1.TYPE US6J2

2.STRUCTURE SILICON P-CHANNEL MOS FET

3.APPLICATIONS SWITCHING

4.ABSOLUTE MAXIMUM RATINGS [Ta=25°C]
《 IT IS THE SAME RATINGS FOR THE Tr1 AND Tr2. 》

DRAIN-SOURCE VOLTAGE $V_{DSS}$ ・・・ -20V

GATE-SOURCE VOLTAGE $V_{GSS}$ ・・・ ±12V

DRAIN CURRENT CONTINUOUS $I_D$ ・・・ ±1A

PULSED $I_{DP}$ ・・・ ±4A PW≦10μs DUTY CYCLE≦1%

SOURCE CURRENT (BODY DIODE) CONTINUOUS $I_S$ ・・・ -0.4A

PULSED $I_{SP}$ ・・・ -4A PW≦10μs DUTY CYCLE≦1%

TOTAL POWER DISSIPATION $P_D$ ・・・ 1.0W / TOTAL
0.7W / ELEMENT
MOUNTED ON A CERAMIC BOARD

CHANNEL TEMPERATURE $T_{ch}$ ・・・ 150°C

RANGE OF STRAGE TEMPERATURE $T_{stg}$ ・・・ −55～150°C

5.THERMAL RESISTANCE

CHANNEL TO AMBIENT $R_{th(ch-a)}$ ・・・ 125°C/W / TOTAL
179℃/W / ELEMENT
MOUNTED ON A CERAMIC BOARD

6.ELECTRICAL CHARACTERISTICS [Ta=25°C]

《 IT IS THE SAME CHARACTERISTICS FOR THE Tr1 AND Tr2 》

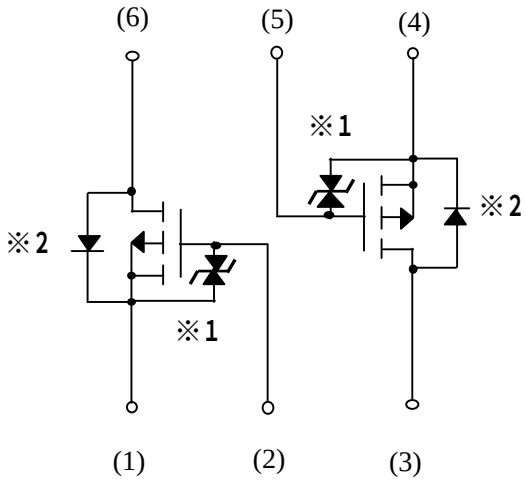
| PARAMETER | ITEM | CONDITION | MIN. | TYP. | MAX. |
|---|---|---|---|---|---|
| GATE-SOURCE LEAKAGE | $I_{GSS}$ | $V_{GS}$=±12V/$V_{DS}$=0V | - | - | ±10μA |
| DRAIN-SOURCE BREAKDOWN VOLTAGE | $V_{(BR)DSS}$ | $I_D$=-1mA/$V_{GS}$=0V | -20V | - | - |
| ZERO GATE VOLTAGE DRAIN CURRENT | $I_{DSS}$ | $V_{DS}$=-20V/$V_{GS}$=0V | - | - | -1μA |
| GATE THRESHOLD VOLTAGE | $V_{GS(th)}$ | $V_{DS}$=-10V/$I_D$=-1mA | -0.7V | - | -2.0V |
| STATIC DRAIN-SOURCE ON-STATE RESISTANCE | $R_{DS(on)}$ * PULSED | $I_D$=-1A/$V_{GS}$=-4.5V | - | 280mΩ | 390mΩ |
| | | $I_D$=-1A/$V_{GS}$=-4V | - | 310mΩ | 430mΩ |
| | | $I_D$=-0.5A/$V_{GS}$=-2.5V | - | 570mΩ | 800mΩ |
| FORWARD TRANSFER ADMITTANCE | $\|Y_{fs}\|$ * PULSED | $V_{DS}$=-10V/$I_D$=-0.5A | 0.7S | - | - |
| INPUT CAPACITANCE | $C_{iss}$ | $V_{DS}$=-10V<br>$V_{GS}$=0V<br>f=1MHz | - | 150pF | - |
| OUTPUT CAPACITANCE | $C_{oss}$ | | - | 20pF | - |
| REVERSE TRANSFER CAPACITANCE | $C_{rss}$ | | - | 20pF | - |
| TURN-ON DELAY TIME | $t_{d(on)}$ * PULSED | $I_D$=-0.5A<br>$V_{DD}$ -15V<br>$V_{GS}$=-4.5V<br>$R_L$ 30Ω/$R_G$=10Ω<br>see Fig. 1-1,1-2 | - | 9ns | - |
| RISE TIME | $t_r$ * PULSED | | - | 8ns | - |
| TURN-OFF DELAY TIME | $t_{d(off)}$ * PULSED | | - | 25ns | - |
| FALL TIME | $t_f$ *PULSED | | - | 10ns | - |
| TOTAL GATE CHARGE | $Q_g$ *PULSED | $V_{DD}$ -15V<br>$V_{GS}$=-4.5V<br>$I_D$=-1A<br>$R_L$ 15Ω/$R_G$=10Ω<br>see Fig. 2-1,2-2 | - | 2.1nC | - |
| GATE-SOURCE CHARGE | $Q_{gs}$ *PULSED | | - | 0.5nC | - |
| GATE-DRAIN CHARGE | $Q_{gd}$ *PULSED | | - | 0.5nC | - |

