

H7N1002AB

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0130-0200Z

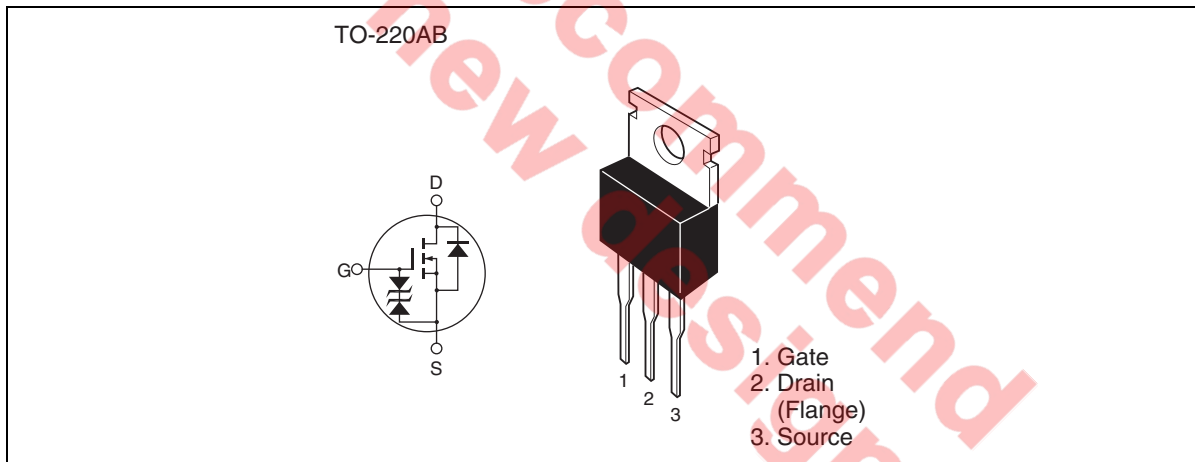
Rev.2.00

Oct.30.2003

Features

- Low on-resistance
 $R_{DS(on)} = 8 \text{ m}\Omega$ typ.
- Low drive current
- Available for 4.5 V gate drive

Outline



Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|--|--|----------------|-------------|
| Drain to source voltage | V _{DSS} | 100 | V |
| Gate to source voltage | V _{GSS} | ±20 | V |
| Drain current | I _D | 75 | A |
| Drain peak current | I _{D(pulse)} ^{Note1} | 300 | A |
| Body-drain diode reverse drain current | I _{DR} | 75 | A |
| Avalanche current | I _{AP} ^{Note3} | 50 | A |
| Avalanche energy | E _{AR} ^{Note3} | 166 | mJ |
| Channel dissipation | P _{ch} ^{Note2} | 100 | W |
| Channel temperature | T _{ch} | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

