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

Cautions

Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SK3287

Silicon N Channel MOS FET High Speed Switching

RENESAS

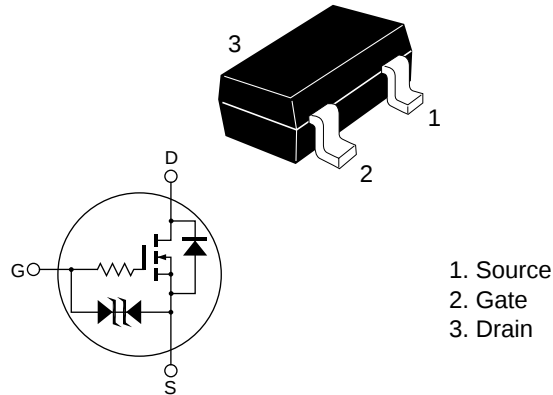
ADE-208-742 C (Z)
4th.Edition.
June 1999

Features

- Low on-resistance
 $R_{DS} = 1.26 \Omega$ typ. ($V_{GS} = 10 \text{ V}$, $I_D = 150 \text{ mA}$)
 $R_{DS} = 2.8 \Omega$ typ. ($V_{GS} = 4 \text{ V}$, $I_D = 50 \text{ mA}$)
- 4 V gate drive device.
- Small package (MPAK)

Outline

MPAK



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	300	mA
Drain peak current	$I_{D(pulse)}$ ^{Note1}	1.2	A
Body-drain diode reverse drain current	I_{DR}	300	mA
Channel dissipation	P_{ch} ^{Note 2}	400	mW
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

Note: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$

2. Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)

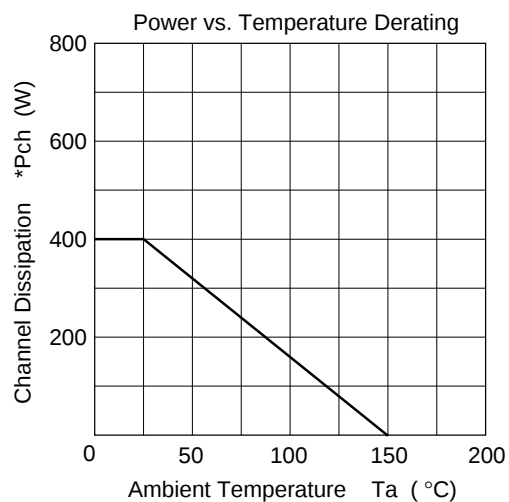
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 100 \mu A$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±5	μA	$V_{GS} = \pm 16 V$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 30 V$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.3	—	2.3	V	$I_D = 10 \mu A$, $V_{DS} = 5 V$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.26	1.44	Ω	$I_D = 150 mA$, $V_{GS} = 10 V$ ^{Note 3}
	$R_{DS(on)}$	—	2.8	3.44	Ω	$I_D = 50 mA$, $V_{GS} = 4 V$ ^{Note 3}
Forward transfer admittance	$ y_{fs} $	145	220	—	mS	$I_D = 150 mA$, $V_{DS} = 10 V$ ^{Note 3}
Input capacitance	C_{iss}	—	6	—	pF	$V_{DS} = 10 V$
Output capacitance	C_{oss}	—	18	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	2	—	pF	$f = 1 MHz$
Turn-on delay time	$t_{d(on)}$	—	200	—	ns	$I_D = 150 mA$, $V_{GS} = 10 V$
Rise time	t_r	—	600	—	ns	$R_L = 66.6 \Omega$
Turn-off delay time	$t_{d(off)}$	—	1100	—	ns	
Fall time	t_f	—	1100	—	ns	

