1. TYPE R6076ENZ4

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 ··· ±76A	
	PULSED	I_{DP}*2 ··· ±228A	
SOURCE CURRENT (BODY DIODE)	CONTINUOUS	I_S*1 ··· 76A	
	PULSED	I_{SP}*2 ··· 228A	
AVALANCHE CURRENT, SINGLE PULSE		I_{AS}*3 ··· 13.4A	
AVALANCHE ENERGY, SINGLE PULSE		E_{AS}*3 ··· 1954mJ	
POWER DISSIPATION		P_D*4 ··· 735W	
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 ··· 0.17°C/W

REMARK
*1 Limited only by maximum channel temperature allowed
*2 Pw ≤ 10μs, Duty cycle ≤ 1%
*3 L≒20mH, V_{DD}=50V, R_G=25Ω, Starting T_j=25℃
*4 T_C=25℃

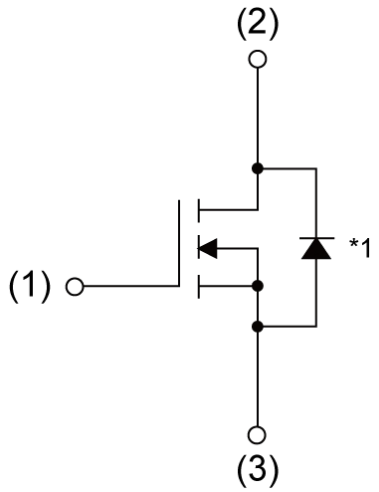
6.ELECTRICAL CHARACTERISTICS [T_a=25°C]

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 = 44.4A/V_{GS} = 10V	-	0.038Ω	0.042Ω
FORWARD TRANSFER ADMITTANCE	$\|Y_{fs}\|$ *PULSED	V_{DS} = 10V/I_D = 38A	22.5S	45.0S	-
INPUT CAPACITANCE	C_{iss}	V_{DS} = 25V V_{GS} = 0V f = 1MHz	-	6500pF	-
OUTPUT CAPACITANCE	C_{oss}		-	4700pF	-
REVERSE TRANSFER CAPACITANCE	C_{rss}		-	520pF	-
TURN-ON DELAY TIME	$t_{d(on)}$ *PULSED	V_{DD} ≒ 300V I_D = 38A V_{GS} = 10V R_L = 7.87Ω R_G = 10Ω See Fig.1-1, 1-2	-	65ns	-
RISE TIME	t_r *PULSED		-	170ns	-
TURN-OFF DELAY TIME	$t_{d(off)}$ *PULSED		-	450ns	-
FALL TIME	t_f *PULSED		-	170ns	-
TOTAL GATE CHARGE	Q_g *PULSED	V_{DD} ≒ 300V V_{GS} = 10V I_D = 50A See Fig.2-1,2-2	-	260nC	-
GATE-SOURCE CHARGE	Q_{gs} *PULSED		-	40nC	-
GATE-DRAIN CHARGE	Q_{gd} *PULSED		-	135nC	-

BODY DIODE (SOURCE-DRAIN)

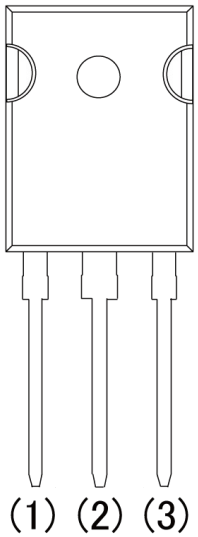
PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
FORWARD VOLTAGE	V_{SD} *PULSED	I_S = 76A/V_{GS} = 0V	-	-	1.5V