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

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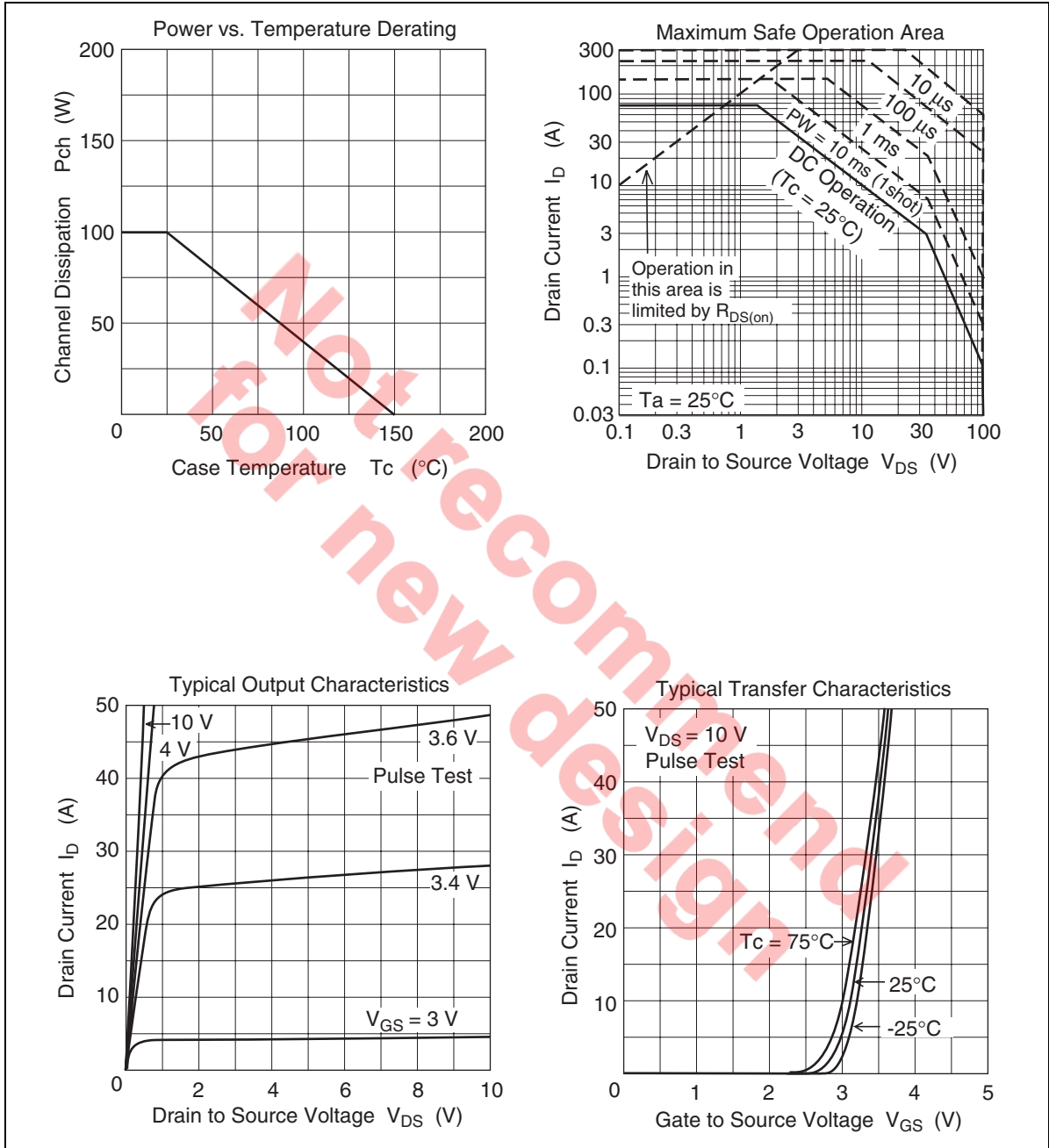
Electrical Characteristics