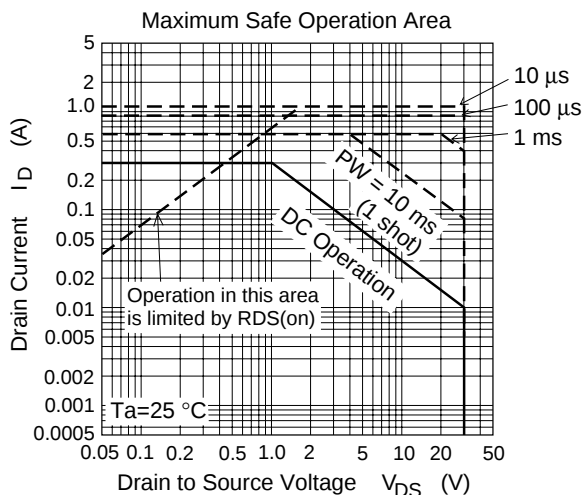
Note: 3. Pulse test

4. Marking is AN

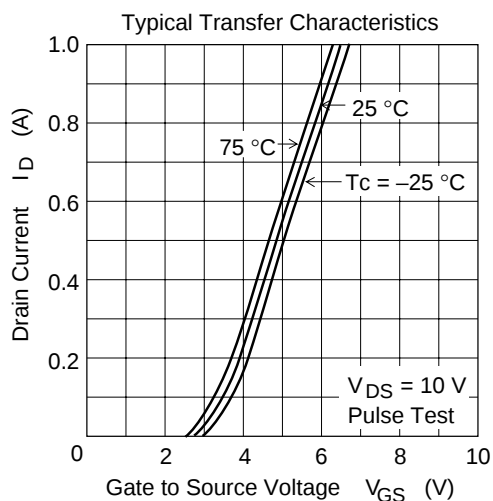
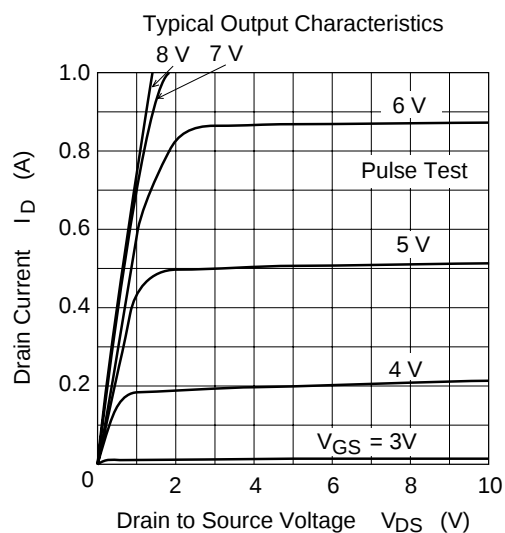
Main Characteristics

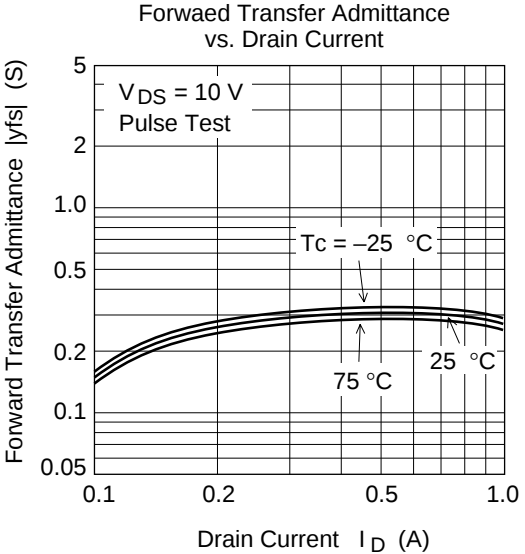
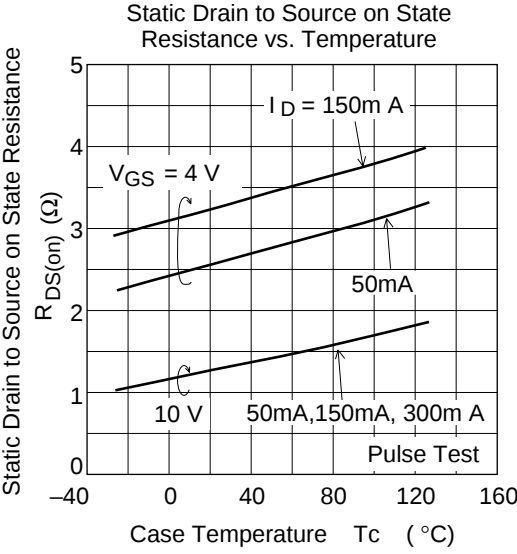
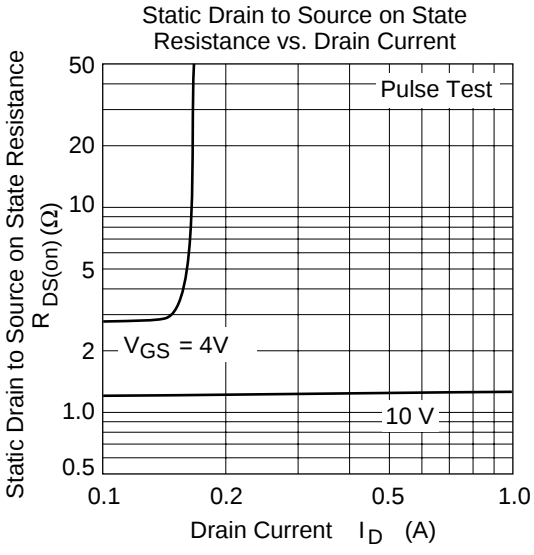
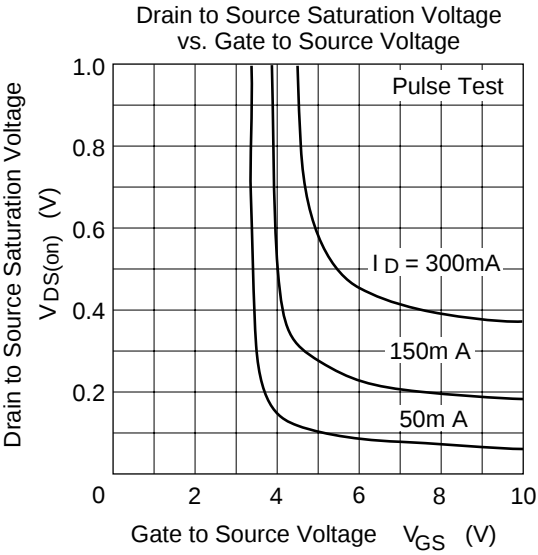


