

描述 / Descriptions

SOT23-3 塑封封装 P 道 MOS 场效应管。
P- CHANNEL MOSFET in a SOT23-3 Plastic Package.

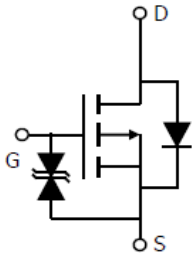
特征 / Features

$R_{DS(ON)} < 41\text{ m}\Omega, V_{GS} = -4.5\text{V}$
 $R_{DS(ON)} < 53\text{ m}\Omega, V_{GS} = -2.5\text{V}$
无卤产品。HF Product.

用途 / Applications

负载开关，电池保护。
Load switch , Battery protection.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : G PIN 2 : S PIN 3 : D

印章代码 / Marking

Marking	AFH
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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}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Drain Current-Continuous @ $T_C = 25^\circ C$	I_D	-4	A
Drain Current-Pulsed Note1 @ $T_C = 25^\circ C$	I_{DM}	-30	A
Maximum Power Dissipation	P_D	1.5	W
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ C$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ C$
Thermal Resistance, Junction-to-Ambient Note2	$R_{\theta JA}$	100	$^\circ C/W$

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	$B_{V_{DSS}}$	$V_{GS}=0V$ $I_{DS}=-250\mu A$	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V$ $V_{GS}=0V$			-1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS}=\pm 8V$ $V_{DS}=0V$			± 10	μA
Gate Threshold Voltage	V_{TH}	$V_{DS}=V_{GS}$ $I_{DS}=-250\mu A$	-0.3	-0.6	-0.9	V
Drain-Source On-State Resistance	R_{DS}	$V_{GS}=-4.5V$ $I_{DS}=-4A$		35	41	$m\Omega$
		$V_{GS}=-2.5V$ $I_{DS}=-4A$		45	53	
Input Capacitance	C_{iss}	$V_{DS}=-10V$ $V_{GS}=0V$ $f=1MHz$		750		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			80		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-10V$ $V_{GS}=-4.5V$ $R_G=3$ $R_L=2.5$		15.6		ns
Rise Time	t_r			11.2		
Turn-Off Delay Time	$t_{d(off)}$			23.1		
Fall Time	t_f			32.7		
Total Gate Charge at 10V	Q_g	$V_{DS}=-10V$ $I_{DS}=-4A$ $V_{GS}=-4.5V$		10		nC
Gate to Source Gate Charge	Q_{gs}			1.5		
Gate to Drain "Miller" Charge	Q_{gd}			2.2		
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_{DS}=-1A$		-0.7		V

Notes:

1. Pulse Test: Pulse Width 300 μs , Duty Cycle 2%.
2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design. $R_{\theta JA}$ shown below for single device operation on FR-4 in still air.

电参数曲线图 / Electrical Characteristic Curve

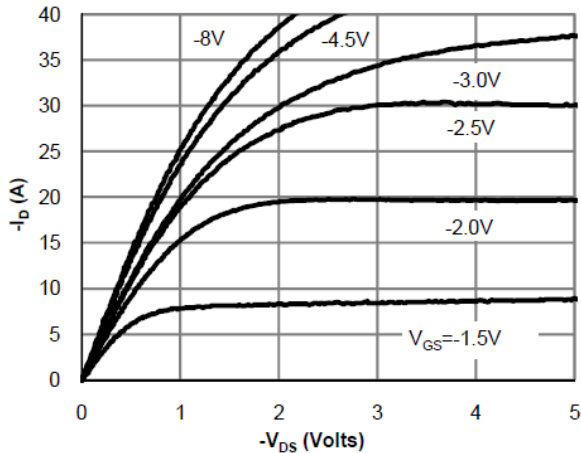


Fig 1: On-Region Characteristics (Note E)

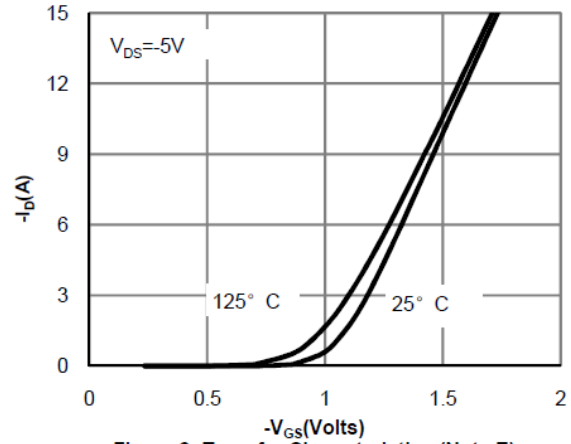


Figure 2: Transfer Characteristics (Note E)

