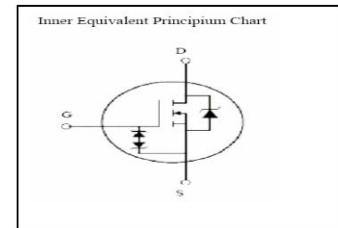
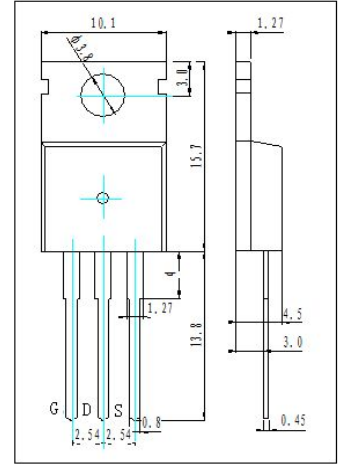


N沟道增强型功率场效应晶体管

1、概述与特点

DH830 是 N 沟道增强型中压功率 MOS 场效应晶体管。主要用途：AC-DC 开关电源、DC-DC 电源转换器、高频开关电源、UPS 电源等适配器以及充电器。其特点如下：

- 导通电阻低
- 低栅极电荷
- 开关速度快
- 低反向传输电容
- 100%单脉冲雪崩能量筛选测试
- 封装形式：T0-220C, 管脚排列：G、D、S
- 符合 RoHS 指令要求



2、电特性

2.1 极限值 (除非另有规定, Tc=25°C)

参数名称	符号	额定值	单位
最高漏极-源极直流电压	V_{DSS}	500	V
最高栅极-源极电压	V_{GSS}	±30	V
栅源 ESD (HBM-C=100pF, R=1.5KΩ)	$V_{ESD(G-S)}$	3000	V
连续漏极电流	I_D (T=25°C) (T=100°C)	5	A
		3.4	A
脉冲漏极电流	I_{DM}^a	20	A
单脉冲雪崩能量(注 2)	E_{AS}	200	mJ
重复雪崩能量(注 1)	E_{AR}^a	30	mJ
雪崩电流(注 1)	I_{AR}^a	2.5	A
二极管反向恢复最大电压变化速率(注 3)	dv/dt	5.0	V/ns
耗散功率	T _a =25°C	P_{tot}	2.0 W
	T _c =25°C	P_{tot}	75 W
最高结温	T _j	150	°C
贮存温度	T _{stg}	-55~150	°C
焊锡最高温度	T _L	300	°C

2.2 热学特性

参数名称	符号	额定值	单位
T 热阻, 结到管壳(最大值)	R _{thJC}	1.67	°C/W
热阻, 结到环境(最大值)	R _{thJA}	62.5	°C/W

2.3 电参数 (除非另有规定, Tc=25°C)

参数名称	符号	测试条件	规范值			单位
			最小	典型	最大	
漏源击穿电压	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	500			V
源栅击穿电压	V_{GS0}	$I_{GS}=\pm 1mA$ (Open Drain)	±30			V
零栅电压漏极电流	I_{DSS}	$V_{DS}=500V, V_{GS}=0V, T_c=25^\circ C$			1	μA
		$V_{DS}=400V, V_{GS}=0V, T_c=125^\circ C$			100	μA
栅源正向漏电流	I_{GSSF}	$V_{GS}=20V, V_{DS}=0V$			10	μA
栅源反向漏电流	I_{GSSR}	$V_{GS}=-20V, V_{DS}=0V$			-10	μA
栅门槛电压	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0		4.0	V
漏源导通电阻	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.5A$	1.25	1.5		Ω
漏源二极管正向电压	V_{FSD}	$V_{GS}=0V, I_S=5.0A$			1.5	V

正向跨导	g_{FS}^a	$V_{DS}=15V, I_D=2.5A$		4.0		S
栅极总电荷	Q_g	$I_D=5A, V_{DD}=300V, V_{GS}=10V$	--	14.5	--	nC
栅源电荷	Q_{gs}		--	3	--	
栅漏电荷	Q_{gd}		--	6.5	--	
输入电容	C_{iss}	$V_{GS}=0V, V_{DS}=25V, f=1.0MHz$	--	540	--	pF
输出电容	C_{oss}		--	68	--	
反向传输电容	C_{riss}		--	7.5	--	
a: 脉冲测试 $t_p \leq 300 \mu s, \delta \leq 2\%$						

