

- 1.TYPE RCX510N25
- 2.STRUCTURE SILICON N-CHANNEL MOS FET
- 3.APPLICATIONS SWITCHING



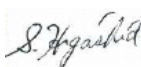
4.ABSOLUTE MAXIMUM RATINGS [Ta=25°C]

DRAIN-SOURCE VOLTAGE		V_{DSS}	· · ·	250V
GATE-SOURCE VOLTAGE		V_{GSS}	· · ·	±30V
DRAIN CURRENT	CONTINUOUS	I_D	· · ·	±51A*
	PULSED	I_{DP}	· · ·	±204A* PW ≤ 10 μs DUTY CYCLE ≤ 1%
SOURCE CURRENT (BODY DIODE)	CONTINUOUS	I_S	· · ·	51A*
	PULSED	I_{SP}	· · ·	204A* PW ≤ 10 μs DUTY CYCLE ≤ 1%
TOTAL POWER DISSIPATION		P_D	· · ·	40W (Tc=25°C)
CHANNEL TEMPERATURE		T_{ch}	· · ·	150°C
RANGE OF STORAGE TEMPERATURE		T_{stg}	· · ·	-55~150°C

5. THERMAL RESISTANCE

CHANNEL TO CASE	$R_{th(ch-c)}$	· · ·	3.13°C/W
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* Limited only by maximum channel temperature allowed

DESIGN	CHECK	APPROVAL	DATE : 26/DEC/2008	SPECIFICATION No.TSQ03050-RCX510N25
			REV. : 0	ROHM CO., LTD.

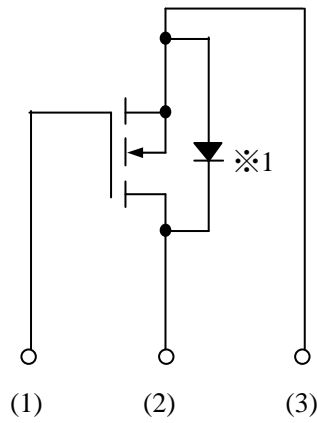
6.ELECTRICAL CHARACTERISTICS [Ta=25°C]
《MOSFET.》

PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
GATE-SOURCE LEAKAGE	I_{GSS}	$V_{GS} \pm 30V / V_{DS} = 0V$	—	—	$\pm 100nA$
DRAIN-SOURCE BREAKDOWN VOLTAGE	$V_{(BR)DSS}$	$I_D = 1mA / V_{GS} = 0V$	250V	—	—
ZERO GATE VOLTAGE DRAIN CURRENT	I_{DSS}	$V_{DS} = 250V / V_{GS} = 0V$	—	—	10 μA
GATE THRESHOLD VOLTAGE	$V_{GS(th)}$	$V_{DS} = 10V / I_D = 1mA$	3.0V	—	5.0V
STATIC DRAIN-SOURCE ON-STATE RESISTANCE	$R_{DS(on)}$ * PULSED	$I_D = 25.5A / V_{GS} = 10V$	—	48m Ω	65m Ω
FORWARD TRANSFER ADMITTANCE	$ Y_{fs} $ * PULSED	$V_{DS} = 10V / I_D = 25.5A$	15S	—	—
INPUT CAPACITANCE	C_{iss}	$V_{DS} = 25V$ $V_{GS} = 0V$ $f = 1MHz$	—	7000pF	—
OUTPUT CAPACITANCE	C_{oss}		—	350pF	—
REVERSE TRANSFER CAPACITANCE	C_{rss}		—	200pF	—
TURN-ON DELAY TIME	$t_{d(on)}$ * PULSED	$V_{DD} \doteq 125V$ $I_D = 25.5A$ $V_{GS} = 10V$ $R_L = 4.9\Omega$ $R_G = 10\Omega$ see Fig. 1-1,1-2	—	65ns	—
RISE TIME	t_r * PULSED		—	300ns	—
TURN-OFF DELAY TIME	$t_{d(off)}$ * PULSED		—	170ns	—
FALL TIME	t_f * PULSED		—	210ns	—
TOTAL GATE CHARGE	Q_g * PULSED	$V_{DD} \doteq 125V$ $I_D = 51A$ $V_{GS} = 10V$ $R_L = 2.5\Omega / R_G = 10\Omega$ See Fig.2-1,2-2	—	120nC	—
GATE-SOURCE CHARGE	Q_{gs} * PULSED		—	40nC	—
GATE-DRAIN CHARGE	Q_{gd} * PULSED		—	40nC	—

BODY DIODE (SOURCE-DRAIN)

PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
FORWARD VOLTAGE	V_{SD} * PULSED	$I_S = 51A / V_{GS} = 0V$	—	—	1.5V