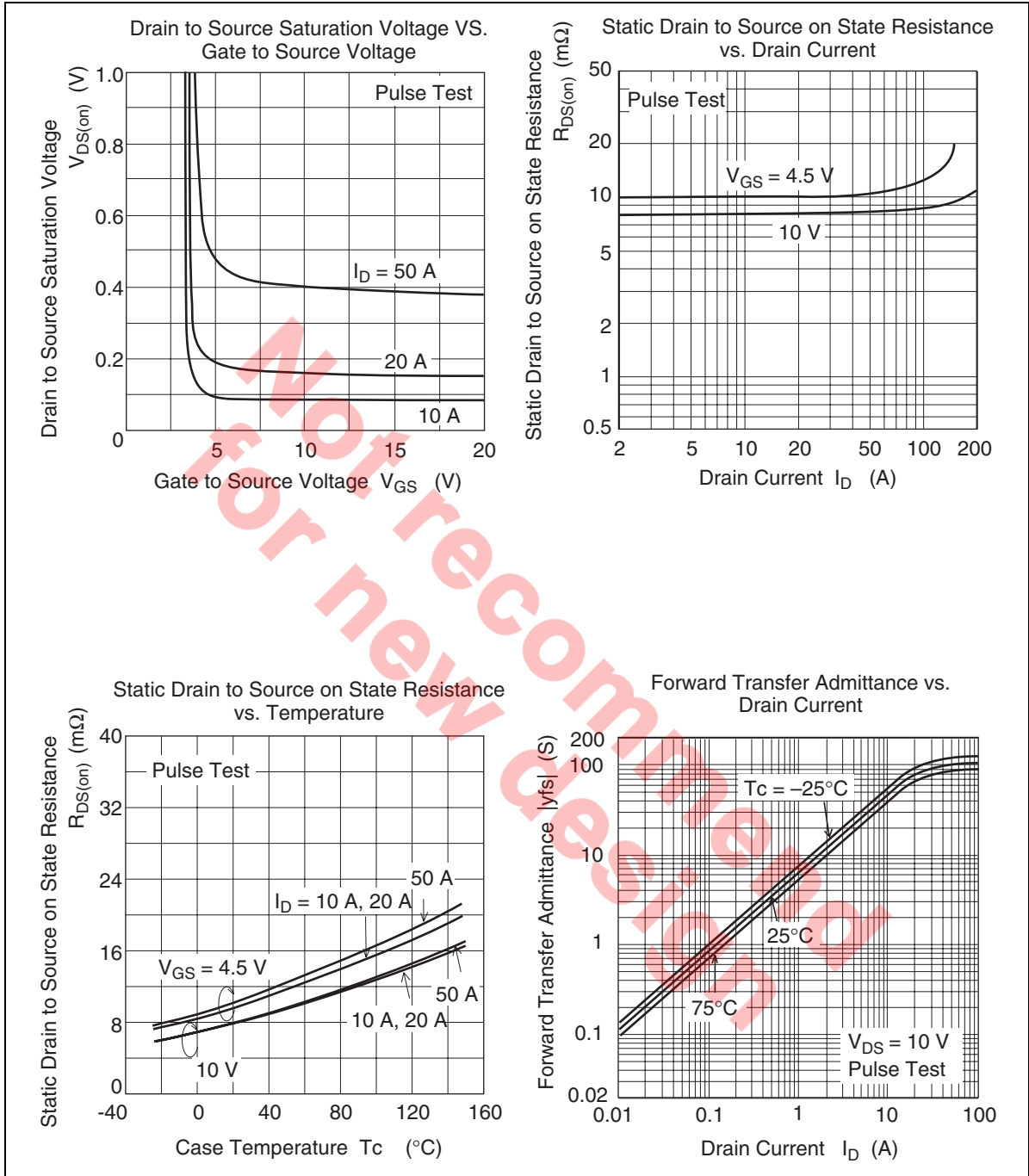
(Ta = 25°C)