注释:

- 1、Repetitive rating; pulse width limited by maximum junction temperature.
- 2、 $L=10mH, I_D=6.3A, V_{DD}=50V, V_{GATE}=500V$, 起始结温 $T_j=25^\circ C$ 。
- 3、 $I_{SD}=5.0A, di/dt \leq 100A/\mu s, V_{DD} \leq BV_{DSS}$, 起始结温 $T_j=25^\circ C$ 。

3、特性曲线

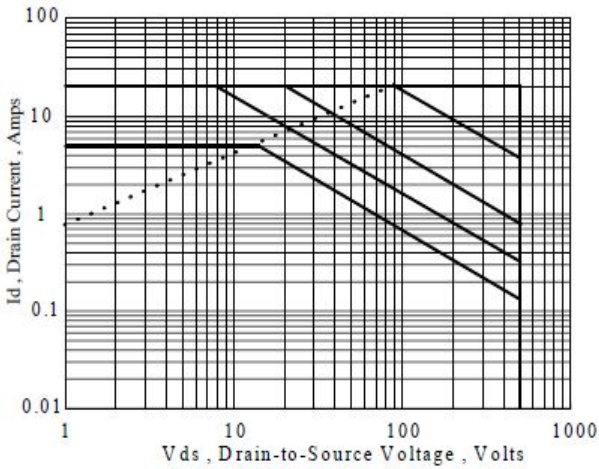


Figure 1 Maximum Forward Bias Safe Operating Area

