

描述 / Descriptions

SOT-23 塑封封装 N 沟道 MOS 场效应管。

N- CHANNEL MOSFET in a SOT-23 Plastic Package.

特征 / Features

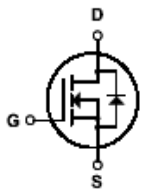
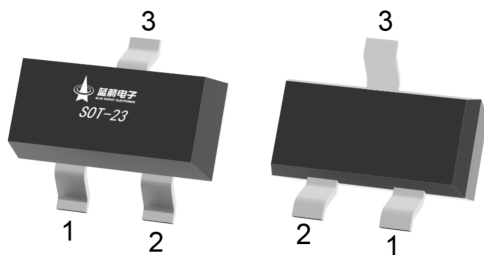
芯片采用超高密度圆胞设计技术， $R_{DS(ON)}$ 导通电阻小，SOT-23 封装，无卤产品。

Super high dense cell design for low $R_{DS(ON)}$, SOT-23 package, HF Product.

用途 / Applications

电池管理，高速开关，低功率 DC-DC 转换。

Battery management, High speed switch, low power DC to DC converter.

内部等效电路 / Equivalent Circuit**引脚排列 / Pinning**

PIN1 : G

PIN 2 : S

PIN 3 : D

印章代码 / Marking

Marking

H310

极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current – Continuous		I_D	3.0	A
Pulsed Drain Current		I_{DM}	15	A
Power Dissipation		P_D	0.9	W
Storage Temperature Range		T_{stg}	-55~150	°C
Maximum Junction-to-Ambient	$t \leq 10s$	R_{JA}	55	°C/W
Maximum Junction-to-Ambient	Steady-State		139	

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions		最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain–Source Breakdown Voltage	$V_{(BR)DS}$	$V_{GS}=0$	$I_D=250\mu A$	60	68		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0$	$V_{DS}=60V$			1.0	μA
Gate–Body Leakage.	I_{GSS}	$V_{GS}=\pm 20V$	$V_{DS}=0V$			± 100	nA
Static Drain–Source On–Resistance	$R_{DS(on)1}$	$V_{GS}=10V$	$I_D=3A$		84	90	m Ω
	$R_{DS(on)2}$	$V_{GS}=4.5V$	$I_D=3A$		94	110	m Ω
Drain–Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$	$I_D=1A$		0.75	1.2	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250\mu A$	1.0	1.8	3.0	V
Maximum Body-Diode Continuous Current	I_S					3	A
Input Capacitance	C_{iss}	$V_{GS}=0V,$ $f=1MHz$	$V_{DS}=25V$		415		pF
Output Capacitance	C_{oss}				37		
Reverse Transfer Capacitance	C_{rss}				25		
Gate resistance	R_g	$V_{GS}=0V,$ $f=1MHz$	$V_{DS}=0V$		3.4		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V,$ $I_D=4.2A$	$V_{DS}=30V$		10		nC
Total Gate Charge	$Q_{g(4.5V)}$				5		
Gate Source Charge	Q_{gs}				2		
Gate Drain Charge	Q_{gd}				3		

电性能参数 / Electrical Characteristics(Ta=25℃)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Turn-On Delay Time	td(on)	VGS=10V, VDS=30V RL=7Ω, RGEN=3Ω		7		ns
Turn-On Rise Time	tr			12		
Turn-Off Delay Time	td(off)			16		
Turn-Off Fall Time	tf			11		

