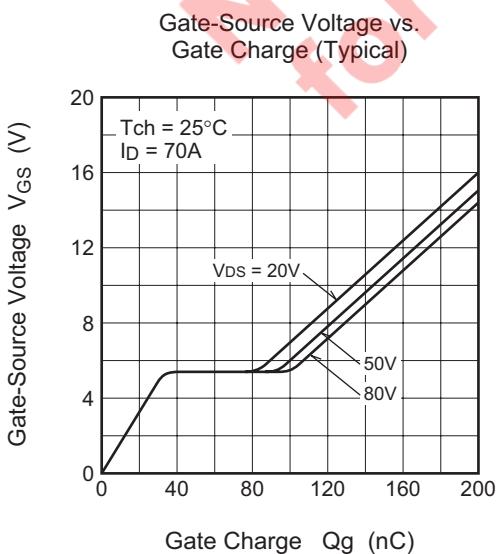
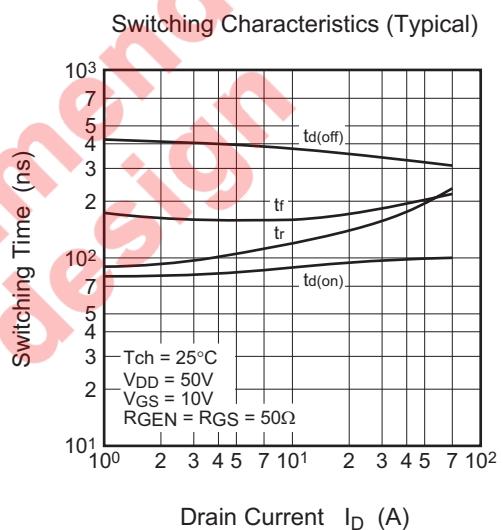
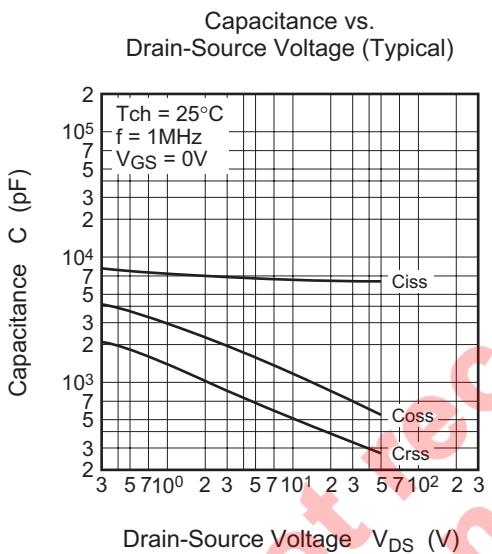
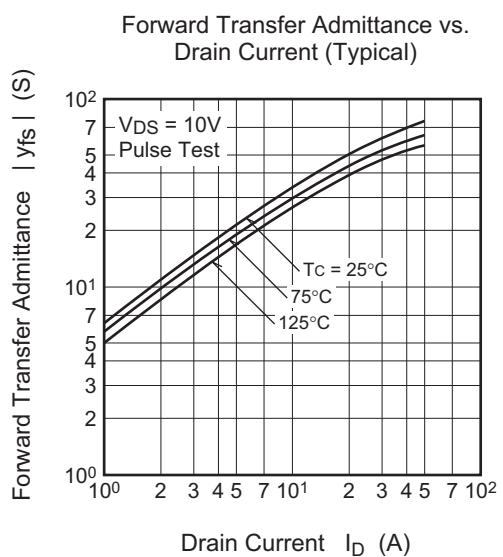
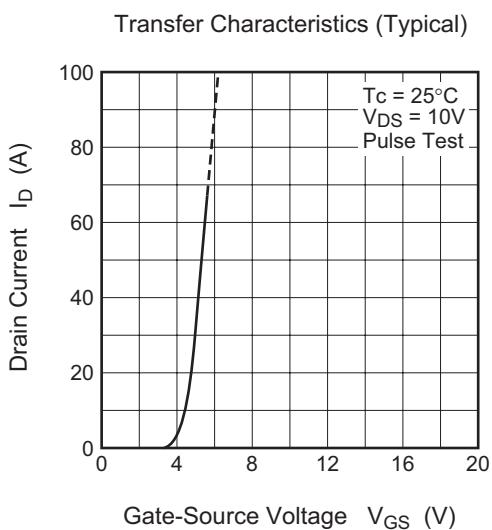
(Tch = 25°C)