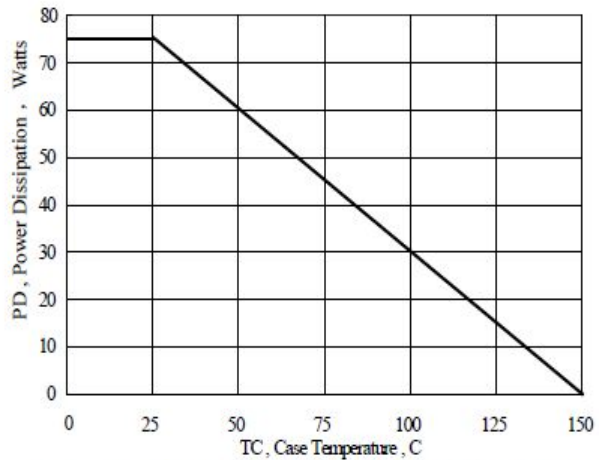


Figure 2 Maximum Power Dissipation vs Case Temperature

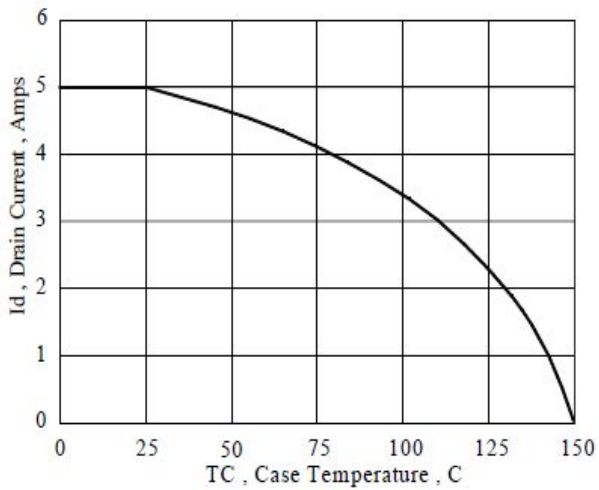


Figure 3 Maximum Continuous Drain Current vs Case Temperature

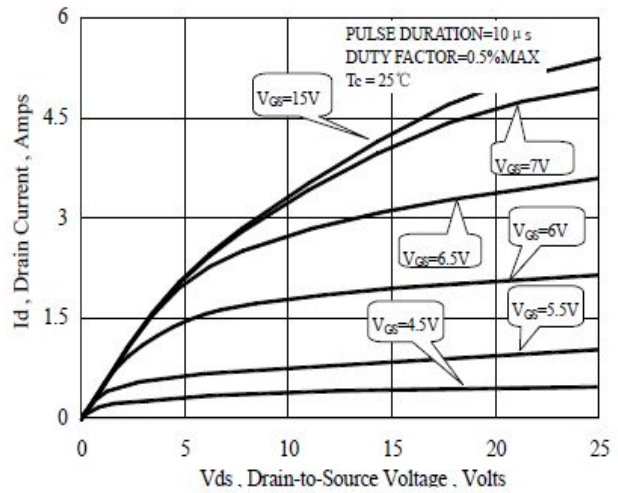


Figure 4 Typical Output Characteristics

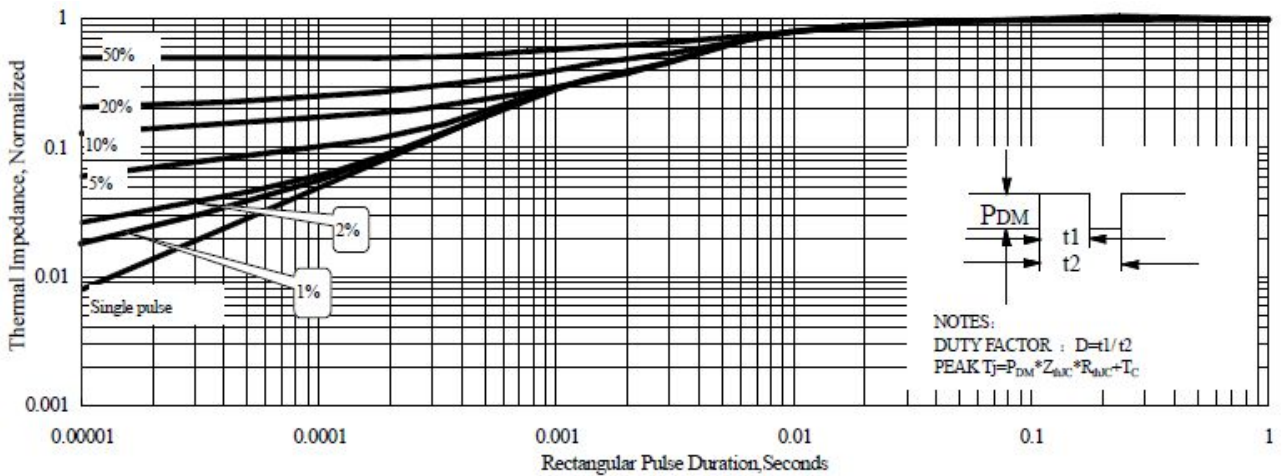


