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

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Keep safety first in your circuit designs!

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2SK2734

Silicon N Channel MOS FET High Speed Power Switching

RENESAS

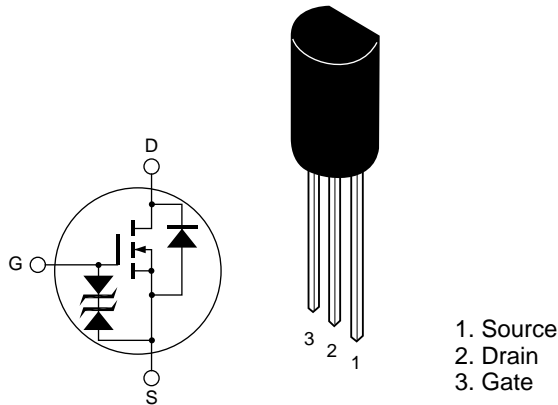
ADE-208-520 (Z)
1st. Edition
Jun 1997

Features

- Low on-resistance
 $R_{DS(on)} = 0.04\Omega$ typ (at $V_{GS} = 10\text{ V}$, $I_D = 2.5\text{ A}$)
- 4V gate drive devices.
- Large current capacitance
 $I_D = 5\text{ A}$

Outline

TO-92MOD.



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 | 5 | A |
| Drain peak current | I _{D(pulse)} *1 | 20 | A |
| Body to drain diode reverse drain current | I _{DR} | 5 | A |
| Channel dissipation | Pch | 0.9 | W |
| Channel temperature | Tch | 150 | °C |
| Storage temperature | Tstg | -55 to +150 | °C |

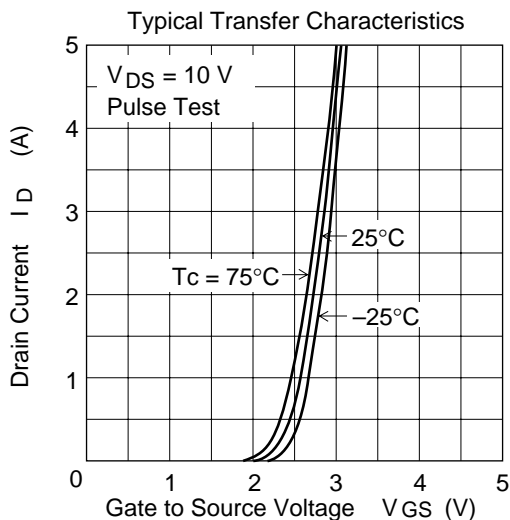
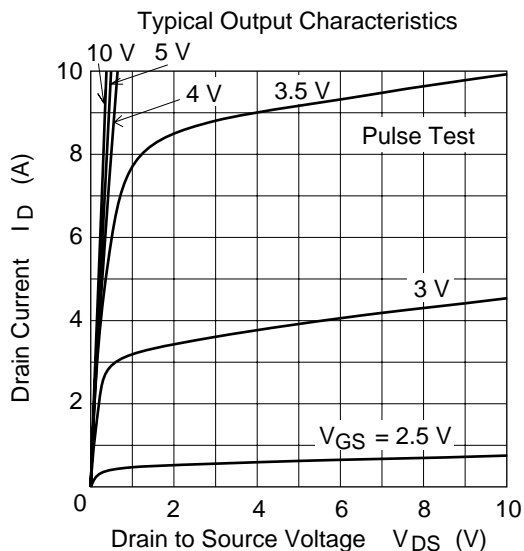
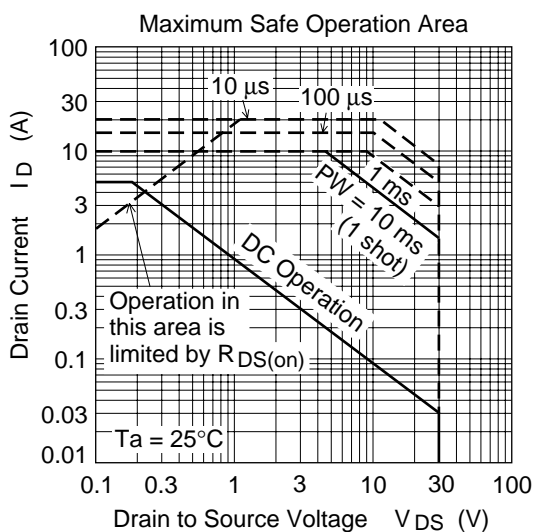
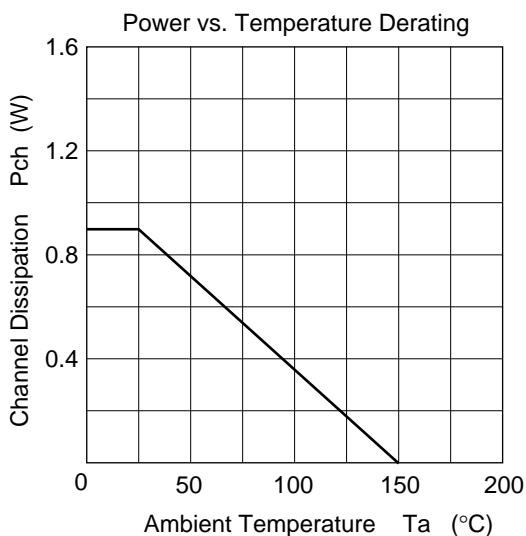
Note: 1. PW ≤ 10μs, duty cycle ≤ 1 %