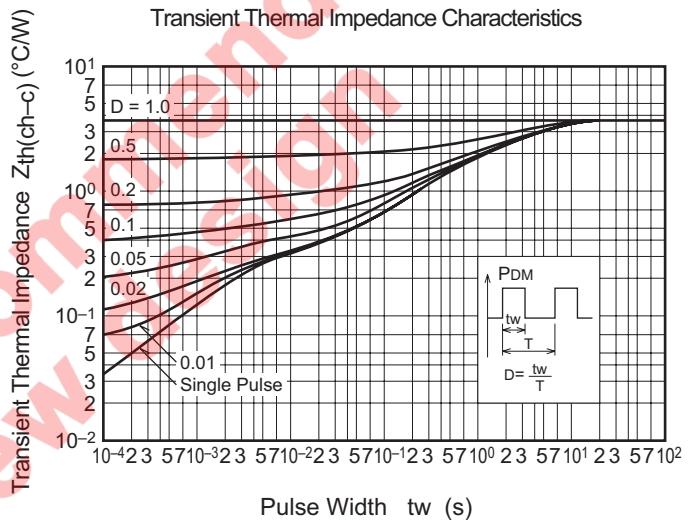
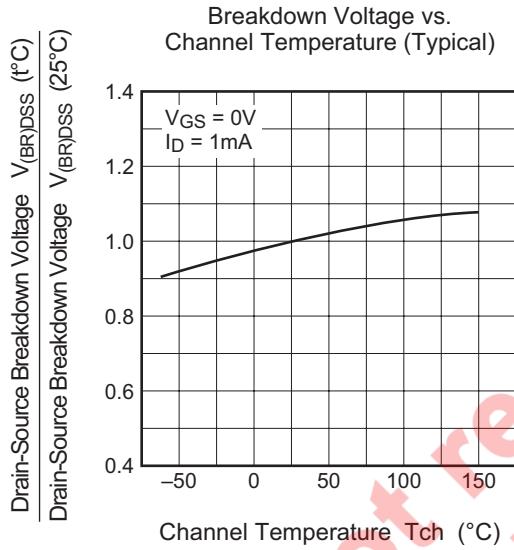
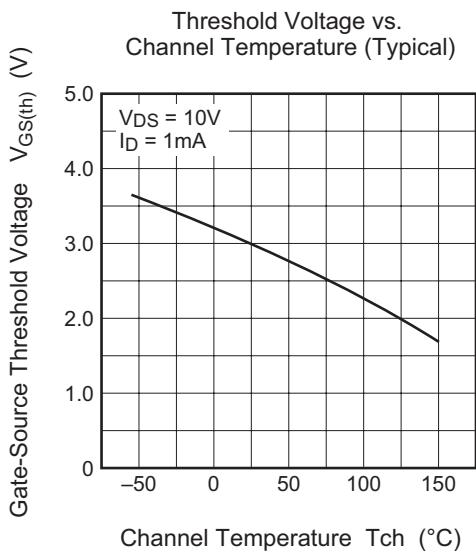
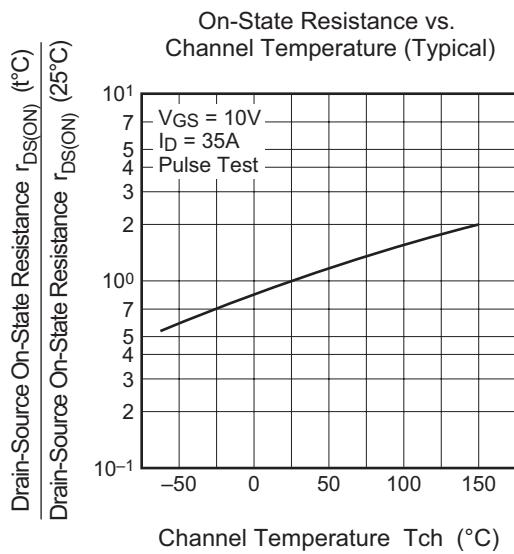
Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain-source breakdown voltage	$V_{(BR)DSS}$	100	—	—	V	$I_D = 1 \text{ mA}, V_{GS} = 0 \text{ V}$
Gate-source leakage current	$I_{GSS}$	—	—	$\pm 0.1$	$\mu\text{A}$	$V_{GS} = \pm 20 \text{ V}, V_{DS} = 0 \text{ V}$
Drain-source leakage current	$I_{DSS}$	—	—	0.1	mA	$V_{DS} = 100 \text{ V}, V_{GS} = 0 \text{ V}$
Gate-source threshold voltage	$V_{GS(\text{th})}$	2.0	3.0	4.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Drain-source on-state resistance	$r_{DS(\text{ON})}$	—	14	20	$\text{m}\Omega$	$I_D = 35 \text{ A}, V_{GS} = 10 \text{ V}$
Drain-source on-state voltage	$V_{DS(\text{ON})}$	—	0.49	0.7	V	$I_D = 35 \text{ A}, V_{GS} = 10 \text{ V}$
Forward transfer admittance	$ y_{fs} $	—	53	—	S	$I_D = 35 \text{ A}, V_{DS} = 10 \text{ V}$
Input capacitance	$C_{iss}$	—	6540	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V},$ $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	1150	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	500	—	pF	
Turn-on delay time	$t_{d(\text{on})}$	—	95	—	ns	$V_{DD} = 50 \text{ V}, I_D = 35 \text{ A},$ $V_{GS} = 10 \text{ V},$ $R_{\text{GEN}} = R_{GS} = 50 \Omega$
Rise time	$t_r$	—	175	—	ns	
Turn-off delay time	$t_{d(\text{off})}$	—	330	—	ns	
Fall time	$t_f$	—	190	—	ns	
Source-drain voltage	$V_{SD}$	—	1.0	1.5	V	$I_S = 35 \text{ A}, V_{GS} = 0 \text{ V}$
Thermal resistance	$R_{th(\text{ch-c})}$	—	—	3.57	$^{\circ}\text{C}/\text{W}$	Channel to case
Reverse recovery time	$t_{rr}$	—	120	—	ns	$I_S = 70 \text{ A}, d_{is}/d_t = -100 \text{ A}/\mu\text{s}$