Figure 5 Maximum Effective Thermal Impedance, Junction to Case

3、特性曲线

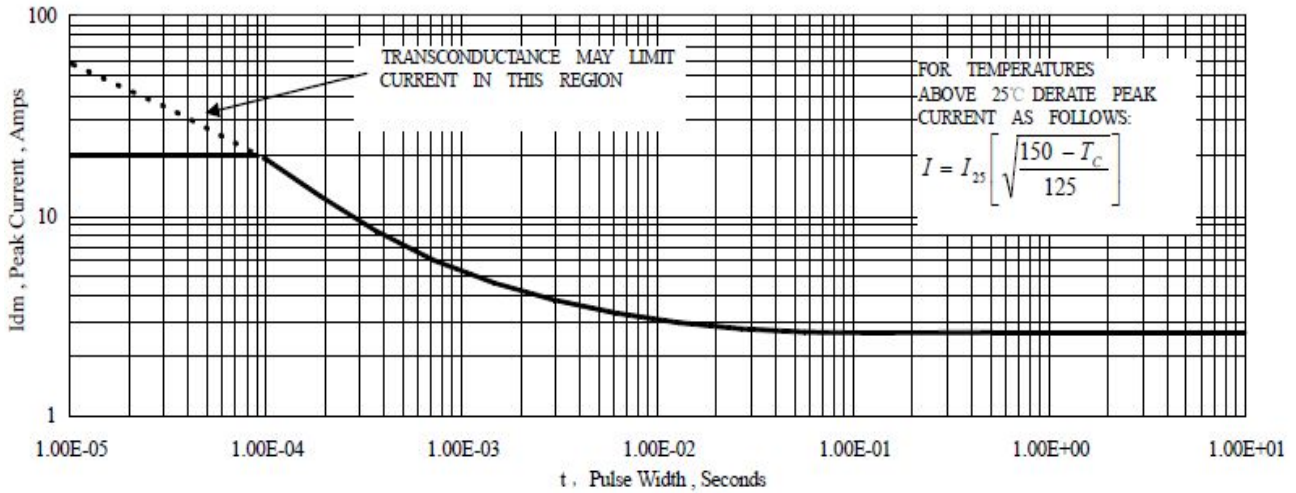


Figure 6 Maximum Peak Current Capability

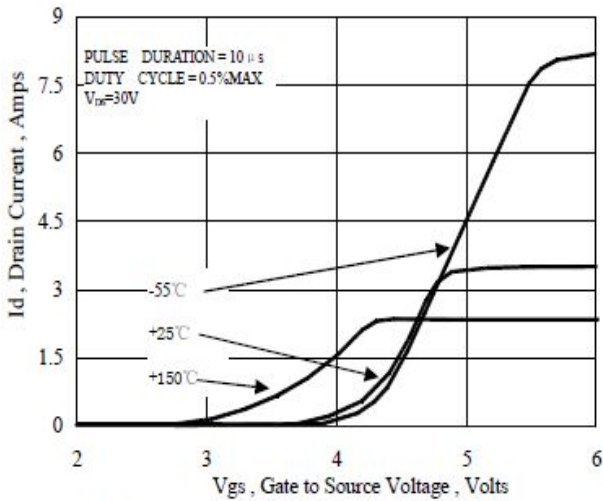


Figure 7 Typical Transfer Characteristics

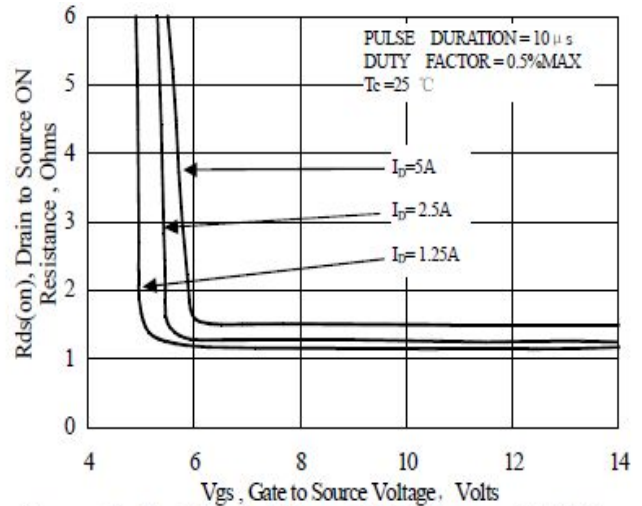


Figure 8 Typical Drain to Source ON Resistance vs Gate Voltage and Drain Current