Electrical Characteristics (Ta = 25°C)

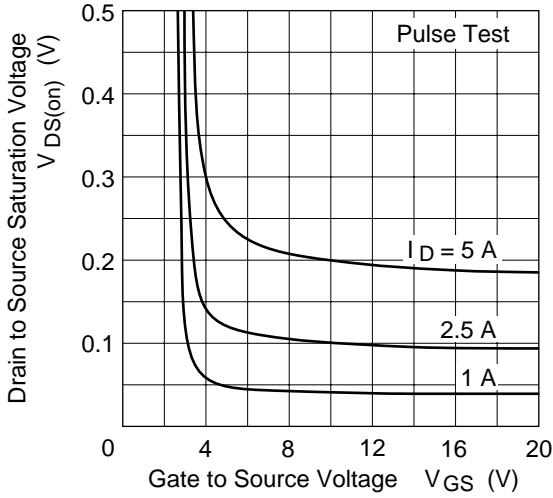
| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|--|----------------------|-----|-------|-------|------|---|
| Drain to source breakdown voltage | V _{(BR)DSS} | 30 | — | — | V | I _D = 10mA, V _{GS} = 0 |
| Gate to source breakdown voltage | V _{(BR)GSS} | ±20 | — | — | V | I _G = ±100μA, V _{DS} = 0 |
| Zero gate voltage drain current | I _{DSS} | — | — | 10 | μA | V _{DS} = 30 V, V _{GS} = 0 |
| Gate to source leak current | I _{GSS} | — | — | ±10 | μA | V _{GS} = ±16V, V _{DS} = 0 |
| Gate to source cutoff voltage | V _{GS(off)} | 1.0 | — | 2.0 | V | I _D = 1mA, V _{DS} = 10V |
| Static drain to source on state resistance | R _{DS(on)} | — | 0.04 | 0.055 | Ω | I _D = 2.5A, V _{GS} = 10V*1 |
| | R _{DS(on)} | — | 0.055 | 0.08 | Ω | I _D = 2.5A, V _{GS} = 4V*1 |
| Forward transfer admittance | y _{fs} | 4 | 7 | — | S | I _D = 2.5A, V _{DS} = 10V*1 |
| Input capacitance | Ciss | — | 550 | — | pF | V _{DS} = 10V |
| Output capacitance | Coss | — | 380 | — | pF | V _{GS} = 0 |
| Reverse transfer capacitance | Crss | — | 155 | — | pF | f = 1MHz |
| Turn-on delay time | t _{d(on)} | — | 14 | — | ns | V _{GS} = 10V, I _D = 2.5A |
| Rise time | t _r | — | 80 | — | ns | R _L = 4Ω |
| Turn-off delay time | t _{d(off)} | — | 80 | — | ns | |
| Fall time | t _f | — | 65 | — | ns | |
| Body to drain diode forward voltage | V _{DF} | — | 1.0 | — | V | I _F = 5A, V _{GS} = 0 |
| Body to drain diode reverse recovery time | t _{rr} | — | 40 | — | ns | I _F = 5A, V _{GS} = 0 di _F / dt = 50A/μs |

