

ROHM SEMICONDUCTOR		PRODUCTS TO-247	TYPE R6024ENZ4	PAGE 1/4
1. TYPE R6024ENZ4				
2. STRUCTURE SILICON N-CHANNEL MOSFET				
3. APPLICATIONS Switching				
4. ABSOLUTE MAXIMUM RATINGS [T _a =25°C,unless otherwise specified]				
DRAIN-SOURCE VOLTAGE		V _{DSS} ... 600V		
GATE-SOURCE VOLTAGE		V _{GSS} ... ±20V		static
		±30V		AC(f> 1Hz)
DRAIN CURRENT	CONTINUOUS	I _D ^{*1} ... ±24A		
	PULSED	I _{DP} ^{*2} ... ±72A		
SOURCE CURRENT	CONTINUOUS	I _S ^{*1} ... 24A		
(BODY DIODE)	PULSED	I _{SP} ^{*2} ... 72A		
AVALANCHE CURRENT, SINGLE PULSE		I _{AS} ^{*3} ... 4.1A		
AVALANCHE ENERGY, SINGLE PULSE		E _{AS} ^{*3} ... 497mJ		
POWER DISSIPATION		P _D ^{*4} ... 245W		
JUNCTION TEMPERATURE		T _j ... 150°C		
OPERATING JUNCTION AND STORAGE TEMPERATURE RANGE		T _{stg} ... -55~150°C		
5. THERMAL RESISTANCE				
JUNCTION TO CASE		R _{th(j-c)} ^{*4} ... 0.51°C/W		
REMARK	*1 Limited only by maximum channel temperature allowed. *2 P _w ≤ 10μs, Duty cycle ≤ 1% *3 L≐ 70mH, V _{DD} =50V, R _G =25Ω, Starting T _j =25°C *4 T _C =25°C			
DESIGN	CHECK	APPROVAL	DATE: 2018/11/06	SPECIFICATION No.:TSQ03355-R6024ENZ4
<i>L. Tanaka</i>	<i>T. Nakazaki</i>	<i>N. Sumita</i>	REV.: 001	ROHM Co.,Ltd.

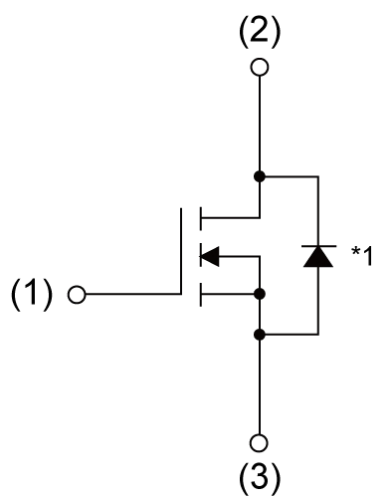
6.ELECTRICAL CHARACTERISTICS [T_a=25°C]

PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
GATE-SOURCE LEAKAGE CURRENT	I _{GSS}	V _{GS} = ±20V/V _{DS} = 0V	-	-	±100nA
DRAIN-SOURCE BREAKDOWN VOLTAGE	V _{(BR)DSS}	I _D = 1mA/V _{GS} = 0V	600V	-	-
ZERO GATE VOLTAGE DRAIN CURRENT	I _{DSS}	V _{DS} = 600V/V _{GS} = 0V	-	-	100μA
GATE THRESHOLD VOLTAGE	V _{GS(th)}	V _{DS} = 10V/I _D = 1mA	2.0V	-	4.0V
STATIC DRAIN-SOURCE ON-STATE RESISTANCE	R _{DS(on)} *PULSED	I _D = 11.3A/V _{GS} = 10V	-	0.150Ω	0.165Ω
FORWARD TRANSFER ADMITTANCE	Y _{fs} *PULSED	V _{DS} = 10V/I _D = 12A	6.5S	13.0S	-
INPUT CAPACITANCE	C _{iss}	V _{DS} = 25V V _{GS} = 0V f = 1MHz	-	1650pF	-
OUTPUT CAPACITANCE	C _{oss}		-	1350pF	-
REVERSE TRANSFER CAPACITANCE	C _{rss}		-	160pF	-
TURN-ON DELAY TIME	t _{d(on)} *PULSED	V _{DD} ≐ 300V I _D = 12A V _{GS} = 10V R _L = 27.4Ω R _G = 10Ω See Fig.1-1, 1-2	-	35ns	-
RISE TIME	t _r *PULSED		-	50ns	-
TURN-OFF DELAY TIME	t _{d(off)} *PULSED		-	180ns	-
FALL TIME	t _f *PULSED		-	50ns	-
TOTAL GATE CHARGE	Q _g *PULSED	V _{DD} ≐ 300V V _{GS} = 10V I _D = 24A See Fig.2-1,2-2	-	70nC	-
GATE-SOURCE CHARGE	Q _{gs} *PULSED		-	10nC	-
GATE-DRAIN CHARGE	Q _{gd} *PULSED		-	35nC	-

BODY DIODE (SOURCE-DRAIN)

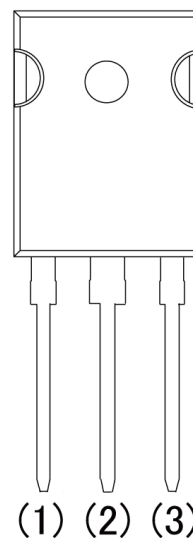
PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
FORWARD VOLTAGE	V _{SD} *PULSED	I _S = 24A/V _{GS} = 0V	-	-	1.5V