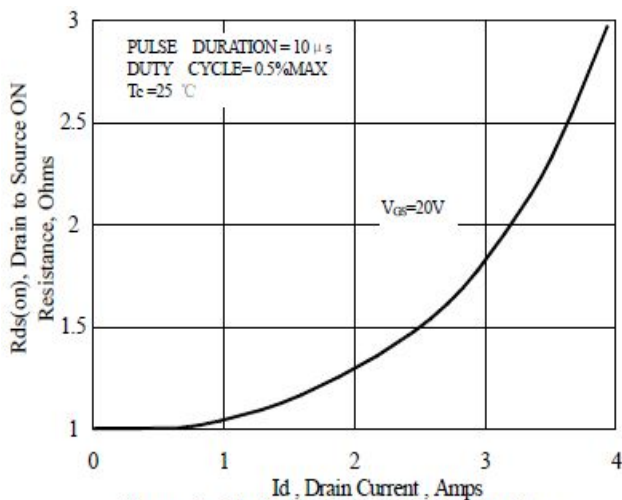


Figure 9 Typical Drain to Source ON Resistance vs Drain Current

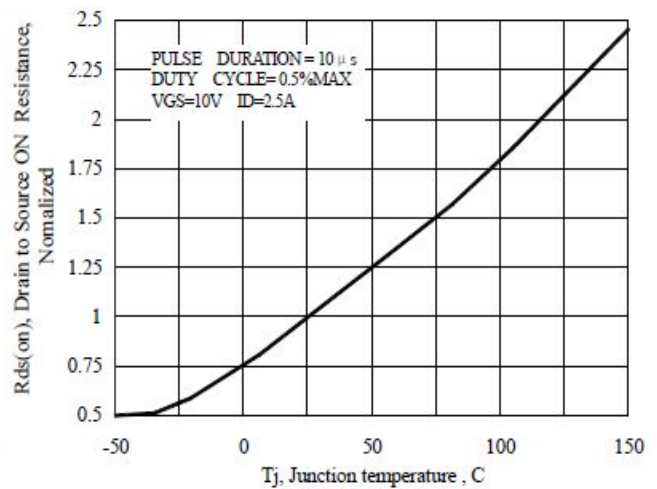


Figure 10 Typical Drain to Source on Resistance vs Junction Temperature

3、特性曲线

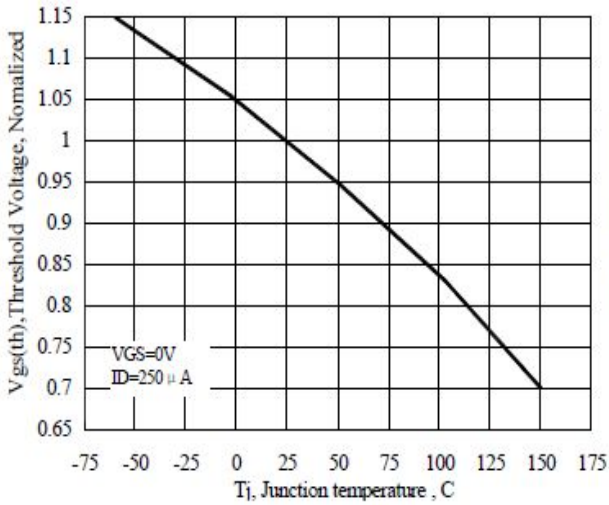


Figure 11 Typical Theshold Voltage vs Junction Temperature