7. INNER CIRCUIT

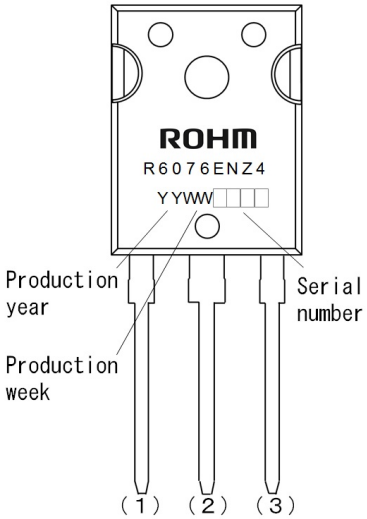


(1) Gate
(2) Drain
(3) Source

*1 Body Diode



8. MARKING



9. MEASUREMENT CIRCUIT

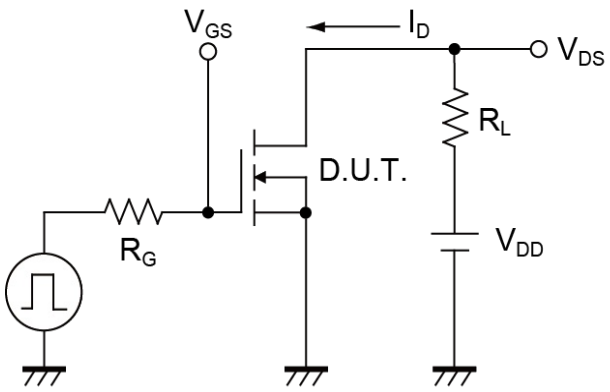


Fig.1-1 Switching Time Measurement Circuit

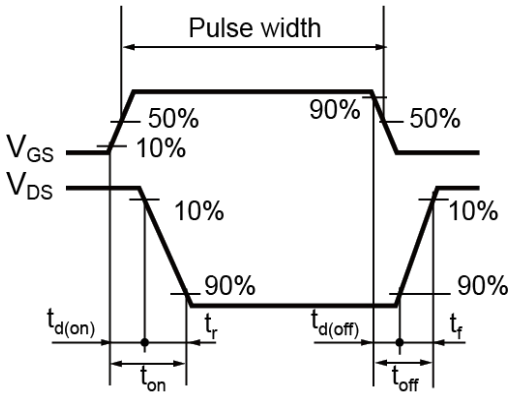


Fig.1-2 Switching Waveforms

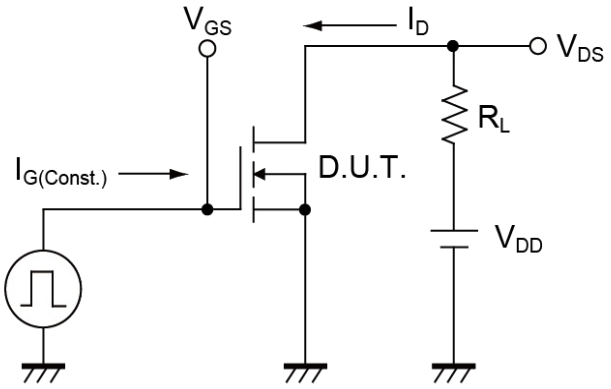


Fig.2-1 Gate Charge Measurement Circuit

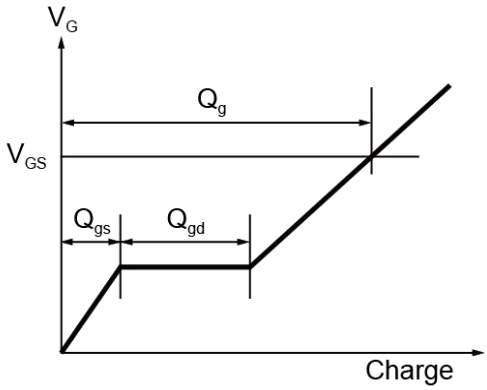


Fig.2-2 Gate Charge Waveform

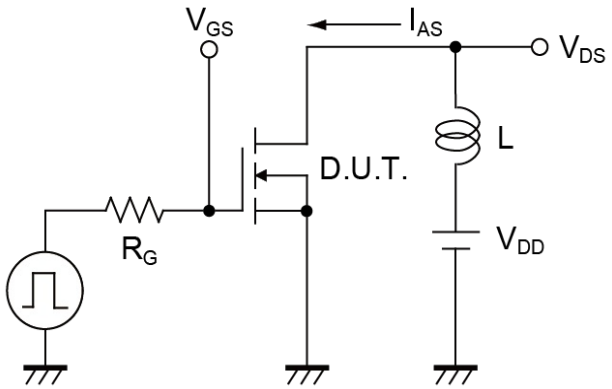


Fig.3-1 Avalanche Measurement Circuit

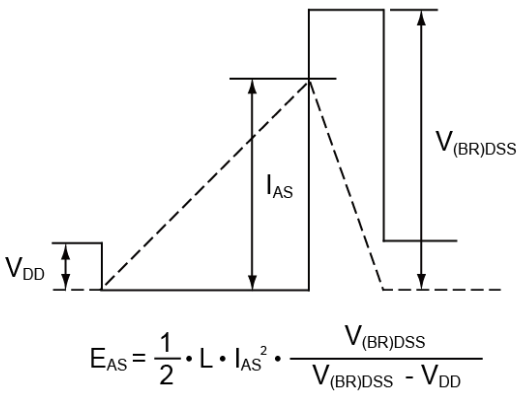


Fig.3-2 Avalanche Waveform