Note: 1. Pulse test

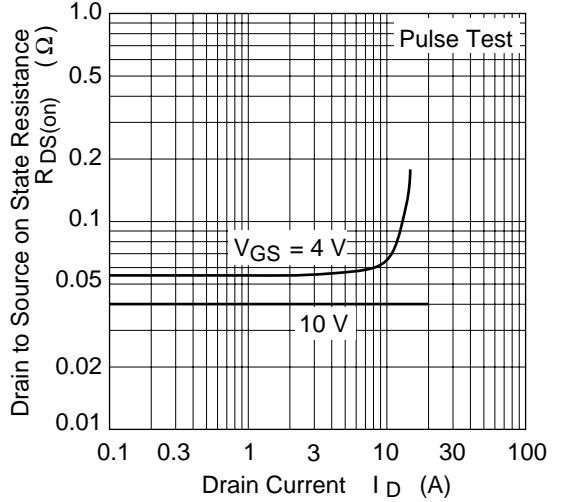
Main Characteristics



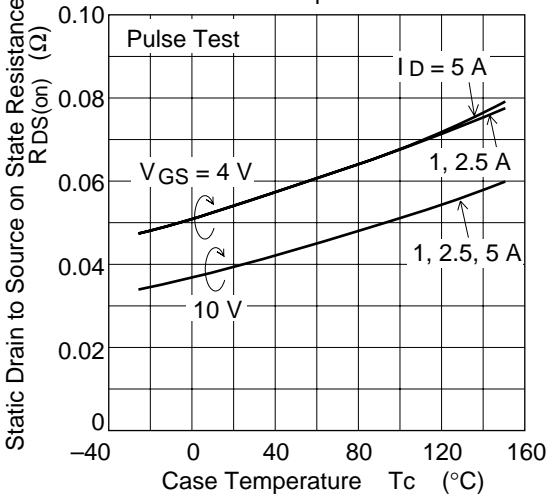
Drain to Source Saturation Voltage vs. Gate to Source Voltage



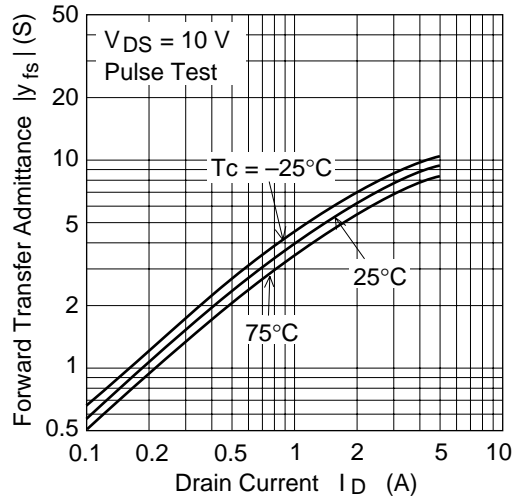
Static Drain to Source on State Resistance vs. Drain Current



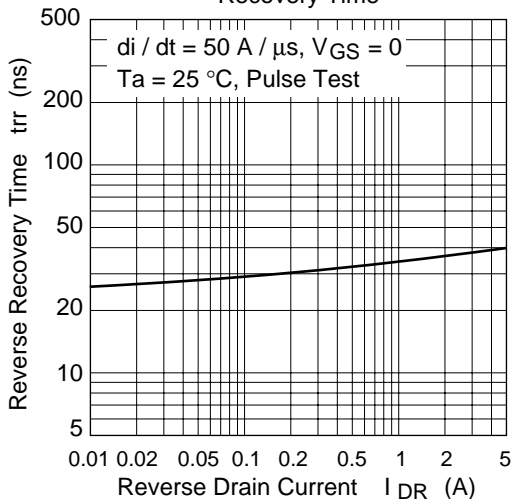
Static Drain to Source on State Resistance vs. Temperature



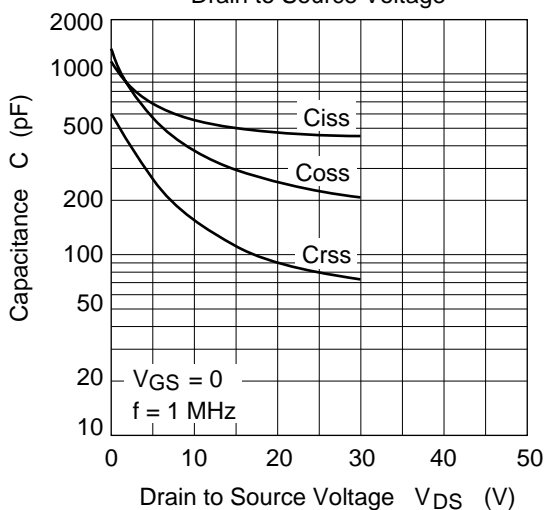
Forward Transfer Admittance vs. Drain Current



