1.TYPE RUM002N02

2.STRUCTURE SILICON N-CHANNEL MOS FET

3.APPLICATIONS SWITCHING

4.ABSOLUTE MAXIMUM RATINGS [Ta=25°C]

| | | | | |
|---|---|---|---|---|
| DRAIN-SOURCE VOLTAGE | | $V_{DSS}$ | ・・・ | 20V |
| GATE-SOURCE VOLTAGE | | $V_{GSS}$ | ・・・ | ±8V |
| DRAIN CURRENT | CONTINUOUS | $I_D$ | ・・・ | ±200mA |
| | PULSED | $I_{DP}$ | ・・・ | ±400mA<br>PW≦10μs DUTY CYCLE≦1% |
| TOTAL POWER DISSIPATION | | $P_D$ | ・・・ | 150mW<br>EACH TERMINAL MOUNTED ON A RECOMMENDED LAND |
| CHANNEL TEMPERATURE | | $T_{ch}$ | ・・・ | 150°C |
| RANGE OF STORAGE TEMPERATURE | | $T_{stg}$ | ・・・ | −55～150°C |

5.THERMAL RESISTANCE

| | | | | |
|---|---|---|---|---|
| CHANNEL TO AMBIENT | | $R_{th(ch-a)}$ | ・・・ | 833°C /W<br>EACH TERMINAL MOUNTED ON A RECOMMENDED LAND |

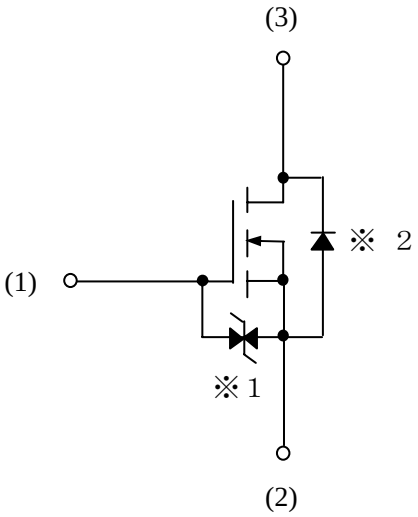
6.ELECTRICAL CHARACTERISTICS [Ta=25°C]

| PARAMETER | ITEM | CONDITION | MIN. | TYP. | MAX. |
|---|---|---|---|---|---|
| GATE-SOURCE LEAKAGE | $I_{GSS}$ | $V_{GS}$=±8V/$V_{DS}$=0V | − | − | ±10μA |
| DRAIN-SOURCE BREAKDOWN VOLTAGE | $V_{(BR)DSS}$ | $I_D$=1mA/$V_{GS}$=0V | 20V | − | − |
| ZERO GATE VOLTAGE DRAIN CURRENT | $I_{DSS}$ | $V_{DS}$=20V/$V_{GS}$=0V | − | − | 1μA |
| GATE THRESHOLD VOLTAGE | $V_{GS(th)}$ | $V_{DS}$=10V/$I_D$=1mA | 0.3V | − | 1.0V |
| STATIC DRAIN-SOURCE ON-STATE RESISTANCE | $R_{DS(on)}$ * PULSED | $I_D$=200mA/$V_{GS}$=2.5V | − | 0.8Ω | 1.2Ω |
| | | $I_D$=200mA/$V_{GS}$=1.8V | − | 1.0Ω | 1.4Ω |
| | | $I_D$=40mA/$V_{GS}$=1.5V | − | 1.2Ω | 2.4Ω |
| | | $I_D$=20mA/$V_{GS}$=1.2V | − | 1.6Ω | 4.8Ω |
| FORWARD TRANSFER ADMITTANCE | $\lvert Y_{fs} \rvert$ * PULSED | $V_{DS}$=10V/$I_D$=200mA | 200mS | − | − |
| INPUT CAPACITANCE | $C_{iss}$ | $V_{DS}$=10V<br>$V_{GS}$=0V<br>f=1MHz | − | 25pF | − |
| OUTPUT CAPACITANCE | $C_{oss}$ | | − | 10pF | − |
| REVERSE TRANSFER CAPACITANCE | $C_{rss}$ | | − | 10pF | − |
| TURN-ON DELAY TIME | $t_{d(on)}$ * PULSED | $V_{DD}$≒10V<br>$I_D$=150mA<br>$V_{GS}$=4.0V<br>$R_L$≒67Ω<br>$R_G$=10Ω<br>See Fig 1-1.1-2 | − | 5ns | − |
| RISE TIME | $t_r$ * PULSED | | − | 10ns | − |
| TURN-OFF DELAY TIME | $t_{d(off)}$ * PULSED | | − | 15ns | − |
| FALL TIME | $t_f$ * PULSED | | − | 10ns | − |