7. INNER CIRCUIT

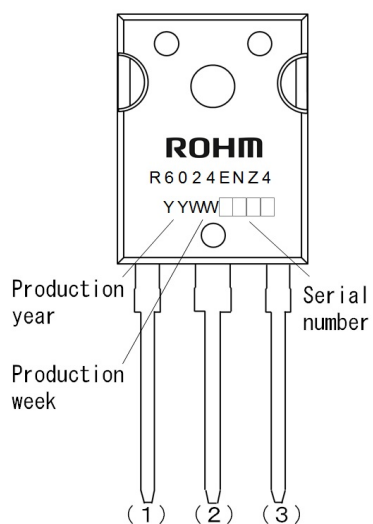


(1) Gate
(2) Drain
(3) Source

*1 Body Diode



8. MARKING



9. MEASUREMENT CIRCUIT

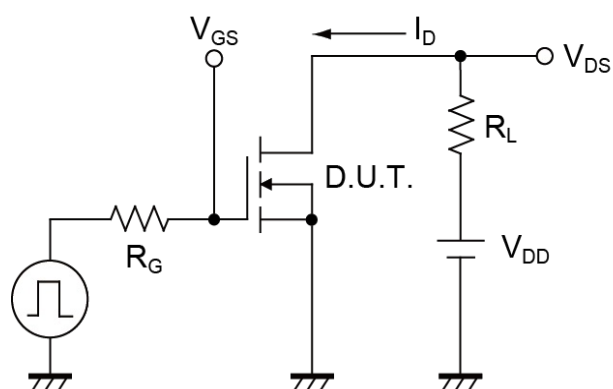


Fig.1-1 Switching Time Measurement Circuit

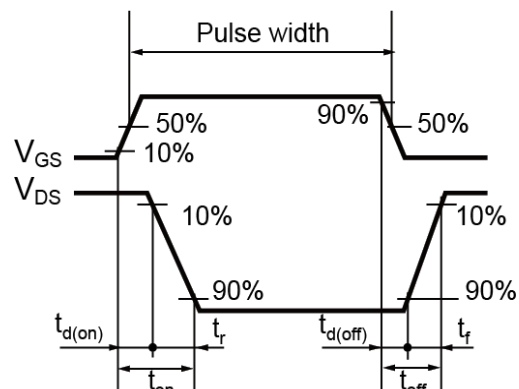


Fig.1-2 Switching Waveforms

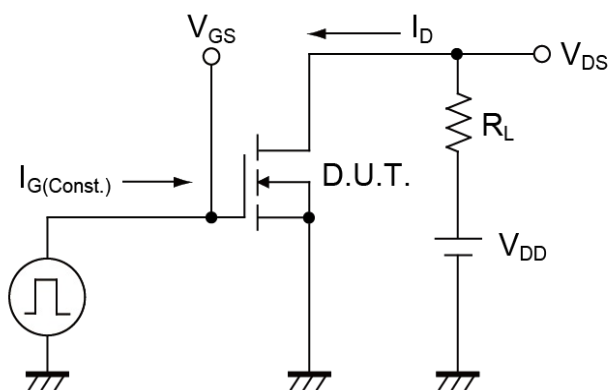


Fig.2-1 Gate Charge Measurement Circuit

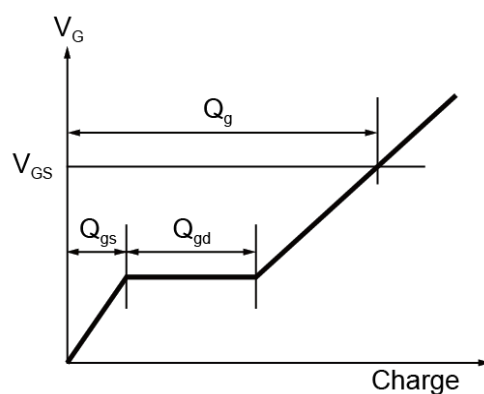


Fig.2-2 Gate Charge Waveform

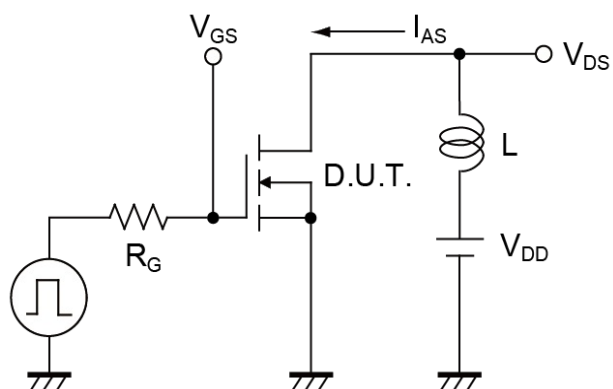


Fig.3-1 Avalanche Measurement Circuit

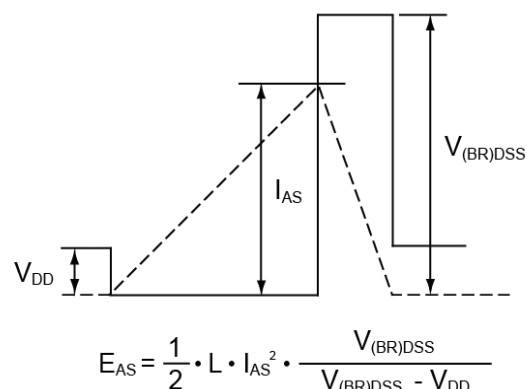


Fig.3-2 Avalanche Waveform