

双封 N-沟道功率 MOS 管/Dual N-CHANNEL POWER MOSFET

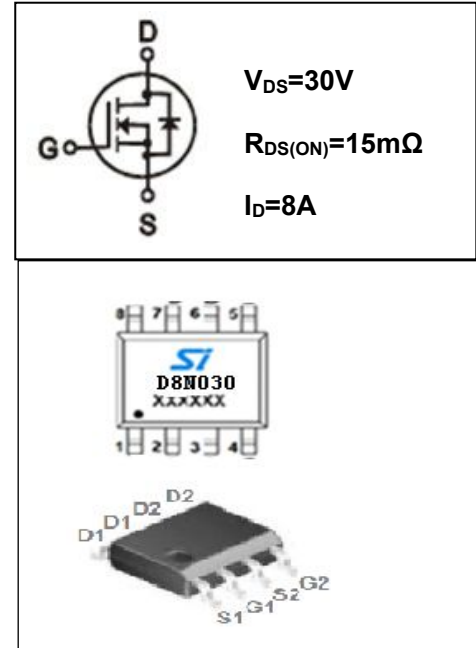
SIFD8N030

- 特点：热阻低 导通电阻低 栅极电荷低，开关速度快 输入阻抗高 符合RoHS规范
- FEATURES: ■LOW THERMAL RESISTANCE ■LOW $R_{DS(ON)}$ TO MINIMIZE CONDUCTIVE LOSS ■LOW GATE CHARGE FOR FAST SWITCHING ■HIGH INPUT RESISTANCE ■RoHS COMPLIANT
- 应用：低压高频逆变电路 同步整流 开关应用
- APPLICATION: ■LOW VOLTAGE,HIGH FREQUENCY INVERTERS ■SYNCHRONOUS RECTIFICATION ■SWITCH APPLICATIONS

●最大额定值 (TC=25°C)

●Absolute Maximum Ratings (Tc=25°C) Dual SOP-8

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V_{DS}	30	V
栅-源电压 gate-source Voltage	V_{GS}	±20	V
漏极电流 Continuous Drain Current TC=25°C ①	I_D	8*	A
耗散功率 Total Power Dissipation ①	P_{tot}	2.1	W
最高结温 Junction Temperature	T_j	150	°C
存储温度 Storage Temperature	T_{STG}	-55-150	°C
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	E_{AS}	14	mJ



●电特性 (Tc=25°C)

●Electronic Characteristics (Tc=25°C)

参数 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
漏-源击穿电压 Drain-source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30			V
栅极开启电压 Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$ ③	1.0		2.5	V
漏-源漏电流 Drain-source Leakage Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
栅极漏电流 Gate-body Leakage Current ($V_{DS}=0$)	I_{GSS}	$V_{GS}=\pm 20V$			±100	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=6A$ ③		15	20	mΩ
		$V_{GS}=4.5V, I_D=3A$ ③		23	30	
跨导 Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=6A$ ③		13		S

●订单信息/ORDERING INFORMATION:

包装形式/PACKING	订货编码/ORDERING CODE	
	普通塑封料/ Normal Package Material	无卤塑封料/Halogen Free
SOP-8 条管装/TUBE PACKING	SIFD8N030 SOP-8-TU	SIFD8N030 SOP-8-TU-HF
SOP-8 编带装/TAPE & REEL PACKING	SIFD8N030 SOP-8-TR	SIFD8N030 SOP-8-TR-HF

