

# 2SJ471

## Silicon P Channel DV-L MOS FET

REJ03G0865-0200  
(Previous: ADE-208-540)  
Rev.2.00  
Sep 07, 2005

### Description

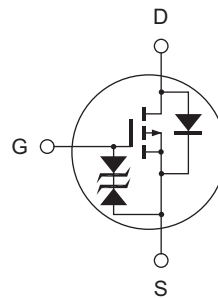
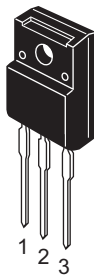
High speed power switching

### Features

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

### Outline

RENESAS Package code: PRSS0003AE-A  
(Package name: TO-220C•FM)



1. Gate
2. Drain
3. Source

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Drain to source voltage	V <sub>DSS</sub>	-30	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	-30	A
Drain peak current	I <sub>D (pulse)</sub> <sup>Note 1</sup>	-120	A
Body-Drain diode reverse Drain current	I <sub>DR</sub>	-30	A
Channel dissipation	P <sub>ch</sub> <sup>Note 2</sup>	30	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%  
 2. Value at Tc = 25°C

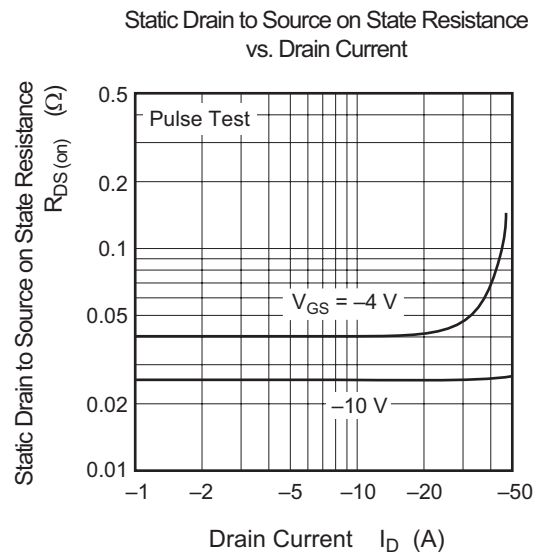
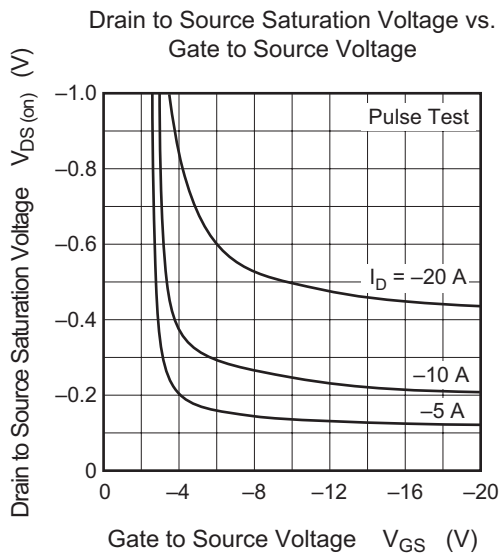
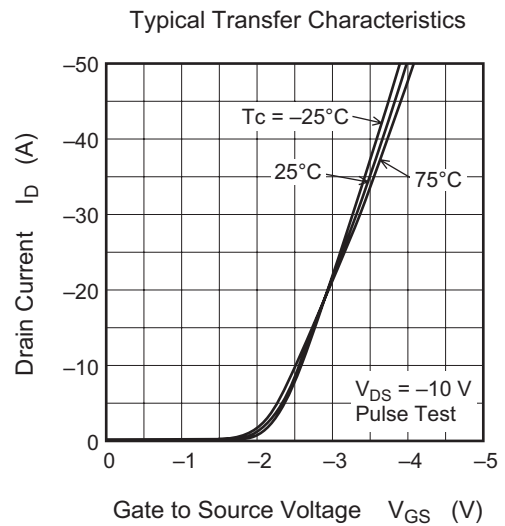
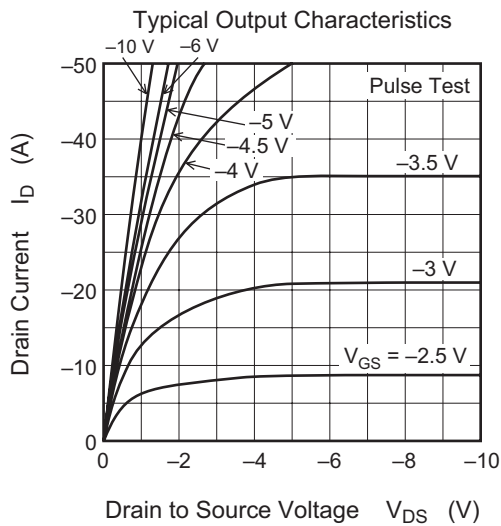
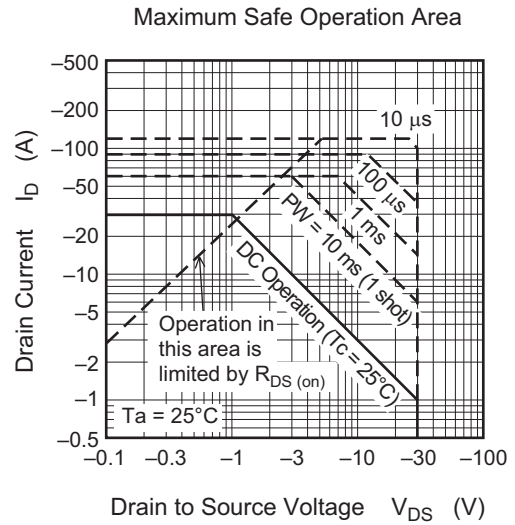
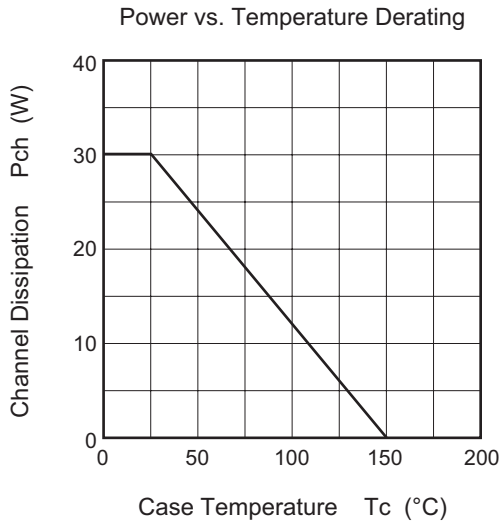
## Electrical Characteristics