电参数曲线图 / Electrical Characteristic Curve

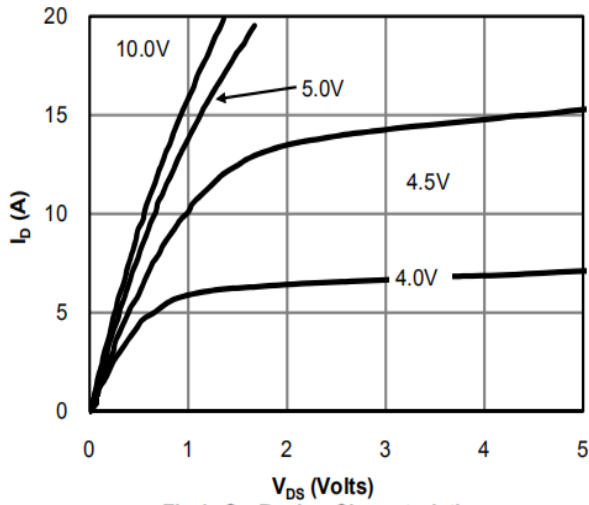


Fig 1: On-Region Characteristics

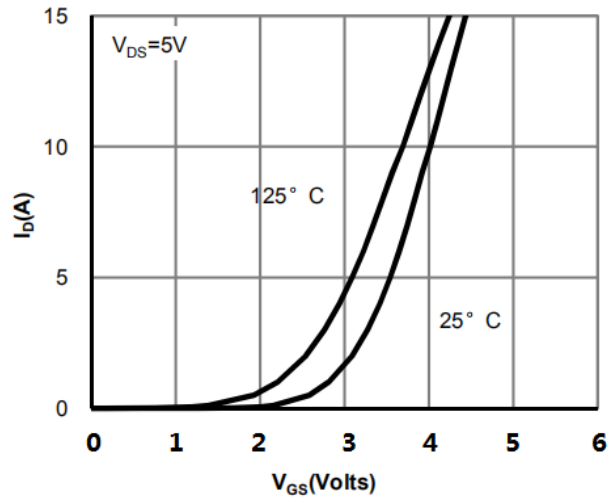


Figure 2: Transfer Characteristics

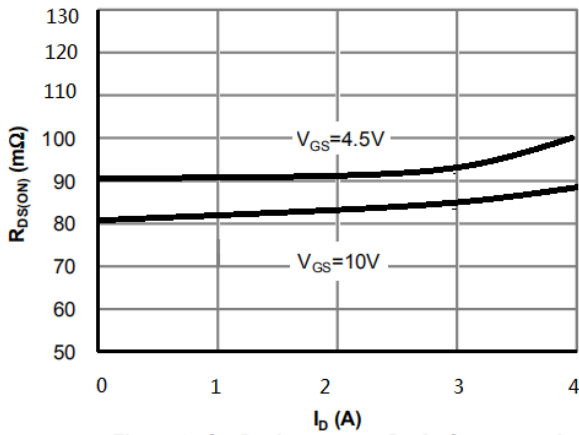


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

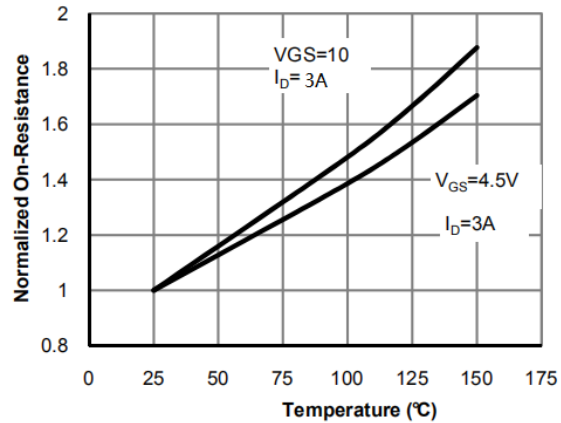