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参数 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
输入电容 Input Capacitance	Ciss	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		345		pF
输出电容 Output Capacitance	Coss			55		
反向传输电容 Reverse Transfer Capacitance	Crss			32		
导通延迟 Turn -On Delay Time	Td(on)	$V_{DD}=15V, R_G=6\Omega$ $V_{GS} = 10V, I_D=1A$		2.6		ns
开启上升时间 Turn -On Rise Time	T_r			7.2		ns
关断延迟 Turn -Off Delay Time	Td(off)			15.8		ns
关断下降时间 Turn -Off Fall Time	T_f			4.6		ns
栅极电荷 Total Gate Charge	Qg	$I_D = 5A, V_{DS} = 15V$ $V_{GS} = 4.5V$		4.1		nC
栅源电荷 Gate-to-Source Charge	Qgs			1		nC
栅漏电荷 Gate-to-Drain Charge	Qgd			2.1		nC
二极管正向压降 Diode Forward Voltage	V_{SD}	$T_j=25^\circ C, I_S=1A$ $V_{GS} = 0V$ ③			1.0	V
反向恢复时间 Reverse Recovery Time	trr	$I_S=11A, di/dt=100A/\mu s$ $T_j=25^\circ C, \text{③}$		/		ns
反向恢复电荷 Reverse Recovery Charge	Qrr			/		nC

●热特性

●Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
热阻结-壳 Thermal Resistance Junction-case	RthJC			59.5	$^\circ C/W$
热阻结-环境 Thermal Resistance Junction-ambient	RthJA			75	$^\circ C/W$

注释(Notes):

- ① 以最高结温为限制， $T_c=25^\circ C$ 时测试。
 I_D & P_D base on maximum allowable junction temperature, test at $T_c=25^\circ C$.
- ② 初始结温= $25^\circ C$, $L=0.1mH$.
Starting $T_j=25^\circ C, L=0.1mH$
- ③ 脉冲测试: 脉冲宽度 $\leq 300\mu s$, 占空比 $\leq 2\%$
Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