(Ta = 25°C)

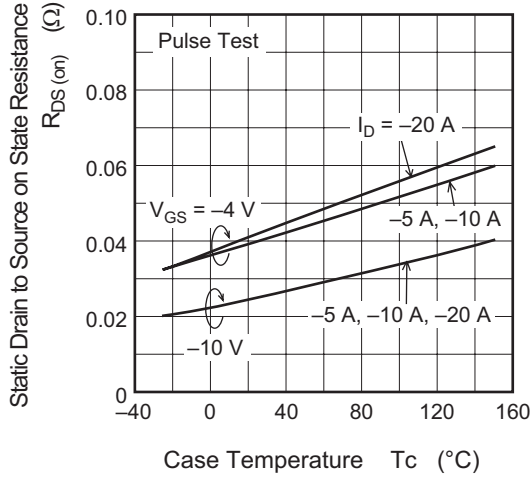
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR) DSS</sub>	-30	—	—	V	I <sub>D</sub> = -10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR) GSS</sub>	±20	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	-10	μA	V <sub>DS</sub> = -30 V, V <sub>GS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0
Gate to source cutoff voltage	V <sub>GS (off)</sub>	-1.0	—	-2.0	V	I <sub>D</sub> = -1 mA, V <sub>DS</sub> = -10 V
Static drain to source on state resistance	R <sub>DS (on) 1</sub>	—	25	35	mΩ	I <sub>D</sub> = -15 A, V <sub>GS</sub> = -10 V <sup>Note 3</sup>
	R <sub>DS (on) 2</sub>	—	40	60	mΩ	I <sub>D</sub> = -15 A, V <sub>GS</sub> = -4 V <sup>Note 3</sup>
Forward transfer admittance	y <sub>fs</sub>	12	20	—	S	I <sub>D</sub> = -15 A, V <sub>DS</sub> = -10 V <sup>Note 3</sup>
Input capacitance	C <sub>iss</sub>	—	1700	—	pF	V <sub>DS</sub> = -10 V
Output capacitance	C <sub>oss</sub>	—	950	—	pF	V <sub>GS</sub> = 0
Reverse transfer capacitance	C <sub>rss</sub>	—	260	—	pF	f = 1 MHz
Turn-on delay time	t <sub>d (on)</sub>	—	20	—	ns	I <sub>D</sub> = -15 A
Rise time	t <sub>r</sub>	—	290	—	ns	V <sub>GS</sub> = -10 V
Turn-off delay time	t <sub>d (off)</sub>	—	170	—	ns	R <sub>L</sub> = 0.67 Ω
Fall time	t <sub>f</sub>	—	130	—	ns	
Body-Drain diode forward voltage	V <sub>DF</sub>	—	-1.1	—	V	I <sub>F</sub> = -30 A, V <sub>GS</sub> = 0
Body-Drain diode reverse recovery time	t <sub>rr</sub>	—	70	—	ns	I <sub>F</sub> = -30 A, V <sub>GS</sub> = 0 di <sub>F</sub> /dt = 50 A/μs