Figure 4: On-Resistance vs. Junction Temperature

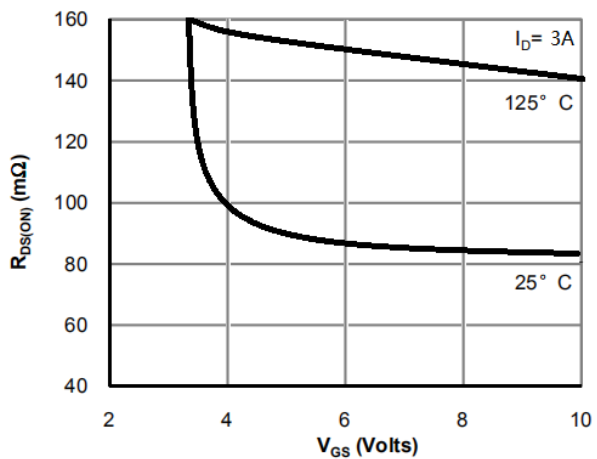


Figure 5: On-Resistance vs. Gate-Source Voltage

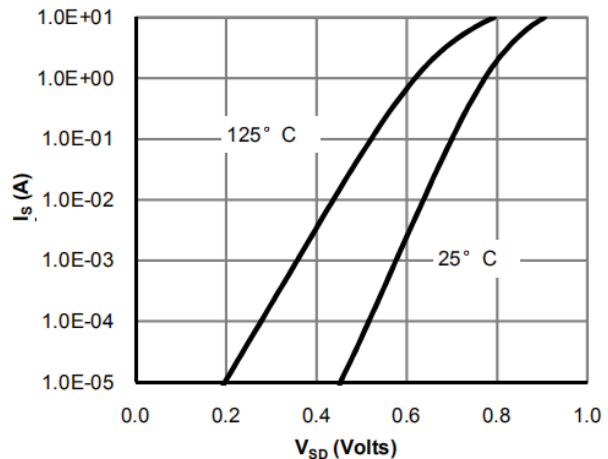
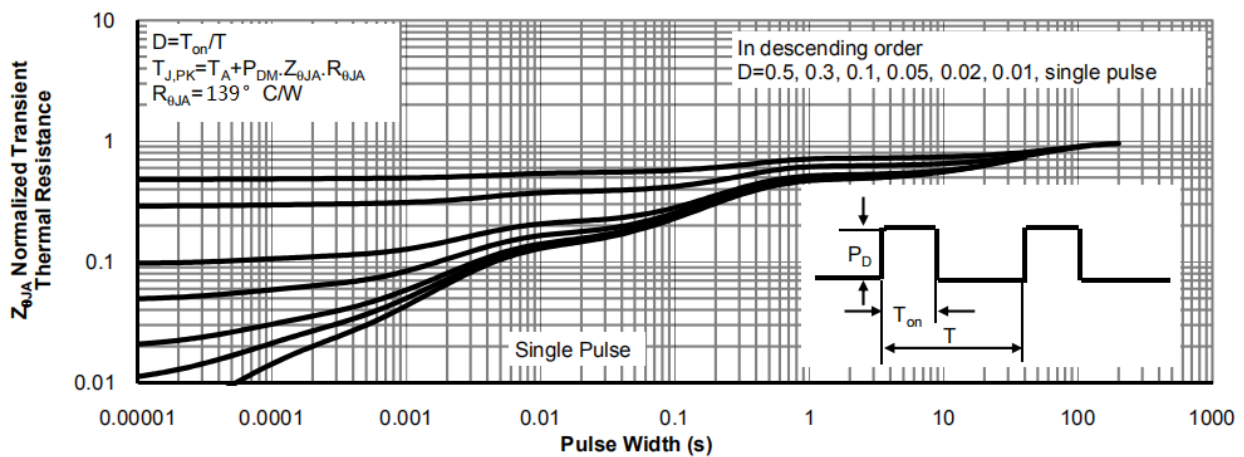
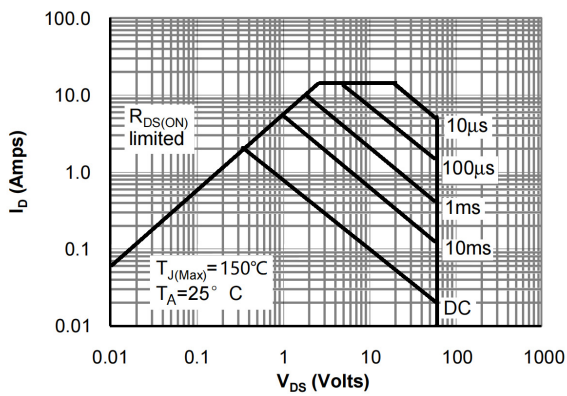
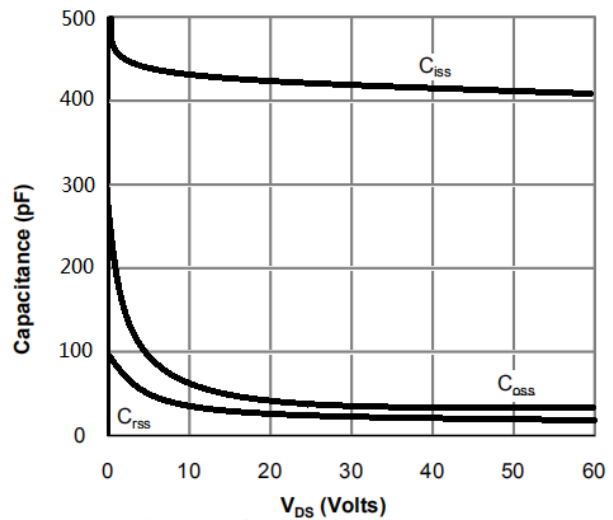
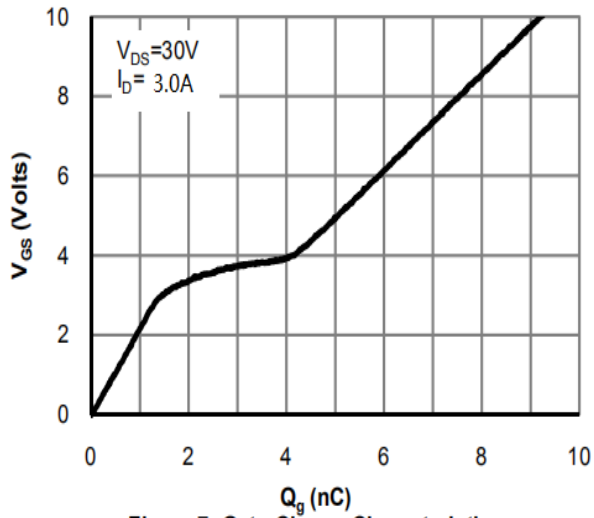