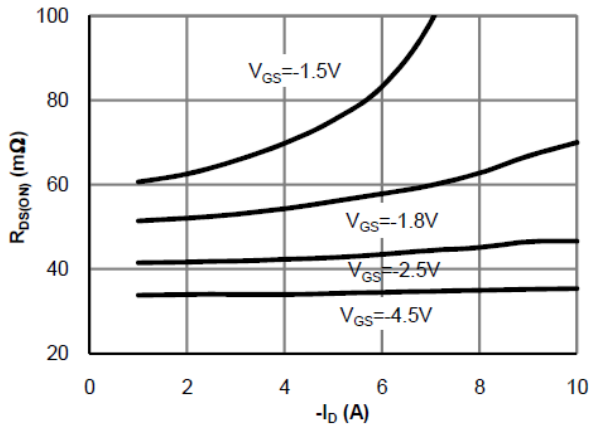


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

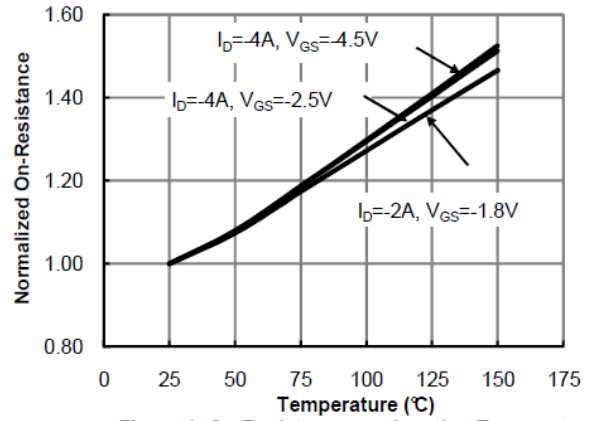


Figure 4: On-Resistance vs. Junction Temperature (Note E)