Not recommended  
for new design

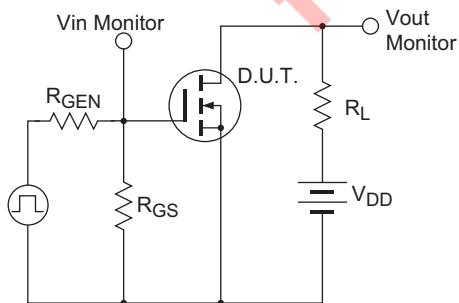
## Performance Curves



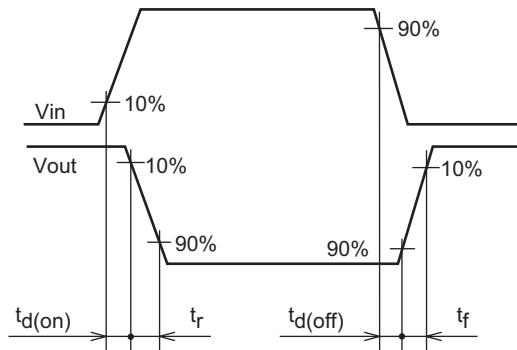




Switching Time Measurement Circuit



Switching Waveform



## Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
TO-220FN	—	PRSS0003AB-A	—	2.0g	

## Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Plastic Magazine (Tube)	50	Type name	FS70KM-2
Lead form	Plastic Magazine (Tube)	50	Type name – Lead forming code	FS70KM-2-A8

Note : Please confirm the specification about the shipping in detail.

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