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● 特性曲线

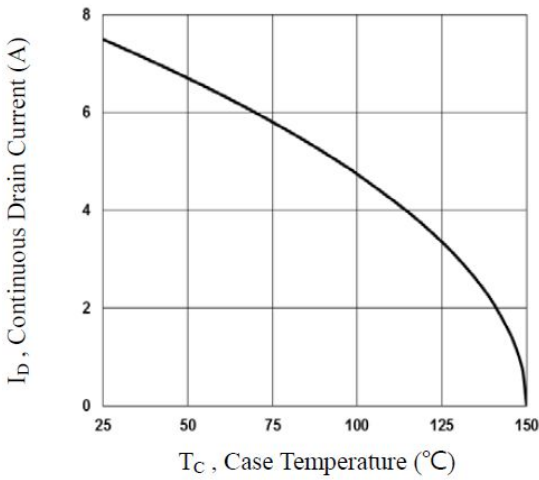


图 1 连续漏电流与壳温曲线

Fig1 Continuous Drain Current vs. Tc

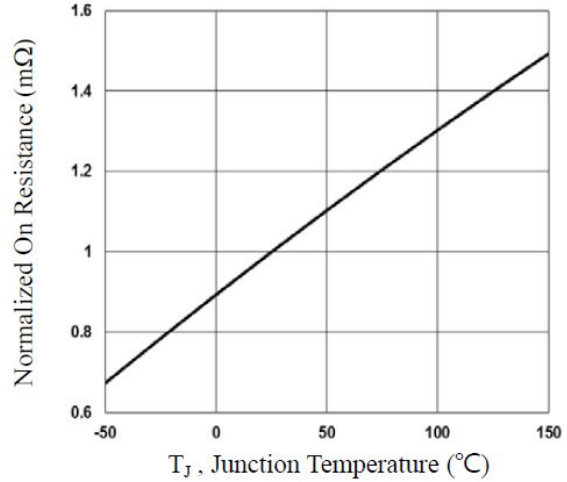


图 2 归一化导通电阻与结温曲线

Fig2 Normalized Rdson vs. Tj

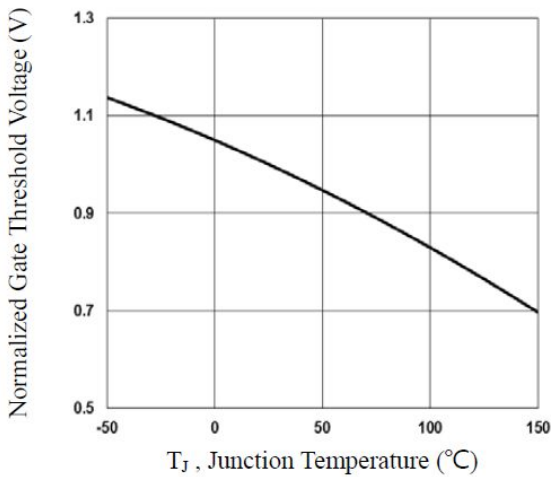


图 3 归一化开启电压与结温曲线

Fig3 Normalized V_{TH} vs. Tj

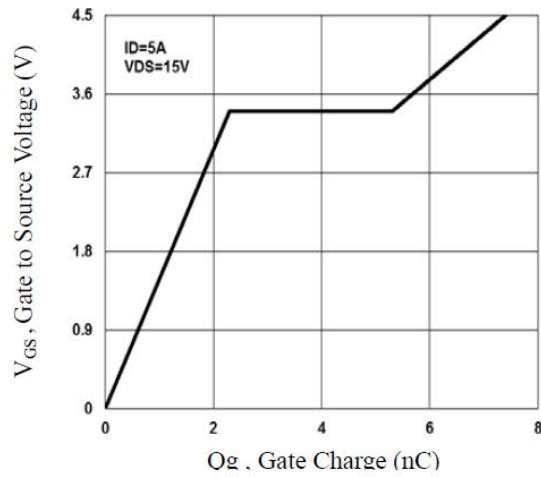


