

1. TYPE	QS6J1		
2. STRUCTURE	SILICON P-CHANNEL MOS FET		
3. APPLICATIONS	SWITCHING		
4. ABSOLUTE MAXIMUM RATINGS [Ta=25°C]	《 MOSFET 》		
DRAIN-SOURCE VOLTAGE	V _{DSS}	• • •	-20V
GATE-SOURCE VOLTAGE	V _{GSS}	• • •	± 12V
DRAIN CURRENT	CONTINUOUS	I _D	• • • ± 1.5A
	PULSED	I _{DP}	• • • ± 6.0A PW 10μs DUTY CYCLE 1%
SOURCE CURRENT	CONTINUOUS	I _S	• • • -0.75A
(BODY DIODE)	PULSED	I _{SP}	• • • -6.0A PW 10μs DUTY CYCLE 1%
TOTAL POWER DISSIPATION	P _D	• • •	1.25W/TOTAL 0.9W/ELEMENT MOUNTED ON A CERAMIC BOARD
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)}	• • •	100°C/W/TOTAL 139°C/W/ELEMENT MOUNTED ON A CERAMIC BOARD

DESIGN

CHECK

APPROVAL

DATE : 22/JUL/2003

SPECIFICATION No. TSQ03122-QS6J1

REV. : 0

ROHM CO., LTD.

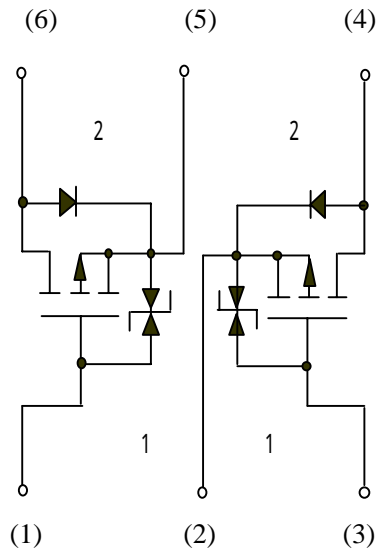
6.ELECTRICAL CHARACTERISTICS [Ta=25°C]
 《 MOSFET 》

PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
GATE-SOURCE LEAKAGE	I_{GSS}	$V_{GS} = \pm 12V / V_{DS} = 0V$	-	-	$\pm 10\mu A$
DRAIN-SOURCE BREAKDOWN VOLTAGE	$V_{(BR)DSS}$	$I_D = -1mA / V_{GS} = 0V$	-20V	-	-
ZERO GATE VOLTAGE DRAIN CURRENT	I_{DSS}	$V_{DS} = -20V / V_{GS} = 0V$	-	-	-1 μA
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	$I_D = -1.5A / V_{GS} = -4.5V$	-	155m Ω	215m Ω
		$I_D = -1.5A / V_{GS} = -4V$	-	170m Ω	235m Ω
		$I_D = -0.75A / V_{GS} = -2.5V$	-	310m Ω	430m Ω
FORWARD TRANSFER ADMITTANCE	$ Y_{fs} $ * PULSED	$V_{DS} = -10V / I_D = -0.75A$	1.0S	-	-
INPUT CAPACITANCE	C_{iss}	$V_{DS} = -10V$ $V_{GS} = 0V$ $f = 1MHz$	-	270pF	-
OUTPUT CAPACITANCE	C_{oss}		-	40pF	-
REVERSE TRANSFER CAPACITANCE	C_{rss}		-	35pF	-
TURN-ON DELAY TIME	$t_{d(on)}$ * PULSED	$I_D = -0.75A$ $V_{DD} = -15V$ $V_{GS} = -4.5V$ $R_L = 20\Omega / R_G = 10\Omega$ see Fig.1-1,1-2	-	10ns	-
RISE TIME	t_r * PULSED		-	12ns	-
TURN-OFF DELAY TIME	$t_{d(off)}$ * PULSED		-	45ns	-
FALL TIME	t_f * PULSED		-	20ns	-
TOTAL GATE CHARGE	Q_g * PULSED	$V_{DD} = -15V$ $V_{GS} = -4.5V$ $I_D = -1.5A$ $R_L = 10\Omega / R_G = 10\Omega$ see Fig.2-1,2-2	-	3.0nC	-
GATE-SOURCE CHARGE	Q_{gs} * PULSED		-	0.8nC	-
GATE-DRAIN CHARGE	Q_{gd} * PULSED		-	0.85nC	-