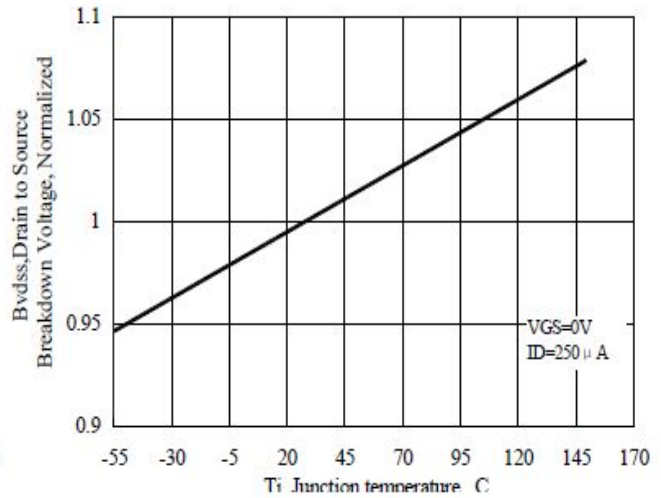


Figure 12 Typical Breakdown Voltage vs Junction Temperature

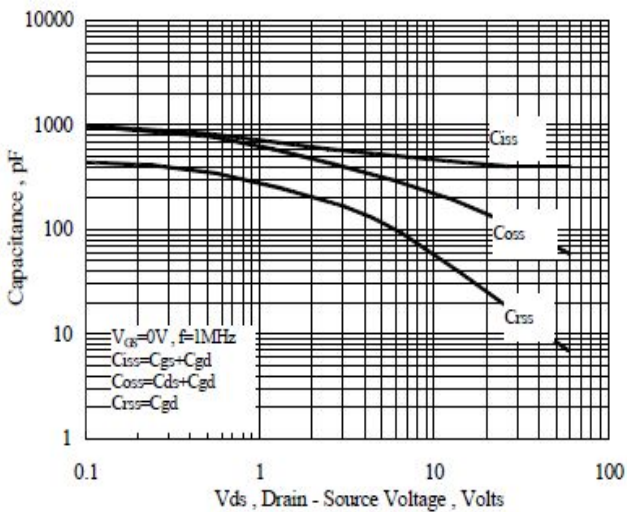


Figure 13 Typical Capacitance vs Drain to Source Voltage

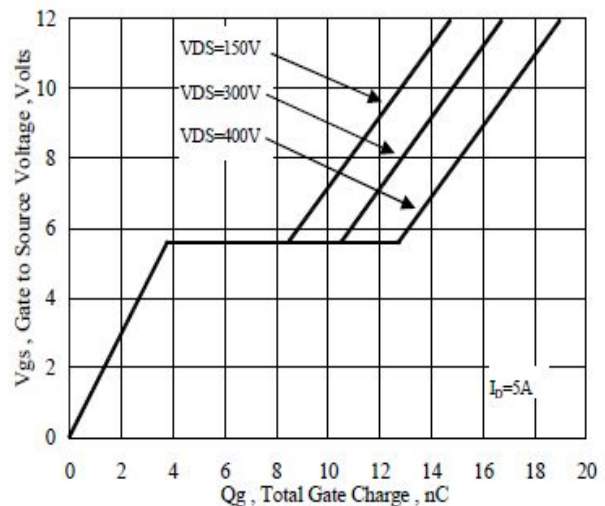


Figure 14 Typical Gate Charge vs Gate to Source Voltage