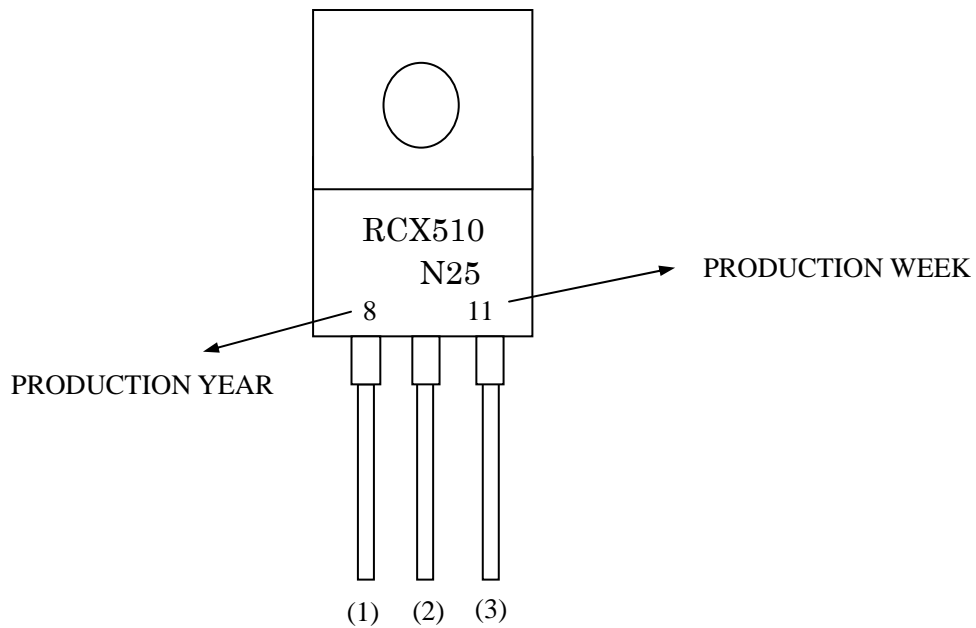
7.INNER CIRCUIT



⊛ 1 BODY DIODE

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

8.MARKING



9. MEASUREMENT CIRCUIT

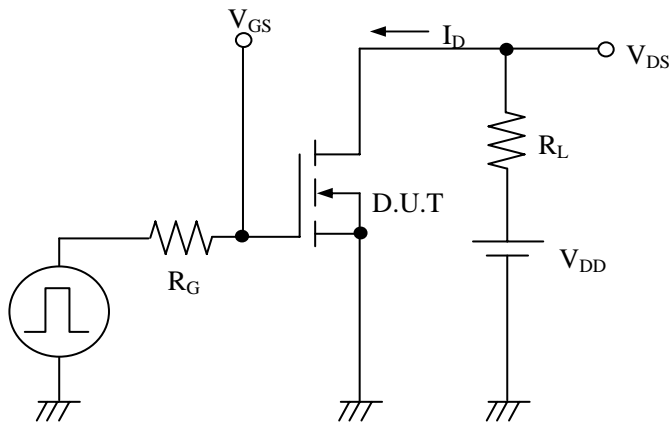


Fig.1-1 SWITCHING TIME MEASUREMENT CIRCUIT

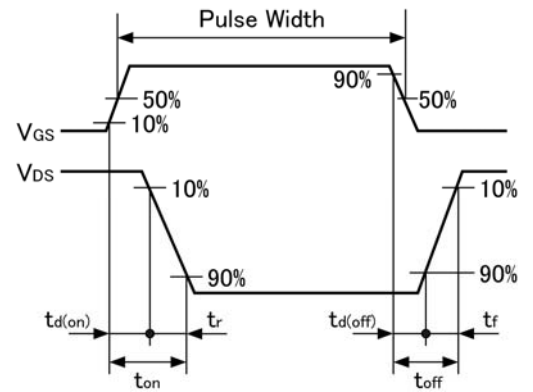


Fig.1-2 SWITCHING WAVEFORMS

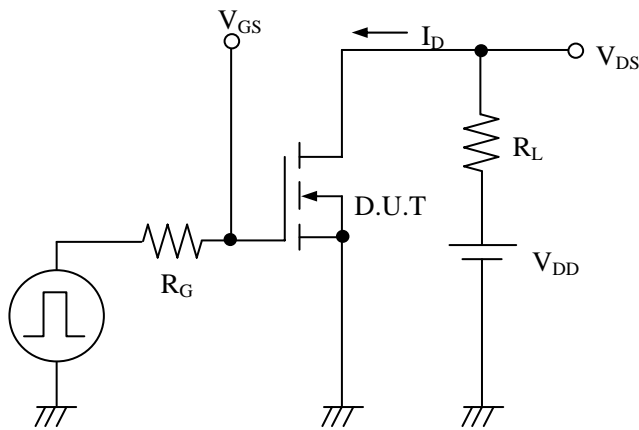


Fig.2-1 GATE CHARGE MEASUREMENT CIRCUIT

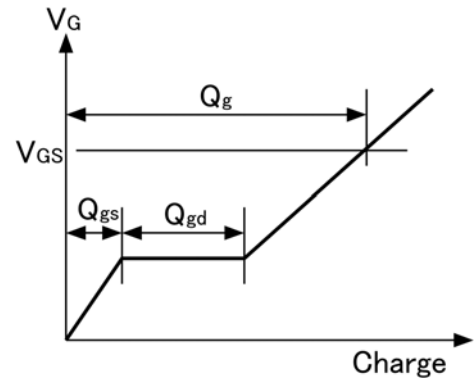


Fig.2-2 GATE CHARGE WAVEFORM