BODY DIODE (SOURCE-DRAIN)

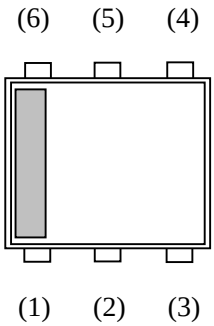
《 IT IS THE SAME CHARACTERISTICS FOR THE Tr1 AND Tr2 》

| PARAMETER | ITEM | CONDITION | MIN. | TYP. | MAX. |
|---|---|---|---|---|---|
| FORWARD VOLTAGE | $V_{SD}$ | $I_S$=-0.4A／$V_{GS}$=0V | - | - | -1.2V |

7.INNER CIRCUIT

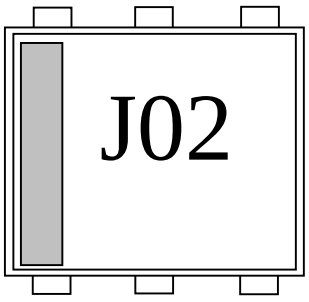



(1) Tr1 SOURCE
(2) Tr1 GATE
(3) Tr2 DRAIN
(4) Tr2 SOURCE
(5) Tr2 GATE
(6) Tr1 DRAIN




※ **1** ESD PROTECTION DIODE
※ **2** BODY DIODE

8. MARKING




"J02"MEANS US6J2.

9.MEASUREMENT CIRCUIT

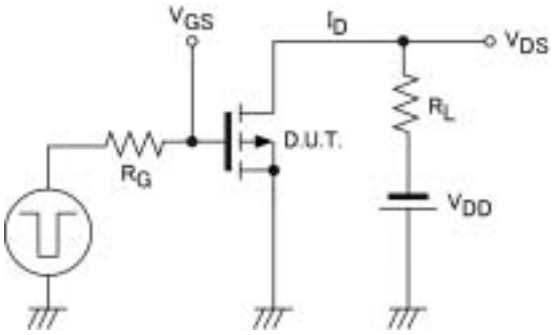



Fig.1-1 SWITCHING TIME MEASUREMENT CIRCUIT

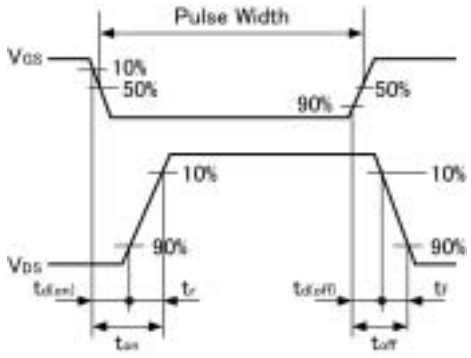



Fig.1-2 SWITCHING WAVEFORMS

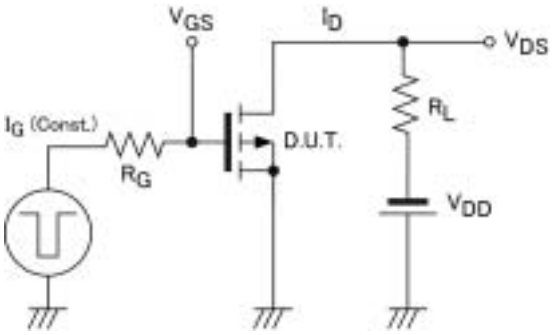



Fig.2-1 GATE CHARGE MASUREMENT CIRCUIT

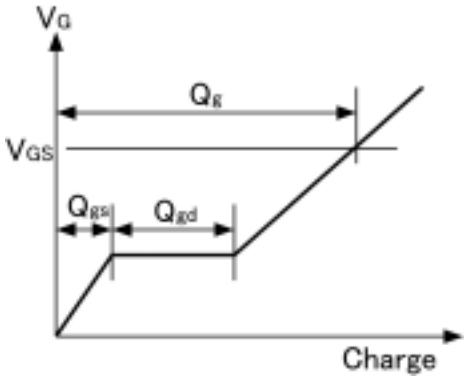



Fig.2-2 GATE CHARGE WAVEFORM