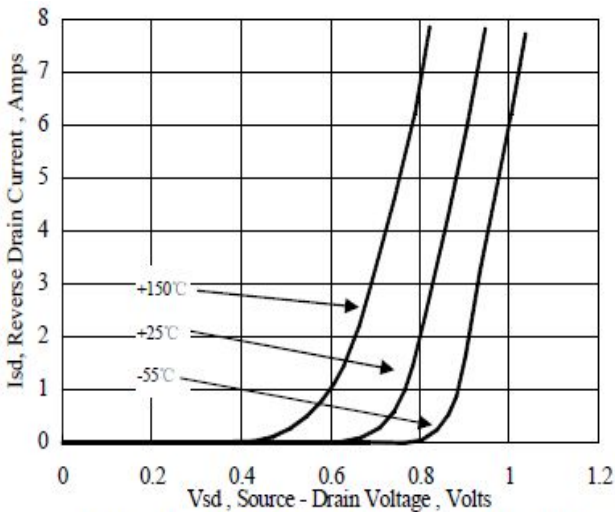


Figure 15 Typical Body Diode Transfer Characteristics

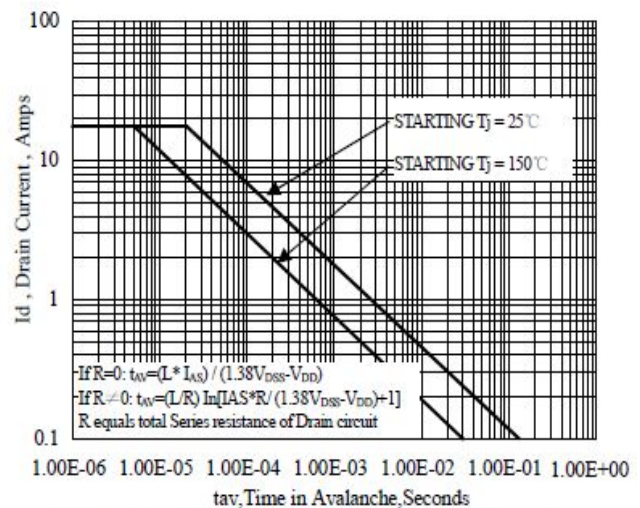
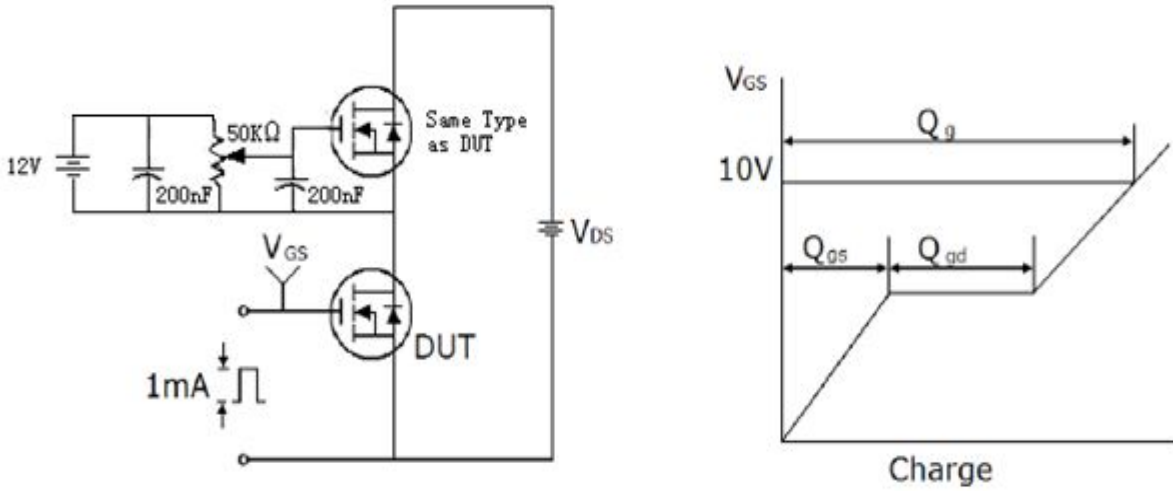
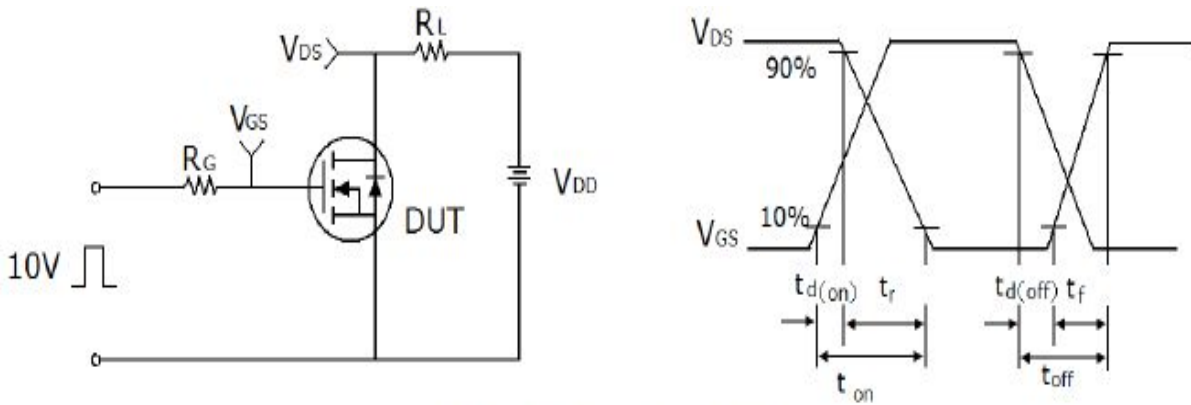


Figure 16 Unclamped Inductive Switching Capability

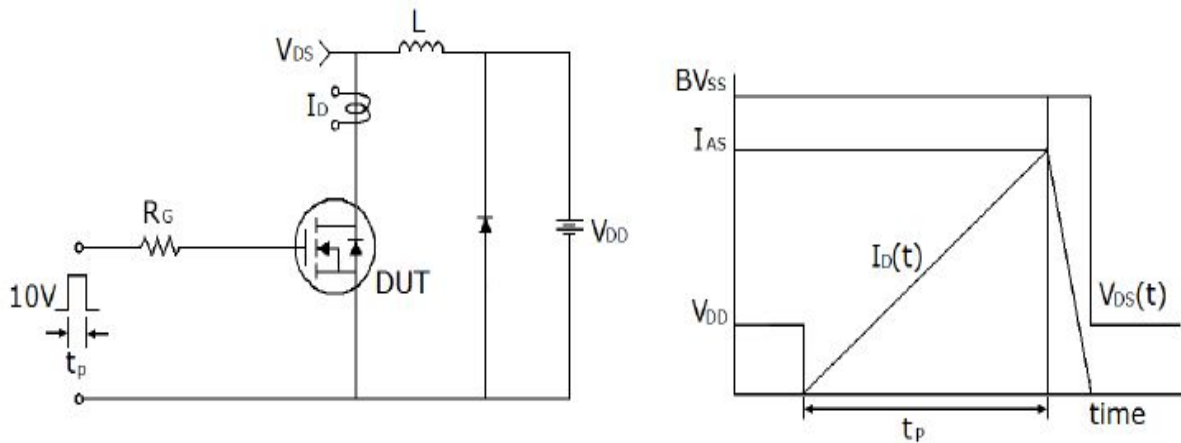
4、测试电路与波形图 (Test Circuit and Waveform)