图 4 栅电荷曲线

Fig4 Gate Charge Waveform

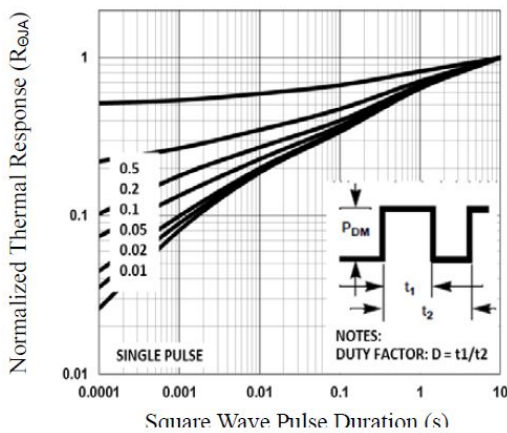


图 5 归一化瞬态热阻

Fig5 Normalized Transient response

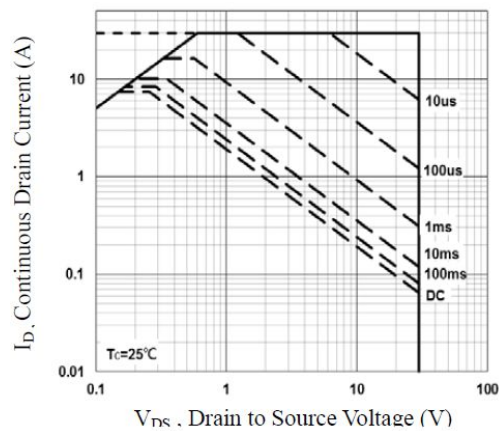


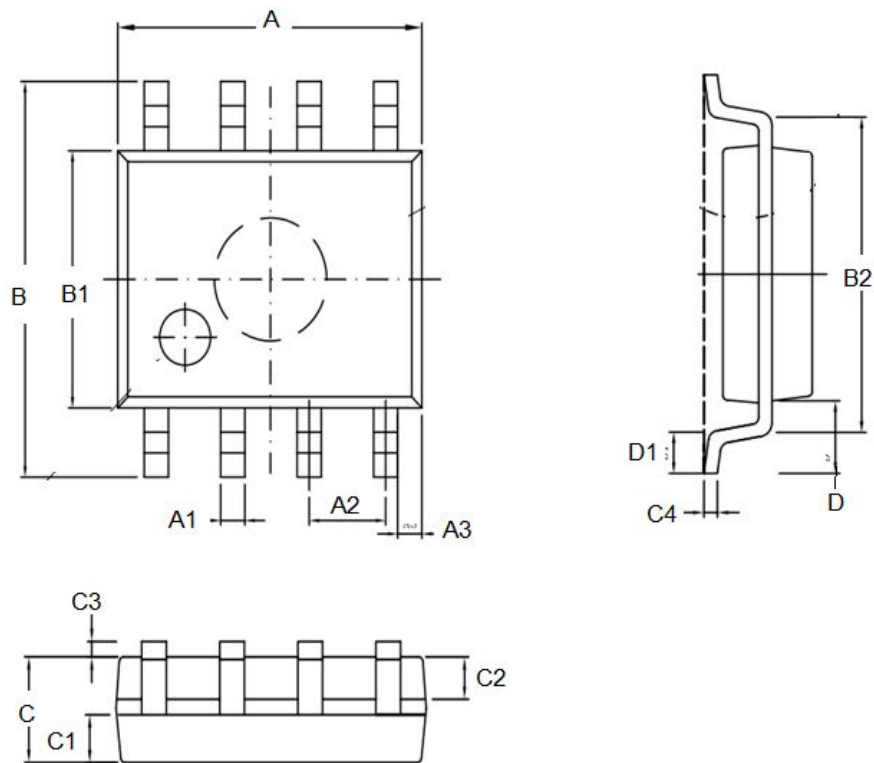
图 6.最大安全工作区

Fig6 Maximum Safe Operation Area

SOP8 封装机械尺寸 SOP8 MECHANICAL DATA

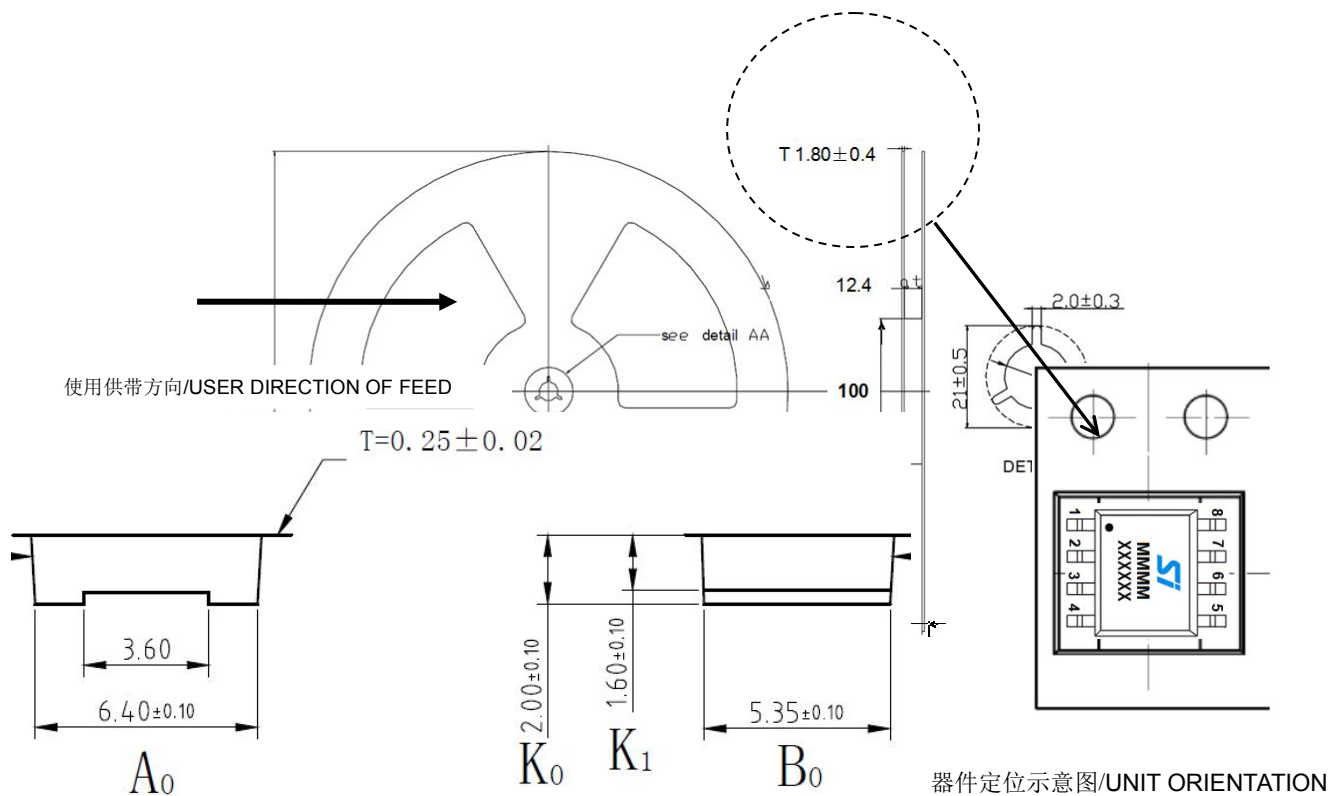
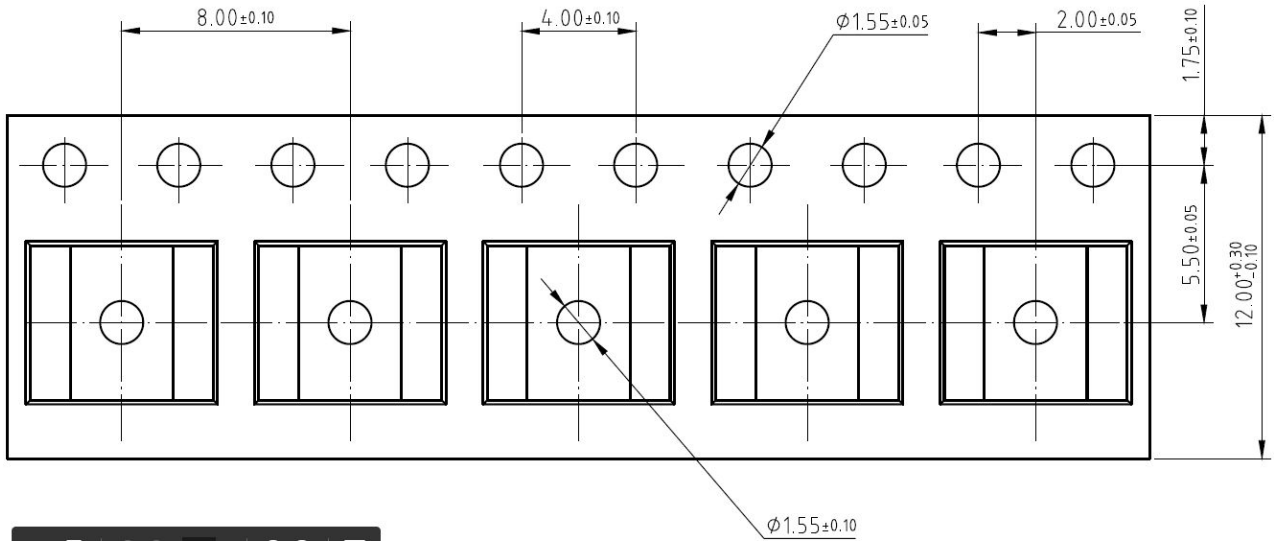
单位:毫米/UNIT: mm

符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	4.80		5.10	C	1.30		1.50
A1	0.37		0.47	C1	0.55		0.75
A2		1.27 TYP		C2	0.55		0.65
A3		0.41 TYP		C3	0.05		0.25
B	5.80		6.20	C4	0.19	0.20TYP	0.23
B1	3.80		4.00	D		1.05TYP	
B2		5.0TYP		D1	0.40		0.62



SOP8 (13'')编带规格 SOP8 (13'')TAPE AND REEL DATA

单位:毫米/UNIT: mm



器件定位示意图/UNIT ORIENTATION