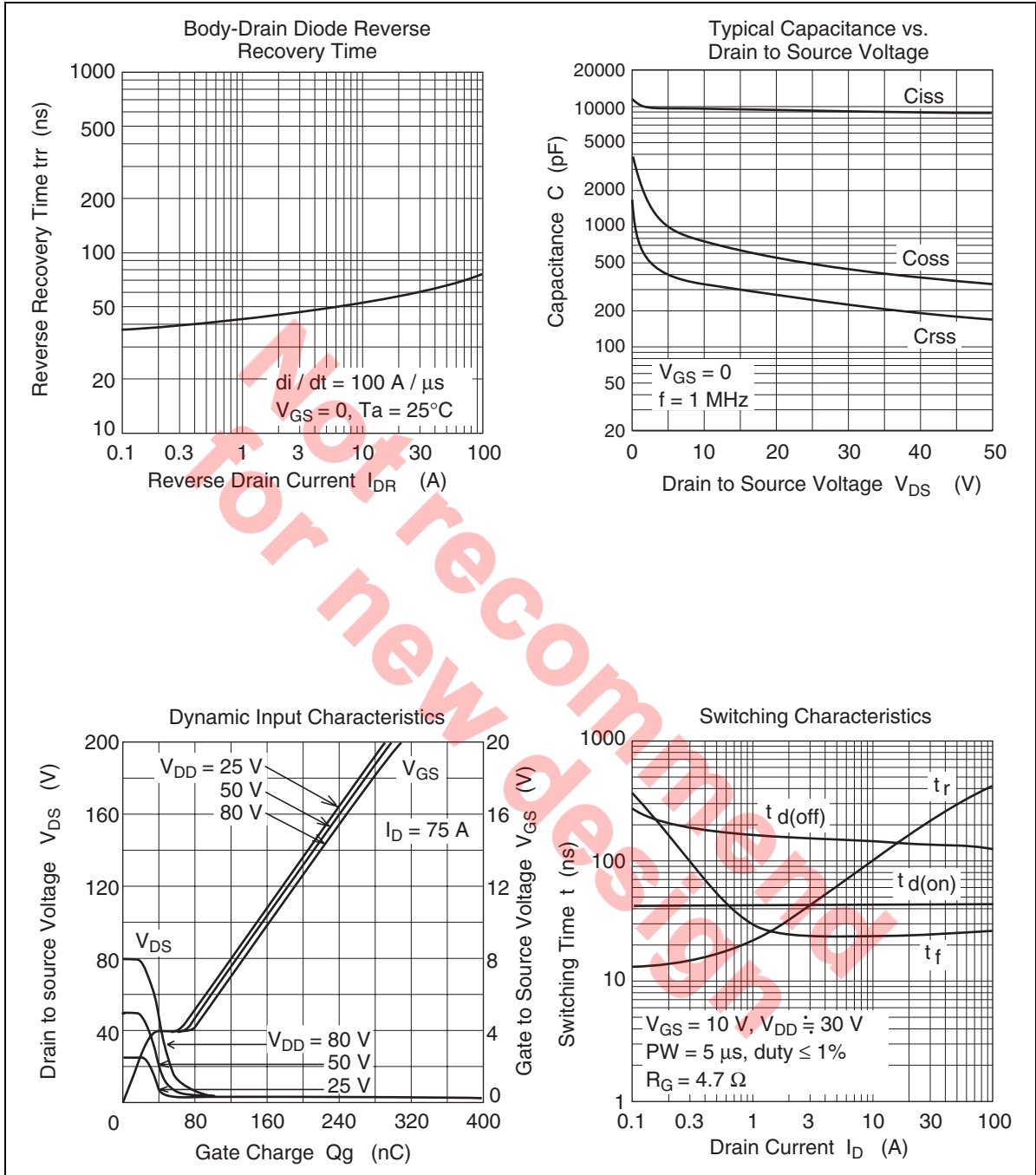
| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|--|---------------|----------|------|----------|------------------|--|
| Drain to source breakdown voltage | $V_{(BR)DSS}$ | 100 | — | — | V | $I_D = 10 \text{ mA}$, $V_{GS} = 0$ |
| Gate to source breakdown Voltage | $V_{(BR)GSS}$ | ± 20 | — | — | V | $I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$ |
| Gate to source leak current | I_{GSS} | — | — | ± 10 | μA | $V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$ |
| Zero gate voltage drain current | I_{DSS} | — | — | 10 | μA | $V_{DS} = 100 \text{ V}$, $V_{GS} = 0$ |
| Gate to source cutoff voltage | $V_{GS(off)}$ | 1.5 | — | 2.5 | V | $I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$ ^{Note1} |
| Static drain to source on state resistance | $R_{DS(on)}$ | — | 8 | 10 | $\text{m}\Omega$ | $I_D = 37.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note1} |
| | | — | 10 | 15 | $\text{m}\Omega$ | $I_D = 37.5 \text{ A}$, $V_{GS} = 4.5 \text{ V}$ ^{Note1} |
| Forward transfer admittance | $ y_{fs} $ | 57 | 95 | — | S | $I_D = 37.5 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note1} |
| Input capacitance | C_{iss} | — | 9700 | — | pF | $V_{DS} = 10 \text{ V}$ |
| Output capacitance | C_{oss} | — | 740 | — | pF | $V_{GS} = 0$ |
| Reverse transfer capacitance | C_{rss} | — | 330 | — | pF | $f = 1 \text{ MHz}$ |
| Total gate charge | Q_g | — | 155 | — | nc | $V_{DD} = 50 \text{ V}$ |
| Gate to source charge | Q_{gs} | — | 35 | — | nc | $V_{GS} = 10 \text{ V}$ |
| Gate to drain charge | Q_{gd} | — | 33 | — | nc | $I_D = 75 \text{ A}$ |
| Turn-on delay time | $t_{d(on)}$ | — | 43 | — | ns | $V_{GS} = 10 \text{ V}$, $I_D = 37.5 \text{ A}$ |
| Rise time | t_r | — | 245 | — | ns | $R_L = 0.8 \text{ }\Omega$ |
| Turn-off delay time | $t_{d(off)}$ | — | 130 | — | ns | $R_g = 4.7 \text{ }\Omega$ |
| Fall time | t_f | — | 25 | — | ns | |
| Body–drain diode forward voltage | V_{DF} | — | 0.93 | — | V | $I_F = 75 \text{ A}$, $V_{GS} = 0$ |
| Body–drain diode reverse recovery time | t_{rr} | — | 70 | — | ns | $I_F = 75 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$ |