Note: 3. Pulse test

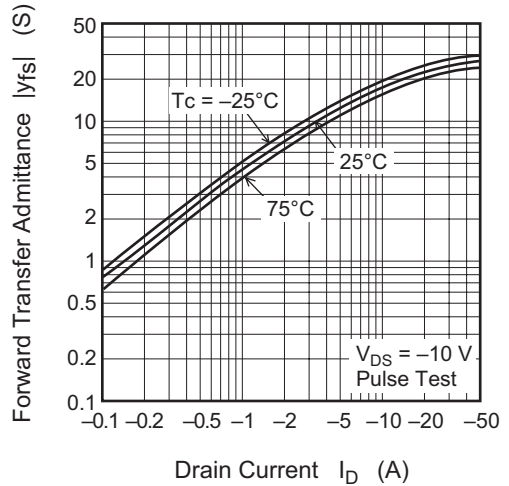
### Main Characteristics



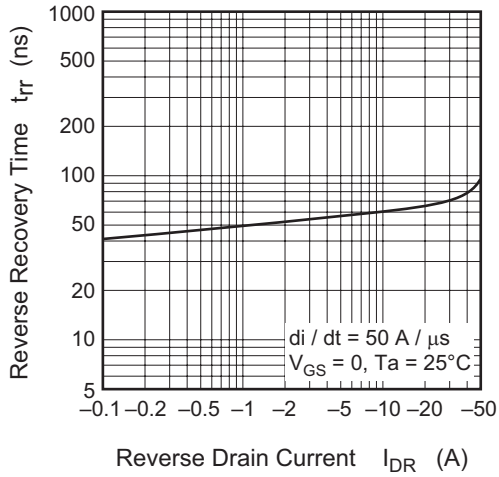
Static Drain to Source on State Resistance vs. Temperature



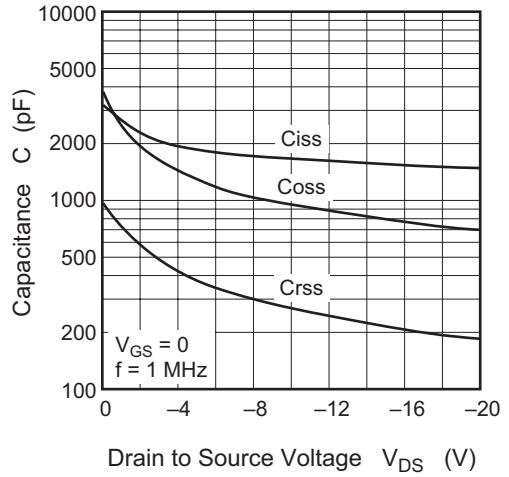
Forward Transfer Admittance vs. Drain Current