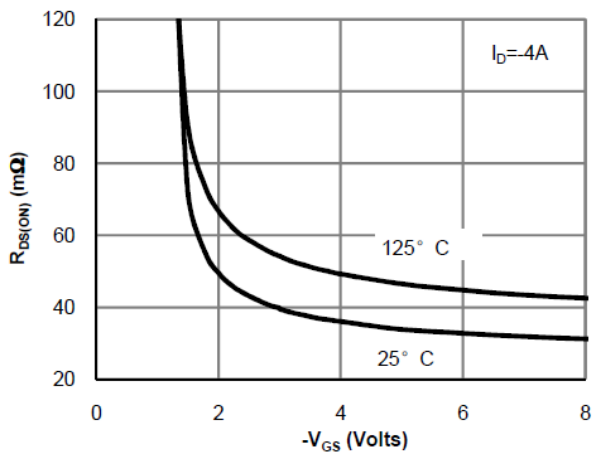


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

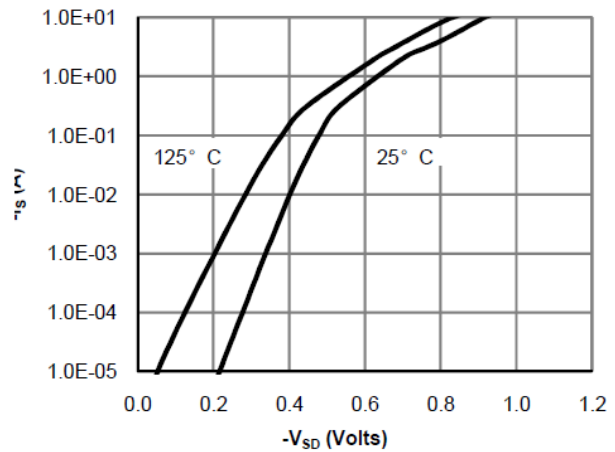
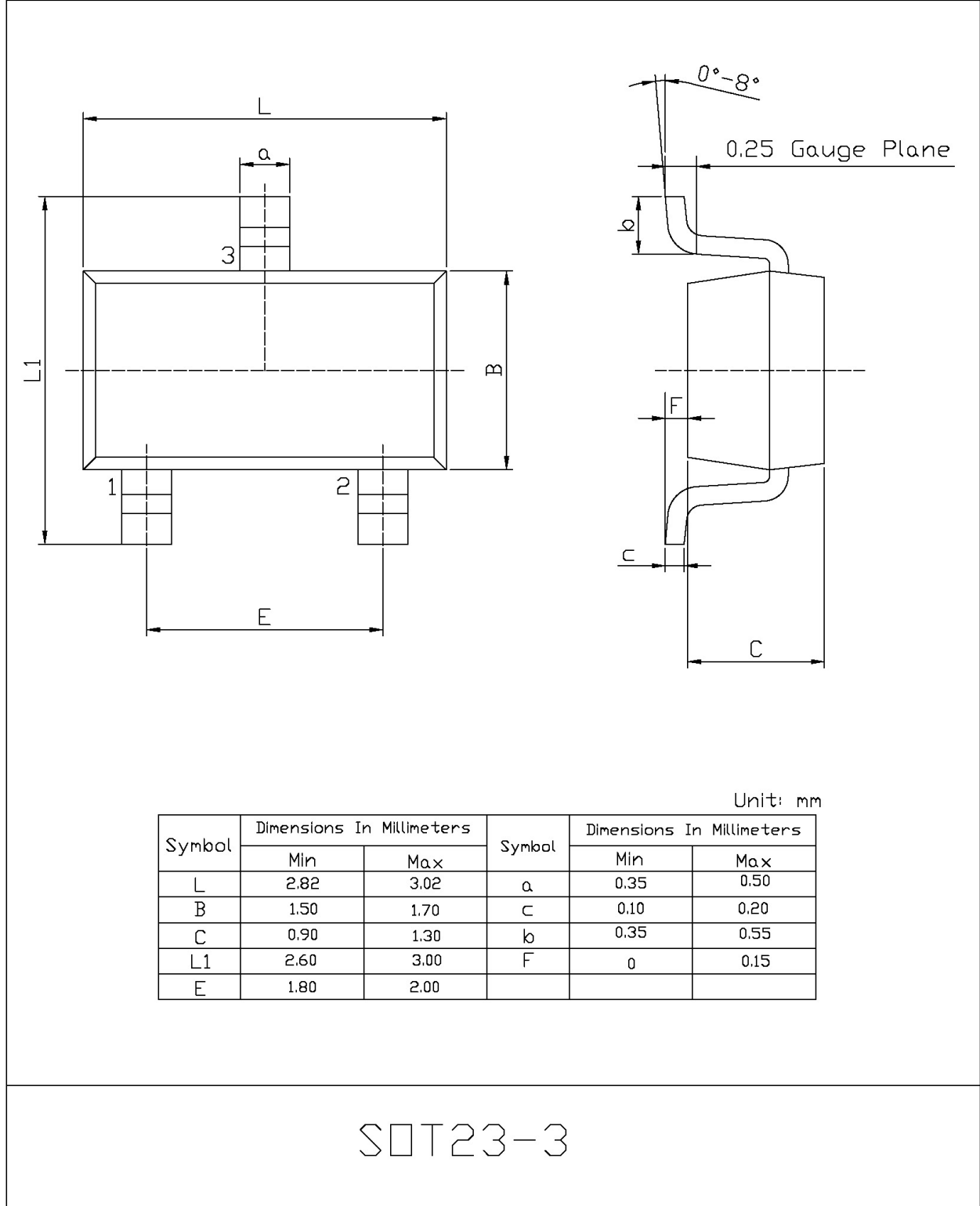
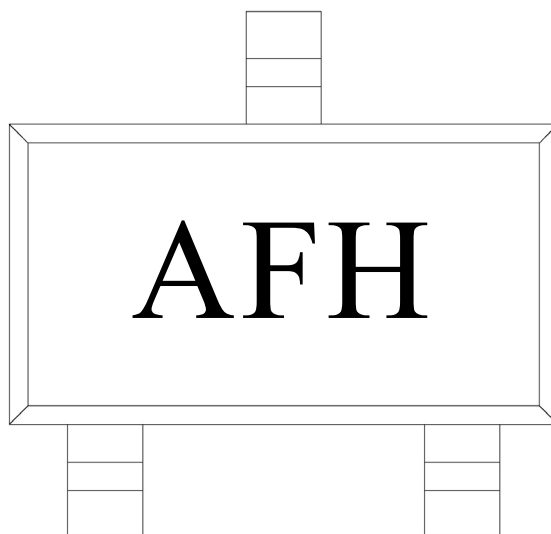


Figure 6: Body-Diode Characteristics (Note E)

外形尺寸图 / Package Dimensions



印章说明 / Marking Instructions



说明：

H: 为公司代码

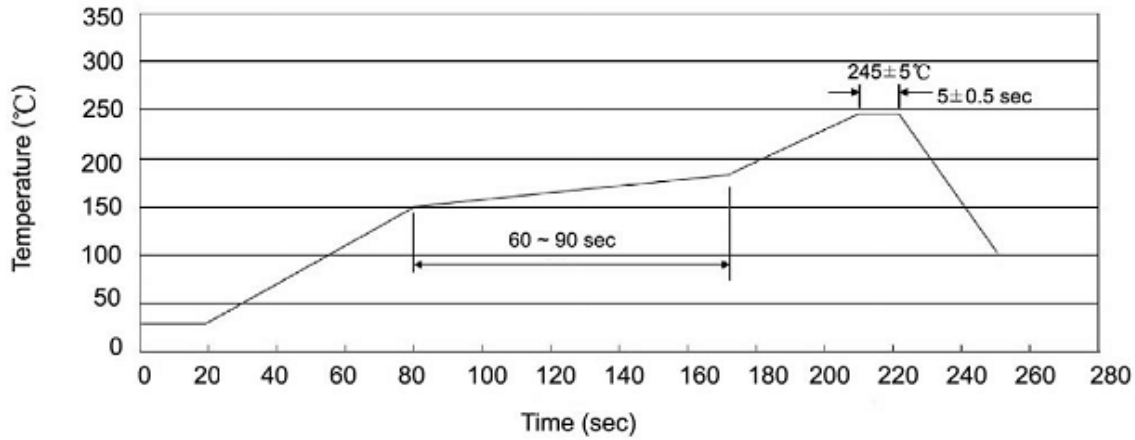
AF: 为型号代码

Note:

H: Company Code.

AF : Product Type

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
SOT23-3	3,000	10	30,000	4	120,000	7" ×8	210×205×205	445×230×435

使用说明 / Notices