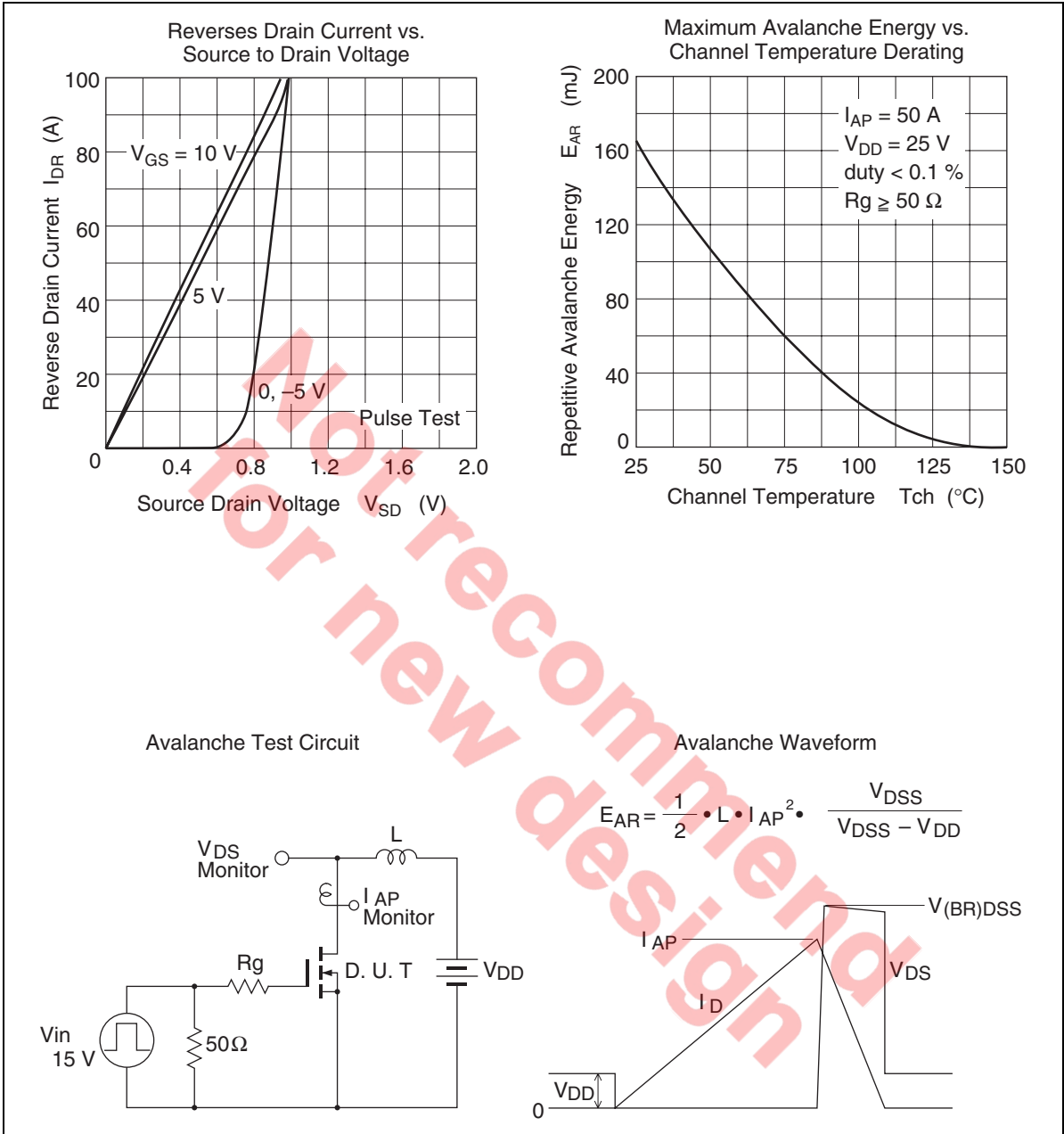
Notes: 1. Pulse test

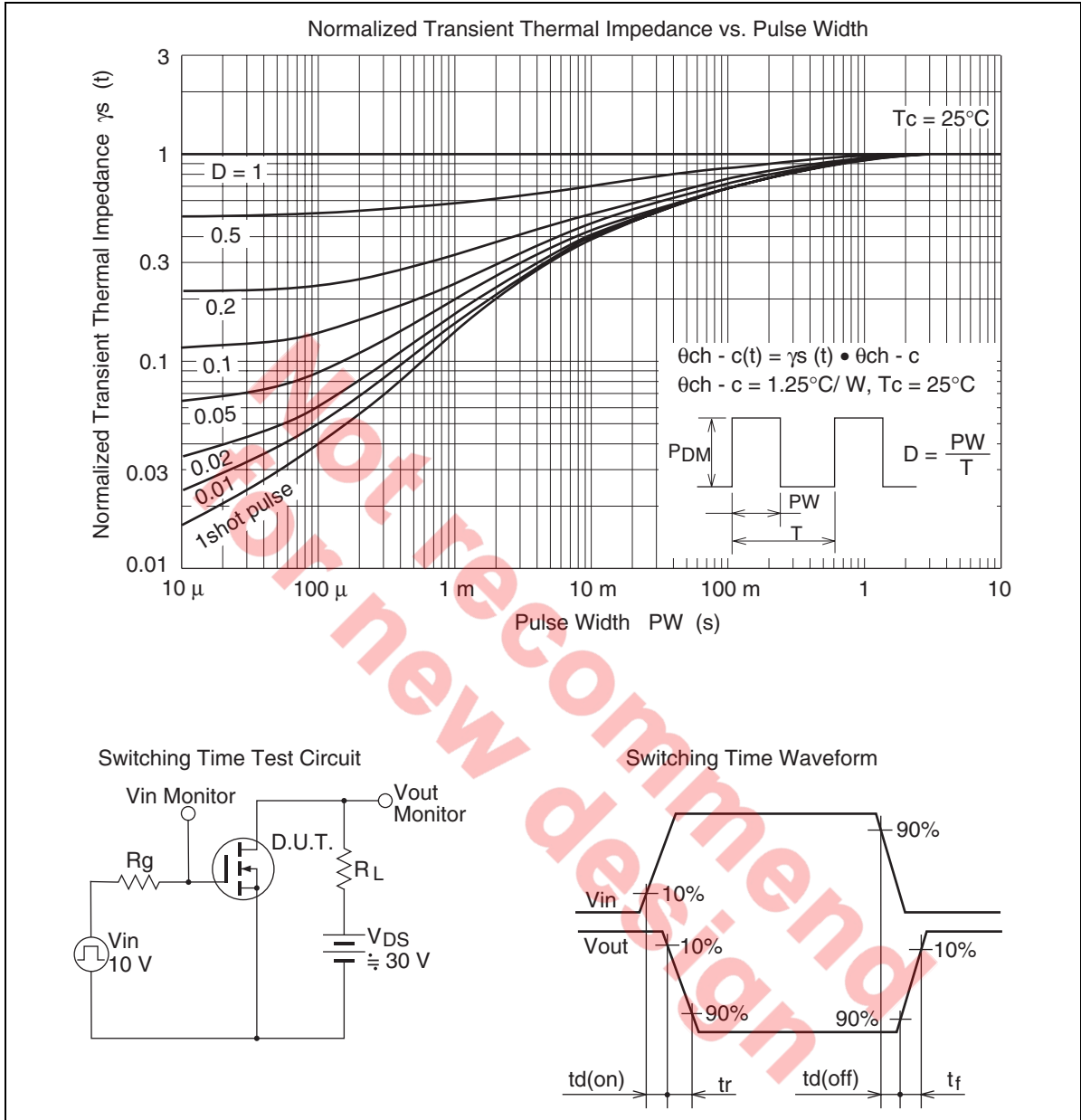
