HAOLIN ELECTRONICS

产品规格书
Product Specification

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET HU8N70

●特点：热阻低　开关速度快　输入阻抗高　符合RoHS规范

●FEATURES：■LOW THERMAL RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE ■RoHS COMPLIANT

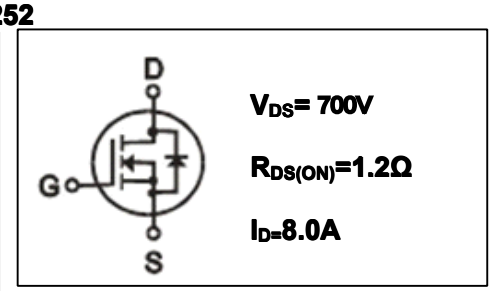
●应用：电子镇流器　电子变压器　开关电源

●APPLICATION: ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER ■SWITCH MODE POWER SUPPLY

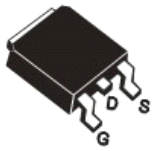
●最大额定值（TC=25°C）

● Absolute Maximum Ratings（Tc=25°C）　TO-251/251T/252

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V_{DS}	700	V
栅-源电压 gate-source Voltage	V_{GS}	± 30	V
漏极电流 Continuous Drain Current TC=25℃	I_D	8.0	A
漏极电流 Continuous Drain Current TC=100℃	I_D	3.5	A
最大脉冲电流 Drain Current －Pulsed ①	I_{DM}	32	A
耗散功率 Power Dissipation	P_{tot}	50	W
最高结温 Junction Temperature	Tj	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}	230	mJ



TO-251(IPAK)



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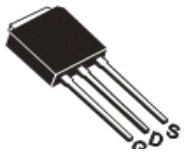

TO-251T(IPAK)

●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=250μA	700			V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta Tj$	I_D=250uA, Referenced to 25°C		0.65		V/°C
栅极开启电压 Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=250μA	2.0		4.0	V
漏-源漏电流 Drain-source Leakage Current	I_{DSS}	V_{DS} =700V, V_{GS} =0V, Tj=25°C			1	μA
		V_{DS} =520V, V_{GS} =0V, Tj=125°C			10	μA
跨导 Forward Transconductance	gfs	V_{DS} =40V, I_D=4.0A ③		3.0		S

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET HU8N70

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
栅极漏电流 Gate-body Leakage Current (V_{DS} = 0)	I_{GSS}	V_{GS} =±30V			±100	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS} =10V, I_D=4.0A ③		0.93	1.2	Ω
输入电容 Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 25V F = 1.0MHZ		1080		pF
关断延迟 Turn -Off Delay Time	Td(off)	V_{DD}=300V, I_D =8.0A R_G=25Ω ③		81		ns
栅极电荷 Total Gate Charge	Qg	I_D =8.0A, V_{DS} = 520V V_{GS} = 10V ③		25.9		nC
栅源电荷 Gate-to-Source Charge	Qgs			6		nC
栅漏电荷 Gate-to-Drain Charge	Qgd			9.2		nC
二极管正向电流 Continuous Diode Forward Current	I_S				8.0	A
二极管正向压降 Diode Forward Voltage	V_{SD}	Tj=25°C, Is=8.0A V_{GS} =0V ③			1.4	V
反向恢复时间 Reverse Recovery Time	trr	Tj=25°C,If=8.0A di/dt=100A/μs ③		365		ns
反向恢复电荷 Reverse Recovery Charge	Qrr			3.4		uC

●热特性

● Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX	单位 UNIT
		TO-251/251T/252	
热阻结-壳 Thermal Resistance Junction-case	Rth_{JC}	2.50	℃/W
热阻结-环境 Thermal Resistance Junction-ambient	Rth_{JA}	62.5	℃/W

注释(Notes):