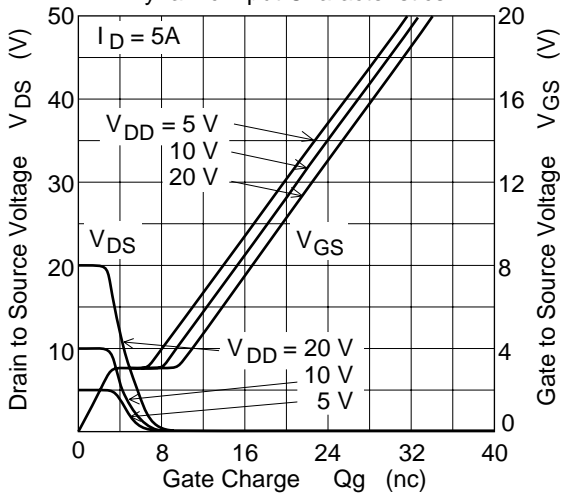
Body to Drain Diode Reverse Recovery Time



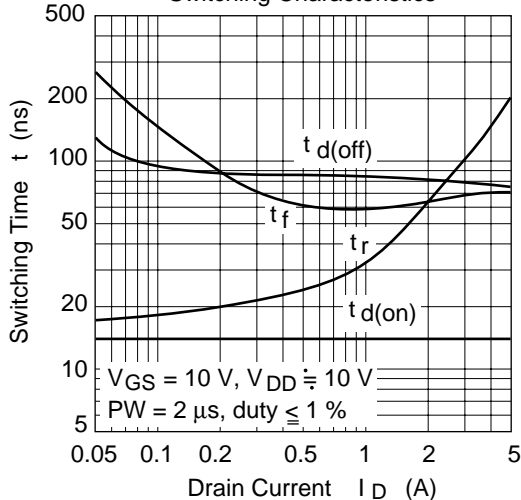
Typical Capacitance vs. Drain to Source Voltage

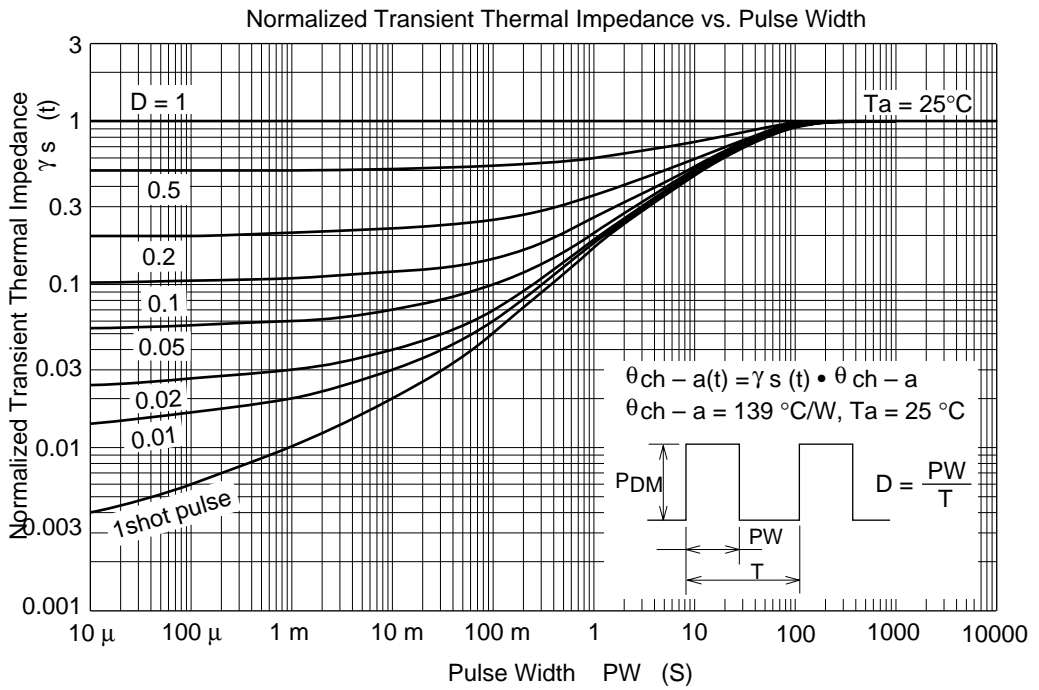
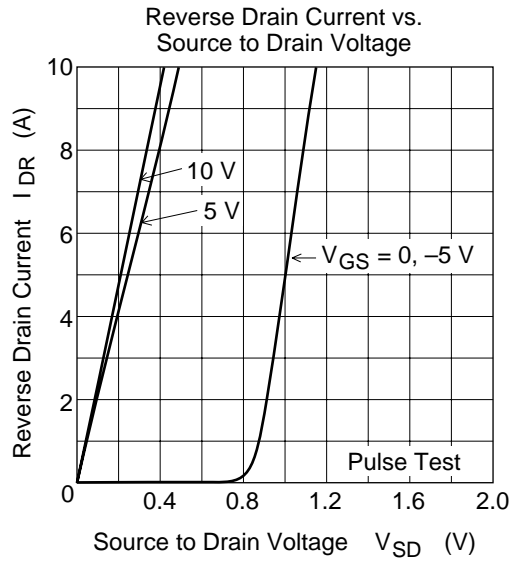


