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[Rohm Semiconductor](#)
[RCX100N25](#)

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sales@integrated-circuit.com

ROHM SEMICONDUCTOR		PRODUCTS TO-220FM	TYPE RCX100N25	PAGE 1/4
1. TYPE	RCX100N25			
2. STRUCTURE	SILICON N-CHANNEL MOS FET			
3. APPLICATIONS	SWITCHING			
4. ABSOLUTE MAXIMUM RATINGS	[T _a =25°C]			
DRAIN-SOURCE VOLTAGE	V _{DSS}	• • •	250V	
GATE-SOURCE VOLTAGE	V _{GSS}	• • •	±30V	
DRAIN CURRENT	CONTINUOUS	I _D	• • •	±10A*
	PULSED	I _{DP}	• • •	±40A* PW ≤ 10 μs DUTY CYCLE ≤ 1%
SOURCE CURRENT	CONTINUOUS	I _S	• • •	10A
(BODY DIODE)	PULSED	I _{SP}	• • •	40A PW ≤ 10 μs DUTY CYCLE ≤ 1%
AVALANCHE CURRENT		I _{AS}	• • •	5A L ≐ 500 μH, V _{DD} =50V, R _G =25 Ω STARTING T _{ch} =25°C See Fig.3-1,3-2
AVALANCHE ENERGY		E _{AS}	• • •	7.29mJ L ≐ 500 μH, V _{DD} =50V, R _G =25 Ω STARTING T _{ch} =25°C See Fig.3-1,3-2
TOTAL POWER DISSIPATION		P _D	• • •	40W (T _c =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)}	• • •	3.125°C/W	(T _c =25°C)

* Limited only by maximum channel temperature allowed

DESIGN <i>J. Nakayama</i>	CHECK <i>A. Tsubaki</i>	APPROVAL <i>J. Komaki</i>	DATE : 15/ MAY/2009	SPECIFICATION No.TSQ03050-RCX100N25
REV. : 0			ROHM Co.,Ltd.	


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 6.ELECTRICAL CHARACTERISTICS [T_a=25°C]

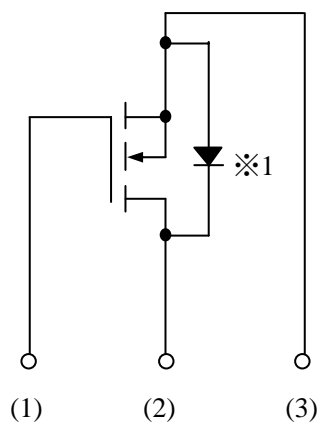
PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
GATE-SOURCE LEAKAGE	I _{GSS}	V _{GS} =±30V/V _{DS} =0V	—	—	±100nA
DRAIN-SOURCE BREAKDOWN VOLTAGE	V _{(BR)DSS}	I _D =1mA/V _{GS} =0V	250V	—	—
ZERO GATE VOLTAGE DRAIN CURRENT	I _{DSS}	V _{DS} =250V/V _{GS} =0V	—	—	10μA
GATE THRESHOLD VOLTAGE	V _{GS(th)}	V _{DS} =10V/I _D =1mA	3.0V	—	5.0V
STATIC DRAIN-SOURCE ON-STATE RESISTANCE	R _{DS(on)} * PULSED	I _D =5A/V _{GS} =10V	—	245mΩ	320mΩ
FORWARD TRANSFER ADMITTANCE	Y _{fs} * PULSED	V _{DS} =10V/I _D =5A	2.7S	—	—
INPUT CAPACITANCE	C _{iss}	V _{DS} =25V V _{GS} =0V f=1MHz	—	1440pF	—
OUTPUT CAPACITANCE	C _{oss}		—	75pF	—
REVERSE TRANSFER CAPACITANCE	C _{rss}		—	40pF	—
TURN-ON DELAY TIME	t _{d(on)} * PULSED	V _{DD} ≐125V	—	29ns	—
RISE TIME	t _r * PULSED	I _D =5A V _{GS} =10V	—	40ns	—
TURN-OFF DELAY TIME	t _{d(off)} * PULSED	R _L =25Ω R _G =10Ω	—	40ns	—
FALL TIME	t _f * PULSED	see Fig. 1-1,1-2	—	16ns	—
TOTAL GATE CHARGE	Q _g * PULSED	V _{DD} ≐125V I _D =10A	—	26.5nC	—
GATE-SOURCE CHARGE	Q _{gs} * PULSED	V _{GS} =10V	—	10.25nC	—
GATE-DRAIN CHARGE	Q _{gd} * PULSED	R _L =12.5Ω/R _G =10Ω See Fig.2-1,2-2	—	9.8nC	—