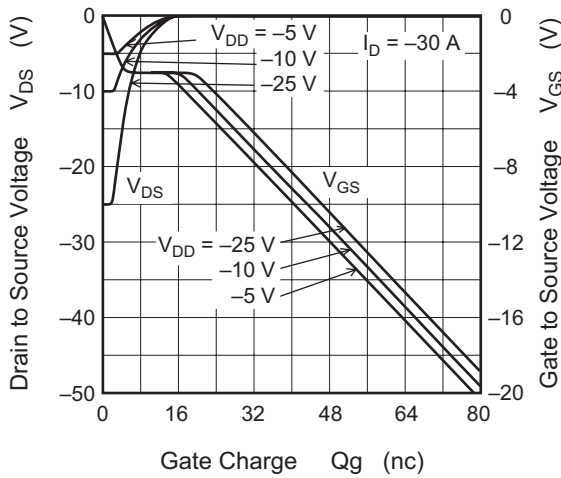
Body-Drain Diode Reverse Recovery Time



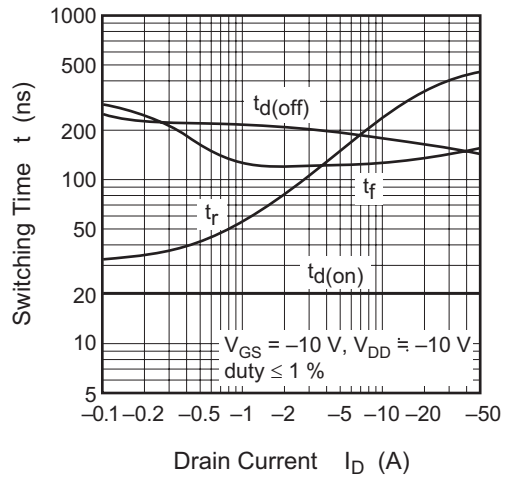
Typical Capacitance vs. Drain to Source Voltage



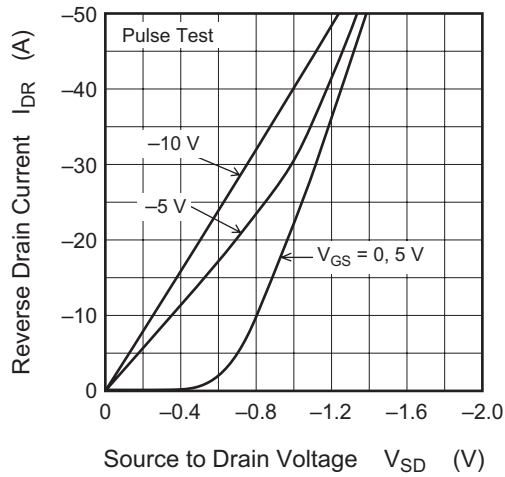
Dynamic Input Characteristics



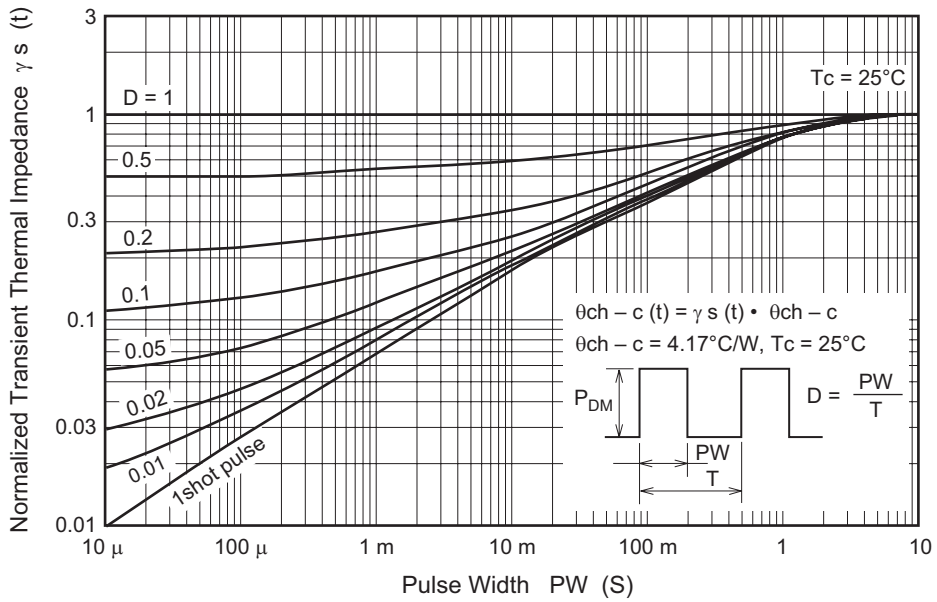
Switching Characteristics



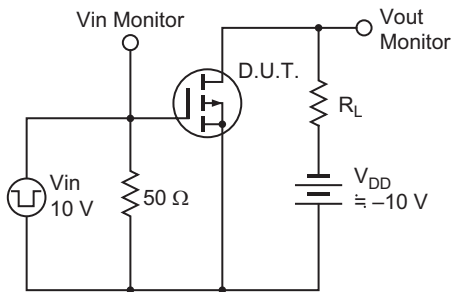
Reverse Drain Current vs. Source to Drain Voltage