Figure 6: Body-Diode Characteristics

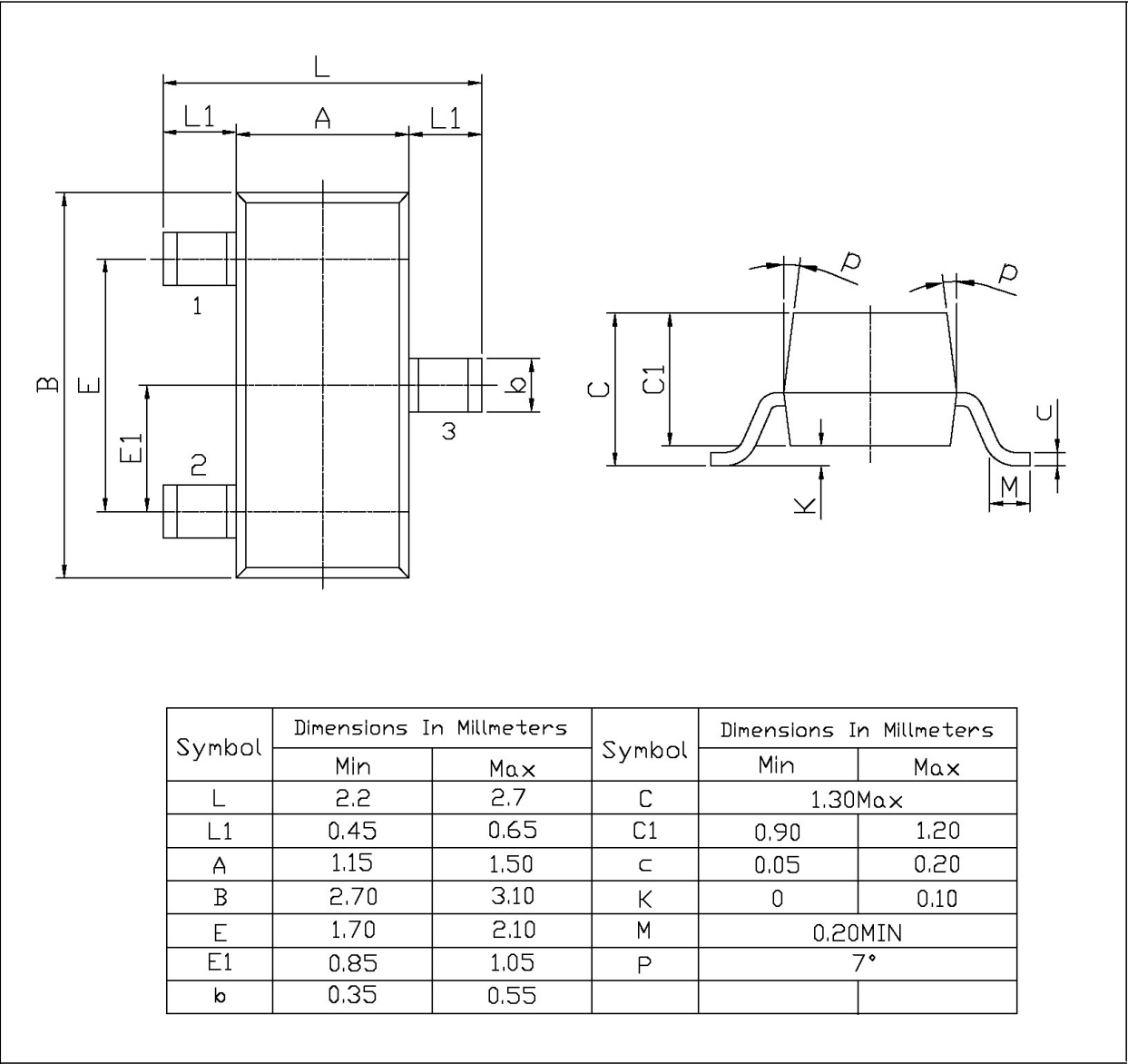
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