1) Gate charge test circuit & Waveform

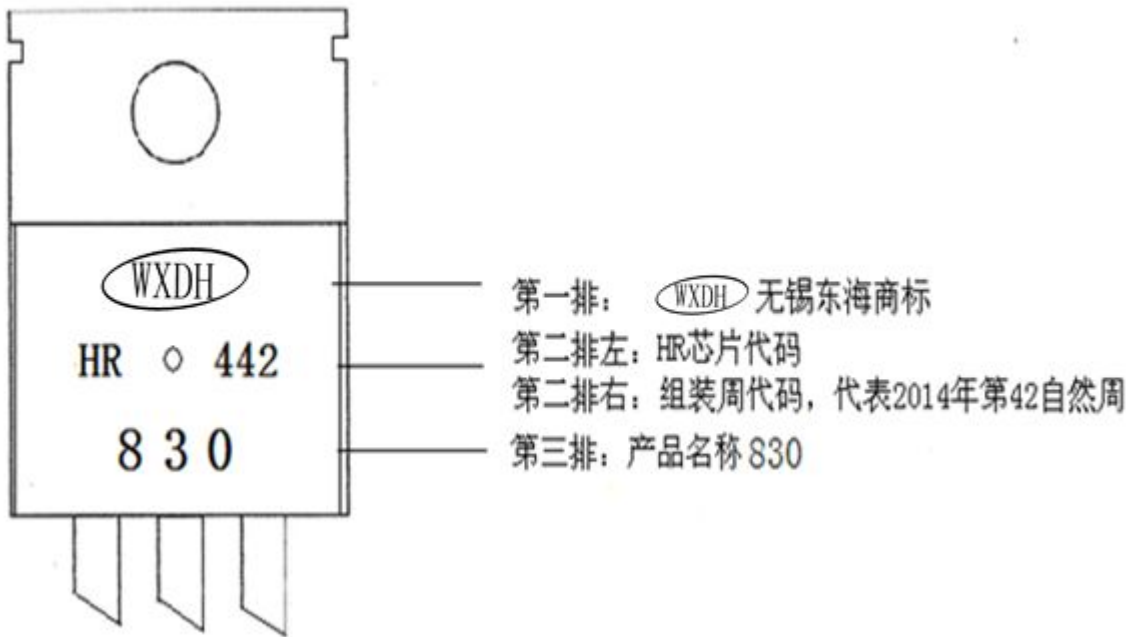


2) Switch Time Test Circuit:

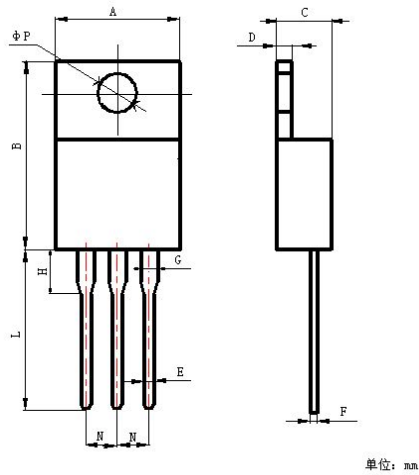


3) Unclamped Inductive Switching Test Circuit & Waveforms

5、产品印记



6、外形尺寸



项 目	规范(mm)	
	MIN	MAX
A	9.8	10.2
B	15.5	16.1
C	4.40	4.60
D	1.20	1.40
E	0.70	0.90
F	0.40	0.60
G	1.17	1.37
H	2.60	3.20
L	12.8	13.2
N	2.34	2.74
ϕP	3.50	3.80