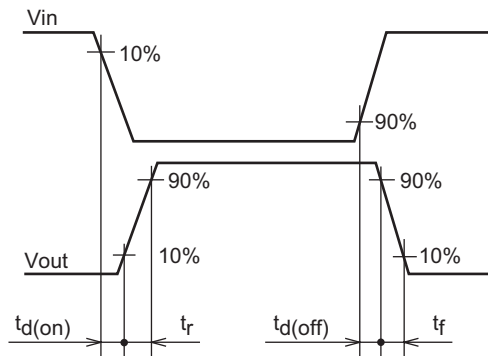
Normalized Transient Thermal Impedance vs. Pulse Width



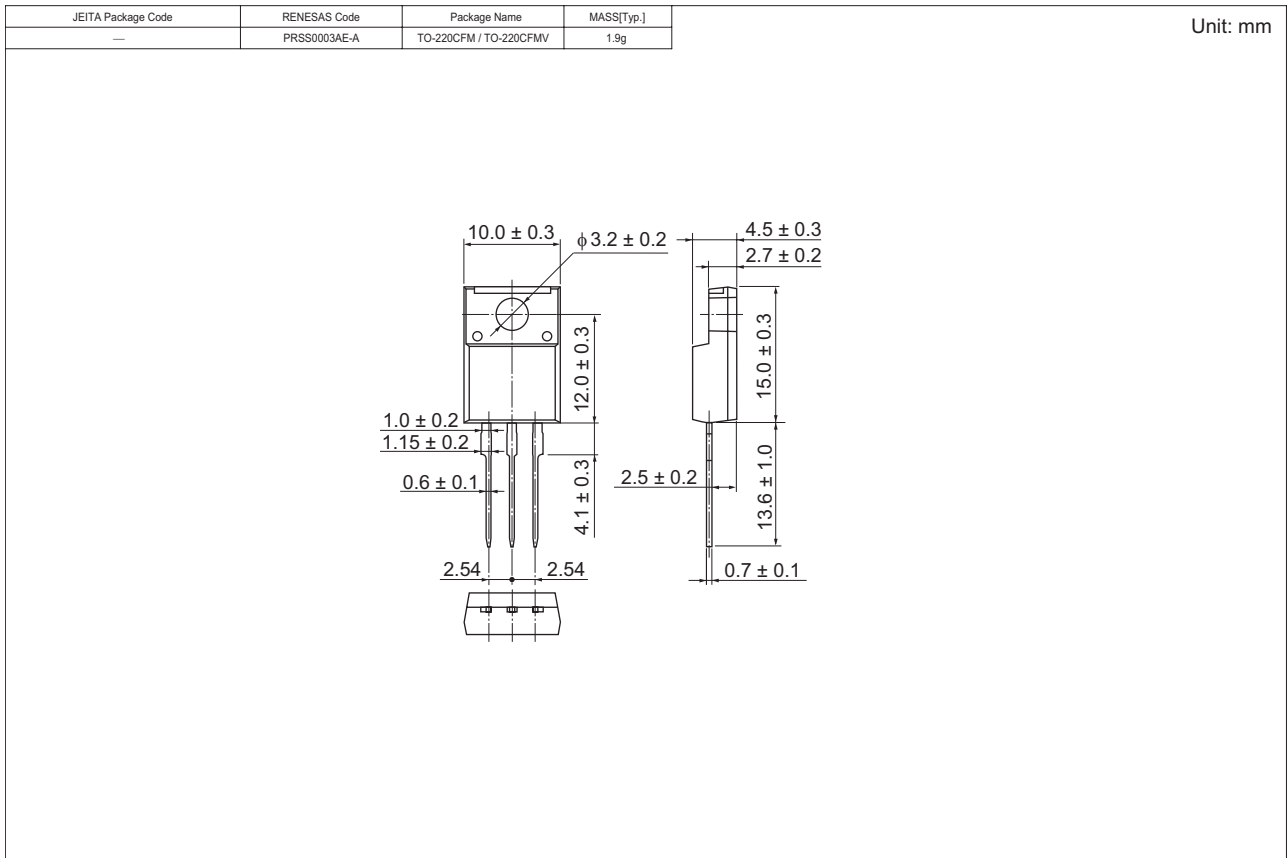
Switching Time Test Circuit



Waveform



## Package Dimensions



## Ordering Information

Part Name	Quantity	Shipping Container
2SJ471-E	50 pcs	Plastic magazine

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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