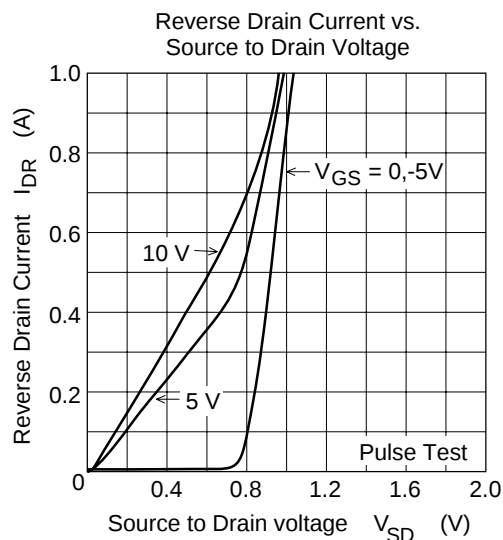
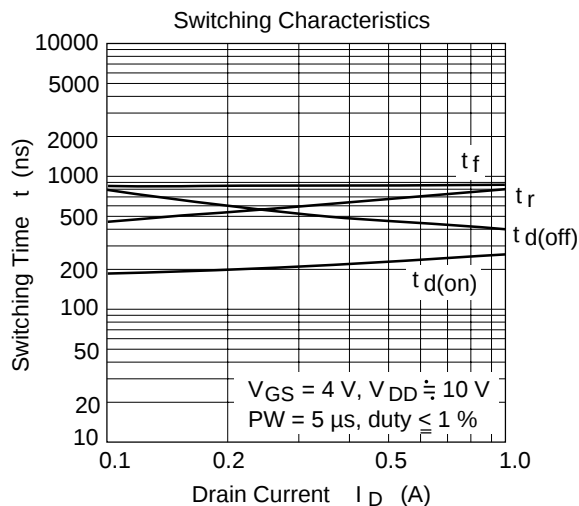
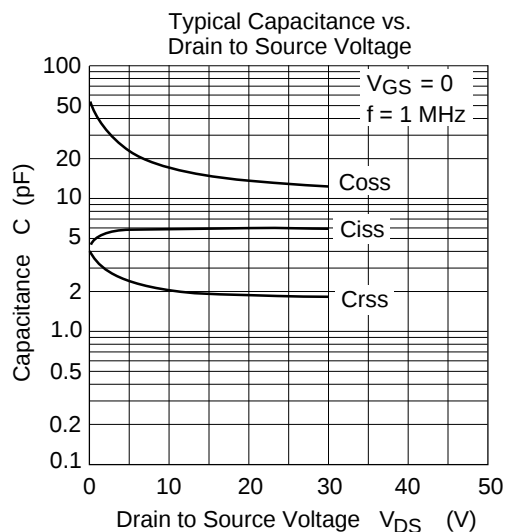
*Value on the alumina ceramic board.(12.5x20x0.7mm)



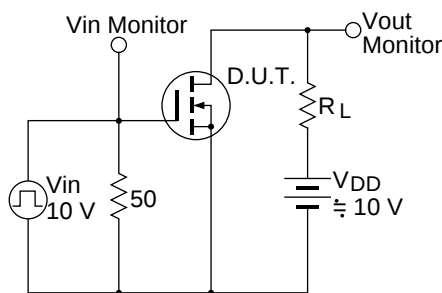
Value on the alumina ceramic board.(12.5x20x0.7mm)



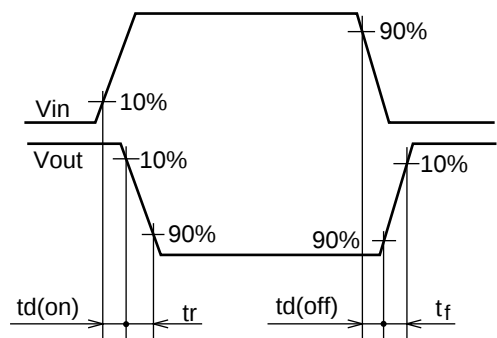




Switching Time Test Circuit



Waveforms



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