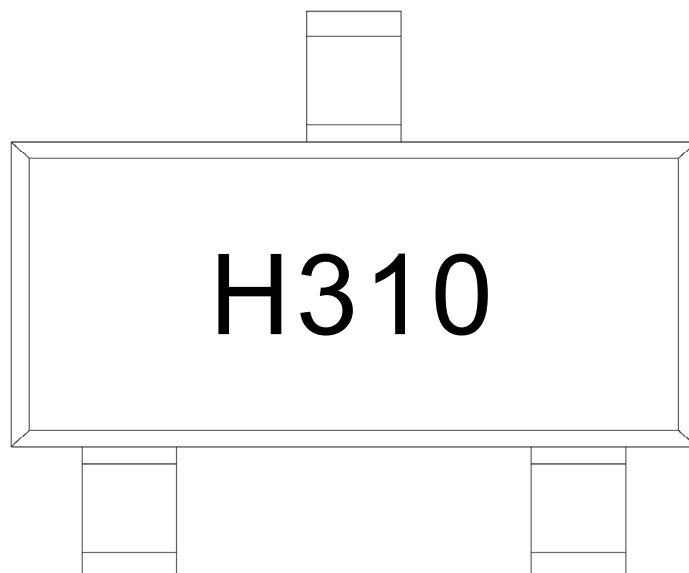
SOT-23

单位：mm





印章说明 / Marking Instructions



说明：

H: 为公司代码

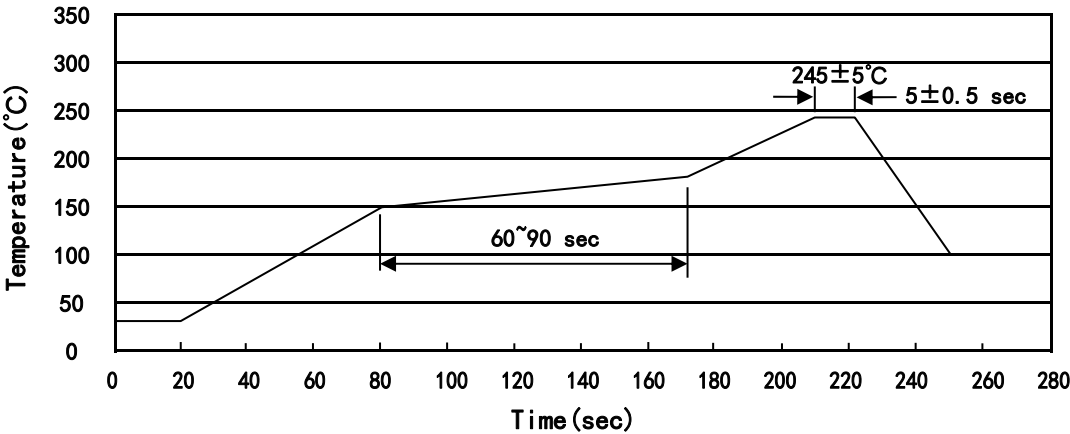
310: 为型号代码

Note:

H: Company Code

310 : Product Type Code

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

- 1、预热温度 150 ~ 180°C，时间 60 ~ 90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2 ~ 10°C/sec.

Note:

- 1.Preheating:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C 时间：10±1 sec. Temp.:260±5°C Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-23	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

使用说明 / Notices