Main Characteristics







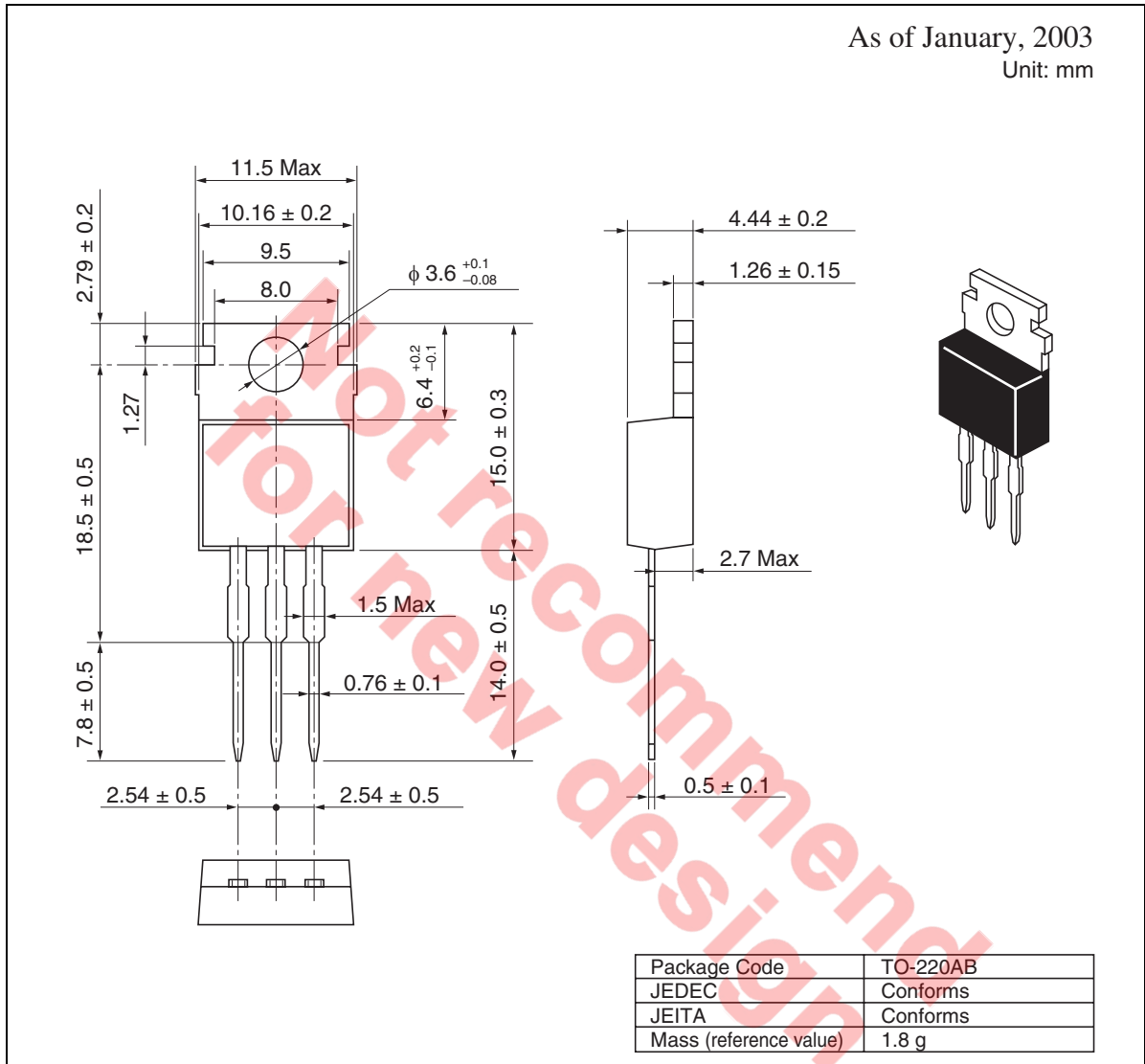




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Package Dimensions

As of January, 2003
Unit: mm



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