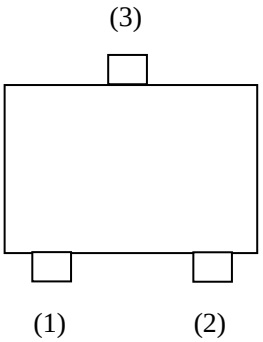
BODY DIODE CHARACTERISTICS (SOURCE-DRAIN)

| PARAMETER | ITEM | CONDITION | MIN. | TYP. | MAX. |
|---|---|---|---|---|---|
| FORWARD VOLTAGE | $V_{SD}$ * PULSED | $I_S$=100mA/$V_{GS}$=0V | − | − | 1.2V |

7.INNER CIRCUIT

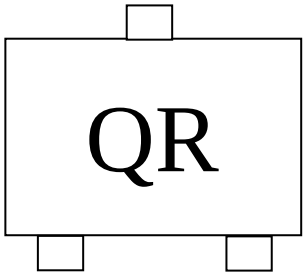



(1) GATE
(2) SOURCE
(3) DRAIN




※ 1 ESD PROTECTION DIODE
※ 2 BODY DIODE

8. MARKING




"QR" MEANS RUM002N02.

9.MEASUREMENT CIRCUIT

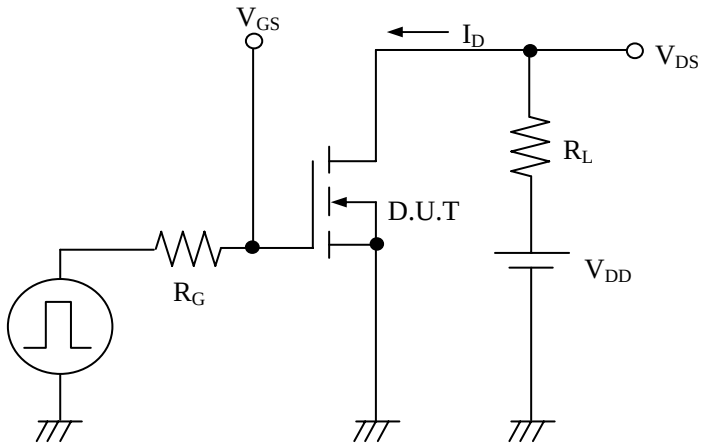



Fig.1-1 SWITCHING TIME MEASUREMENT CIRCUIT

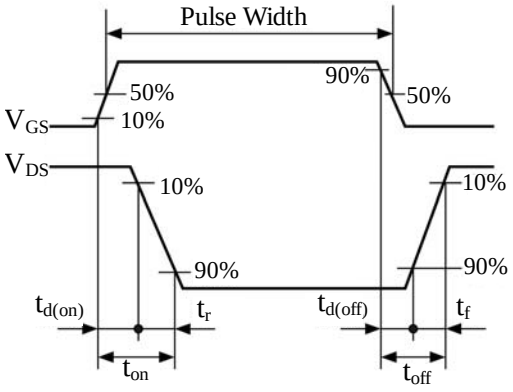



Fig.1-2 SWITCHING WAVEFORMS

10.Notice

This product might cause chip aging and breakdown under the large electrified environment.
Please consider to design ESD protection circuit.