Dynamic Input Characteristics

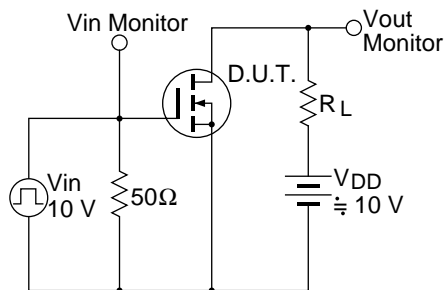


Switching Characteristics

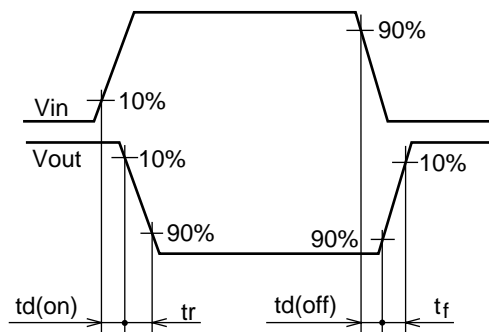




Switching Time Test Circuit

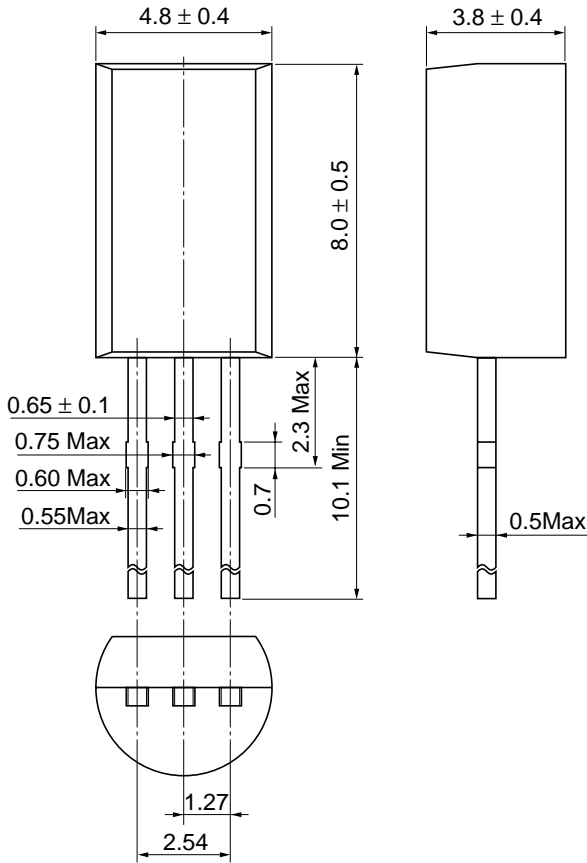


Switching Time Waveforms



Package Dimensions

As of January, 2001
Unit: mm



| | |
|------------------------|-----------|
| Hitachi Code | TO-92 Mod |
| JEDEC | — |
| EIAJ | Conforms |
| Mass (reference value) | 0.35 g |

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