BODY DIODE (SOURCE-DRAIN)

PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
FORWARD VOLTAGE	V _{SD} * PULSED	I _S =10A/V _{GS} =0V	—	—	1.5V

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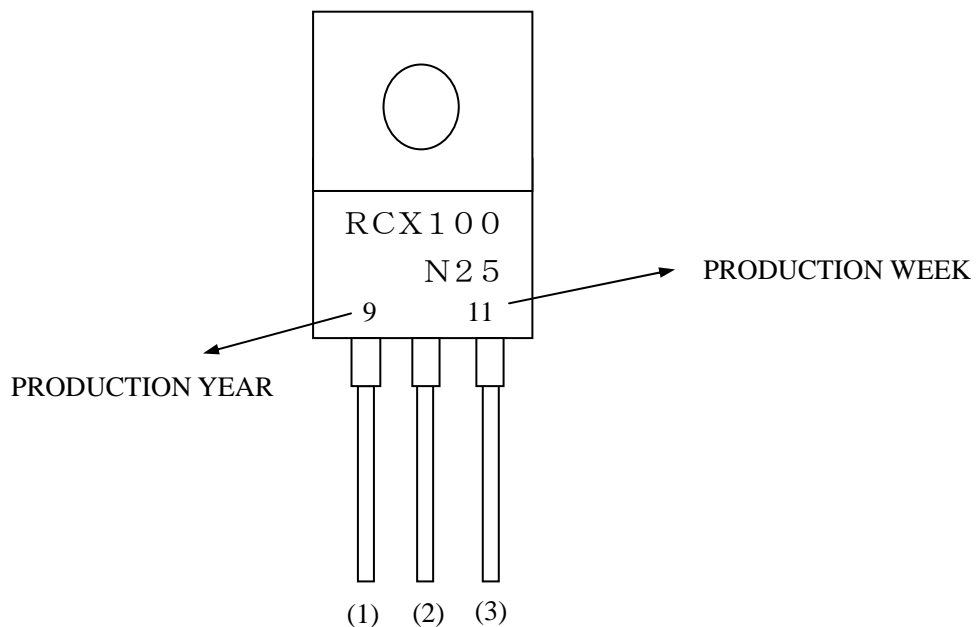
7.INNER CIRCUIT