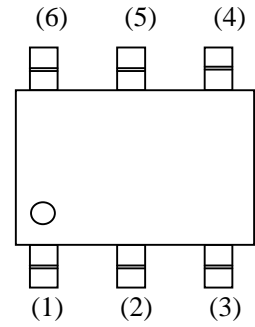
《 MOSFET 》 BODY DIODE (SOURCE-DRAIN)

PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
FORWARD VOLTAGE	V_{SD}	$I_S = -0.75A / V_{GS} = 0V$	-	-	-1.2V

7. INNER CIRCUIT

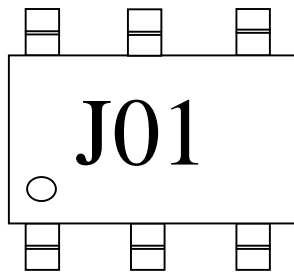


- (1) Tr1 GATE
- (2) Tr2 SOURCE
- (3) Tr2 GATE
- (4) Tr2 DRAIN
- (5) Tr1 SOURCE
- (6) Tr1 DRAIN



- 1 ESD PROTECTION DIODE
- 2 BODY DIODE

8. MARKING



“ J01 ” MEANS QS6J1.

9.MEASUREMENT CIRCUIT

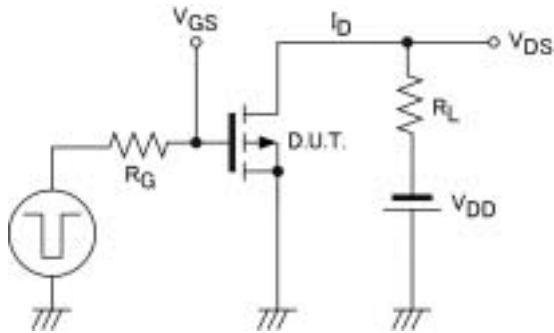


Fig.1-1 SWITCHING TIME MEASUREMENT CIRCUIT

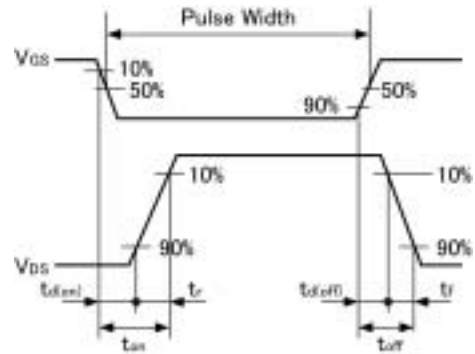


Fig.1-2 SWITCHING WAVEFORMS

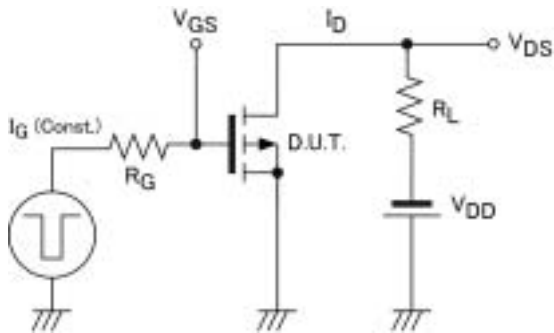


Fig.2-1 GATE CHARGE MASUREMENT CIRCUIT

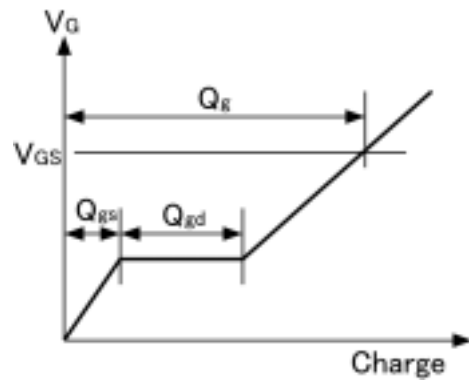


Fig.2-2 GATE CHARGE WAVEFORM