① 脉冲宽度：以最高节温为限制

Repetitive rating: Pulse width limited by maximum junction temperature

② 初始结温=25°C, V_{DD} =50V, L=10mH, R_G =25Ω, I_{AS}=8.0A

Starting Tj=25°C, V_{DD} =50V, L=10mH, R_G =25Ω, I_{AS}=8.0A

③ 脉冲测试：脉冲宽度≤ 300μs ， 占空比≤ 2 %

Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%

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● **特性曲线**

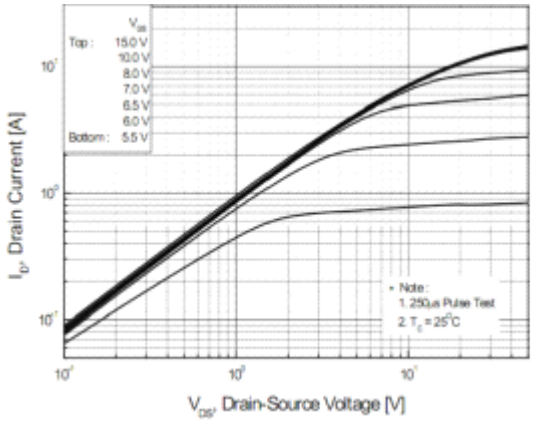


图 1 输出特性曲线, Tc=25℃

Fig1 Typical Output Characteristics, Tc=25℃

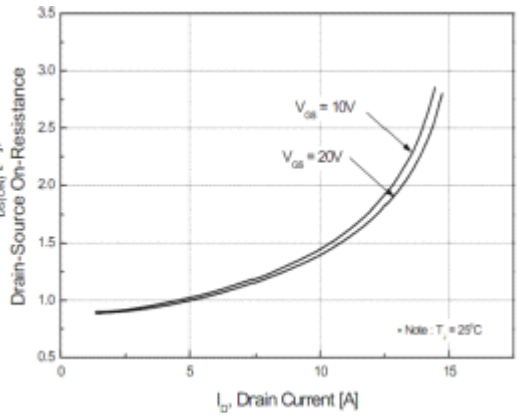


图 2 导通电阻与漏极电流和栅极电压曲线

Fig2 On-Resistance Vs.Drain Current and Gate Voltage

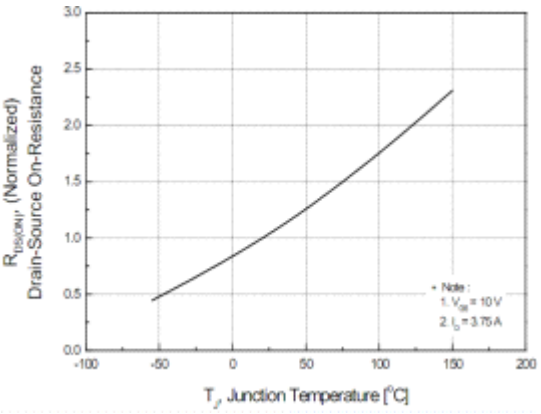


图 3 导通电阻与温度曲线

Fig3 Normalized On-Resistance Vs.Temperature

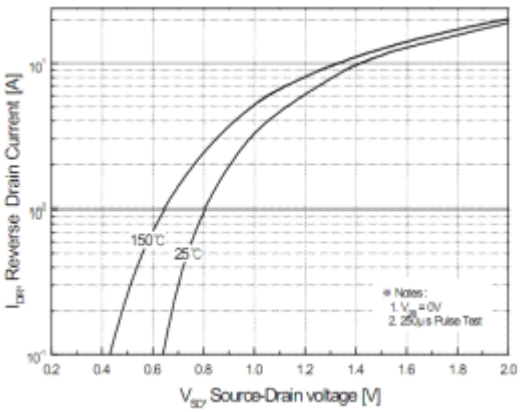


图 4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

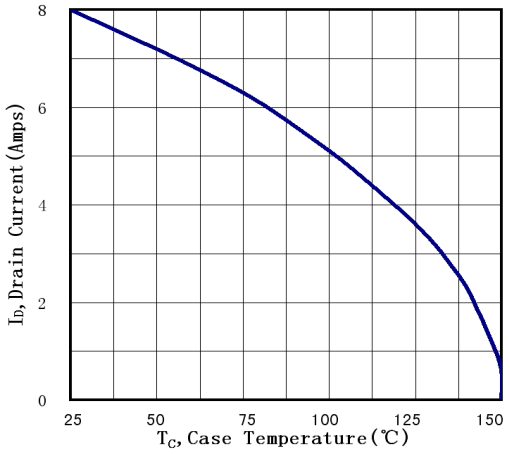


图 5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs.Case Temperature

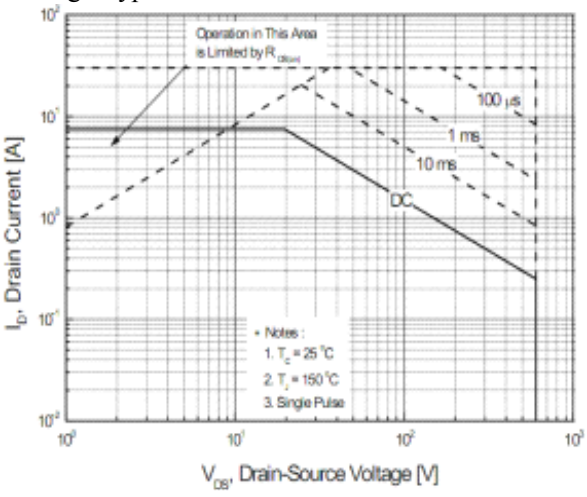


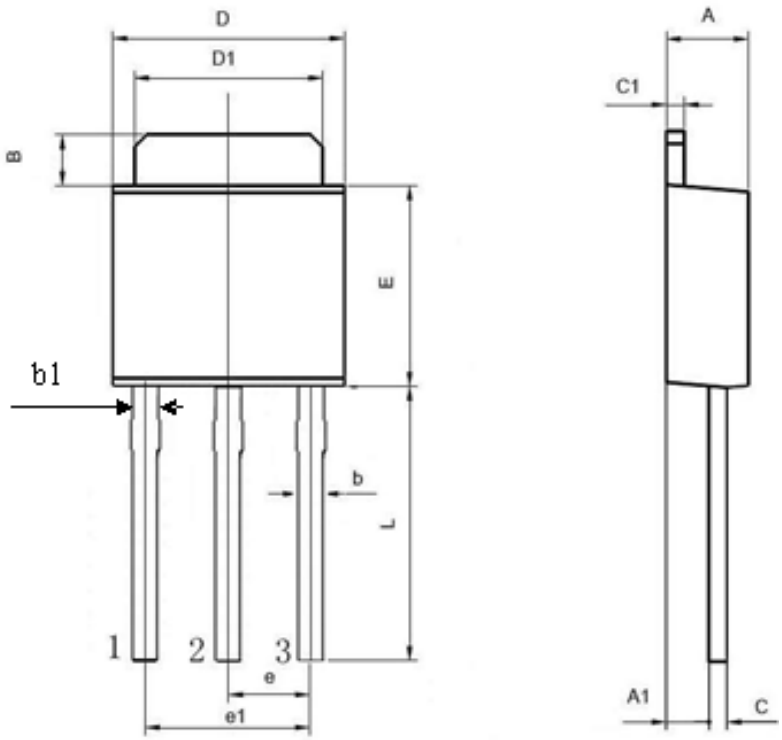