※ 1 BODY DIODE

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

8.MARKING



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9.MEASUREMENT CIRCUIT

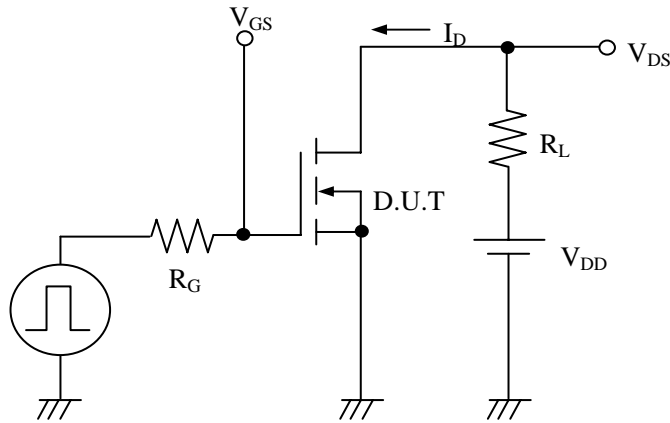


Fig.1-1 SWITCHING TIME MEASUREMENT CIRCUIT

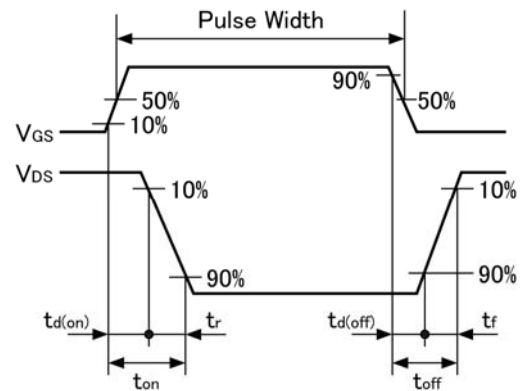


Fig.1-2 SWITCHING WAVEFORMS

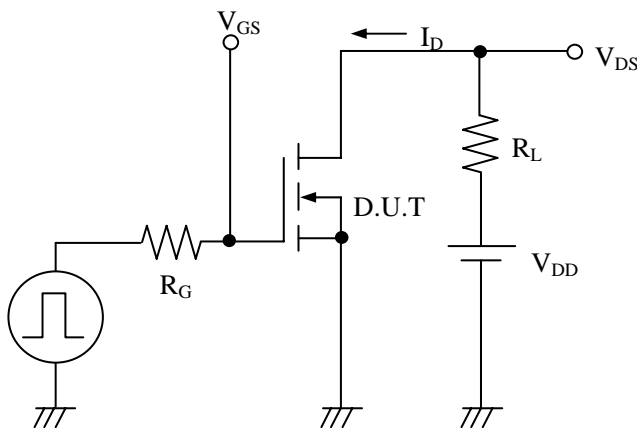


Fig.2-1 GATE CHARGE MEASUREMENT CIRCUIT

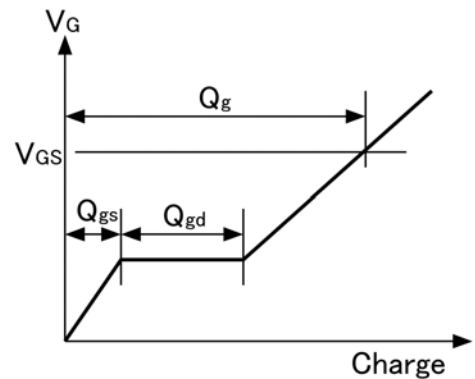


Fig.2-2 GATE CHARGE WAVEFORM

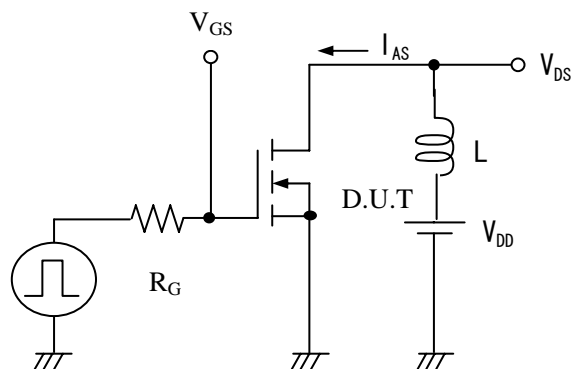


Fig.3-1 AVALANCHE MEASUREMENT CIRCUIT

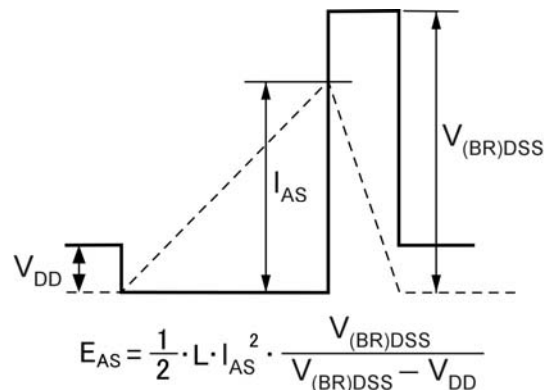


Fig.3-2 AVALANCHE WAVEFORM