图 6 最大安全工作区曲线

Fig6 Maximum Safe Operating Area

TO-251 封装机械尺寸
TO-251 (IPAK) MECHANICAL DATA

单位:毫米/UNIT：mm

符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	2.10		2.50
A_1	0.95		1.30
B	0.80		1.25
b	0.50		0.80
b_1	0.70		0.90
c	0.45		0.70
c1	0.45		0.70
D	6.35		6.80
D_1	5.10		5.50
E	5.30		6.30
e		2.30	
L	7.00		9.20
R		0.30	[S/L]

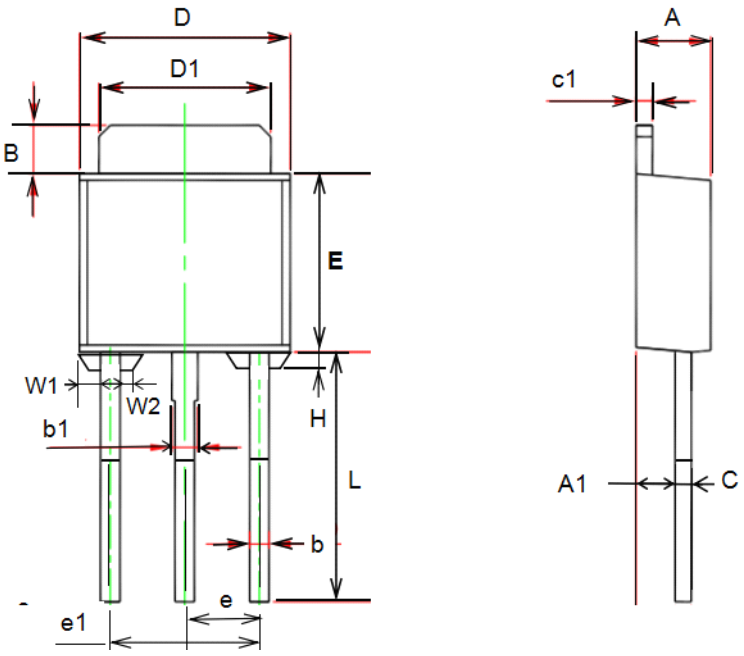


TO-251T 封装机械尺寸
TO-251T (IPAK) MECHANICAL DATA

单位:毫米/UNIT：mm

符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	2.10		2.50
A_1	0.95		1.30
B	0.80		1.25
b	0.50		0.80
b_1	0.70		0.90
c	0.45		0.70
c1	0.45		0.70
D	6.35		6.80
D_1	5.10		5.50
E	5.30		6.30
e	2.25	2.30	2.35
L	7.00		9.20
H	0.35		0.45
W1	0.30		0.50
W2	0.20		0.40

[S/L]



TO-252 封装机械尺寸
TO-252 MECHANICAL DATA

单位:毫米/UNIT：mm

符号 SYMBOL	最小值 min	最大值 max	符号 SYMBOL	最小值 min	最大值 max
A	2.10	2.50	B	0.85	1.25
b	0.50	0.80	b1	0.50	0.90
b2	0.45	0.70	C	0.45	0.70
D	6.30	6.75	D1	5.10	5.50
E	5.30	6.30	e1	2.25	2.35
L1	9.20	10.60	e2	4.45	4.75
L2	0.90	1.75	L3	0.60	1.10
K	-0.10	0.10