

描述 / Descriptions

SOT-23 塑封封装 P 道场效应管。

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

特征 / Features

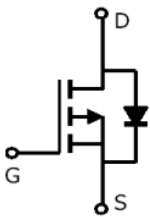
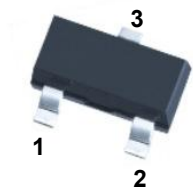
低导通电阻，开关时间快，低导通电压。

Ultra Low on-resistance. fast switching. Low on voltage.

用途 / Applications

主要用于显示屏驱动。

Primarily the display screen drive applications.

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	H1FH
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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}	-12	V
Gate-Body Leakage Voltage		V_{GSS}	± 12	V
Drain Current - Continuous		I_D	-4.3	A
Drain Current - Continuous		$I_D (T_A=70^\circ\text{C})$	-3.4	A
Power Dissipation		P_D	1.3	W
		$P_D (T_A=70^\circ\text{C})$	0.8	W
Single Pulse Avalanche Energy		E_{AS}	33	mJ
Operating and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Maximum Junction-to-Ambient ^A	$t \leq 10\text{s}$	$R_{\theta JA}$	92	°C/W
Maximum Junction-to-Ambient ^{A D}	Steady-State		126	°C/W
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	82	°C/W

A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The value in any given application depends on the user's specific board design.

B. The power dissipation P_D is based on $T_J(\text{MAX})=150^\circ\text{C}$, using $\leq 10\text{s}$ junction-to-ambient thermal resistance.

C. Repetitive rating, pulse width limited by junction temperature $T_J(\text{MAX})=150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^\circ\text{C}$.

D. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

E. The static characteristics in Figures 1 to 6 are obtained using $<300\mu\text{s}$ pulses, duty cycle 0.5% max.

F. These curves are based on the junction-to-ambient thermal impedance which is measured with the device mounted on 1in2 FR-4 board with

2oz. Copper, assuming a maximum junction temperature of $T_J(\text{MAX})=150^\circ\text{C}$. The SOA curve provides a single pulse rating.

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	$V_{(BR)DSS}$	$V_{GS}=0V$ $I_D=-250\mu A$	-12	-15.5		V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.4	-0.64	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V$ $I_D=-4.5A$		44.7	50	mΩ
		$V_{GS}=-2.5V$ $I_D=-3.5A$		64.8	80	mΩ
		$V_{GS}=-1.8V$ $I_D=-1.0A$		90	125	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-12V$ $V_{GS}=0V$			-1.0	μA
		$V_{DS}=-9.6V$ $V_{GS}=0V$ $T_J=55^\circ C$			-25	μA
Gate-Body Leakage.	I_{GSS}	$V_{GS}=-12V$			-100	nA
		$V_{GS}=12V$			100	nA
Forward Transconductance	g_{FS}	$V_{DS}=-10V$ $I_D=-4.3A$		3.4		S
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=-1.25A$ $T_J=25^\circ C$			-1.2	V
Input Capacitance	C_{iss}	$V_{DS}=-10V$ $V_{GS}=0V$ $f=1.0MHz$		560		pF
Output Capacitance	C_{oss}			80		
Reverse Transfer Capacitance	C_{rss}			70		
Total Gate Charge	Q_g	$V_{DS}=-10V$ $V_{GS}=-5.0V$ $I_D=-4.3A$		10		nC
Gate-to-Source Charge	Q_{gs}			1.4		
Gate-to-Drain Charge	Q_{gd}			2.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-6.0V$ $I_D=-1.0A$ $R_D=6.0\Omega$ $R_G=89\Omega$		11		ns
Turn-On Rise Time	t_r			32		
Turn-Off Delay Time	$t_{d(off)}$			250		
Turn-Off Fall Time	t_f			210		

电参数曲线图 / Electrical Characteristic Curve

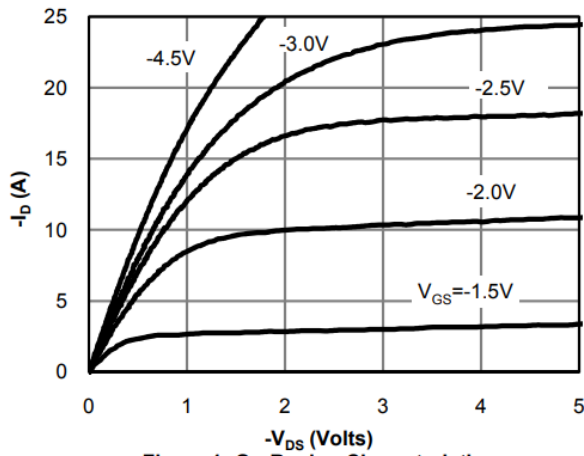


Figure 1: On-Region Characteristics

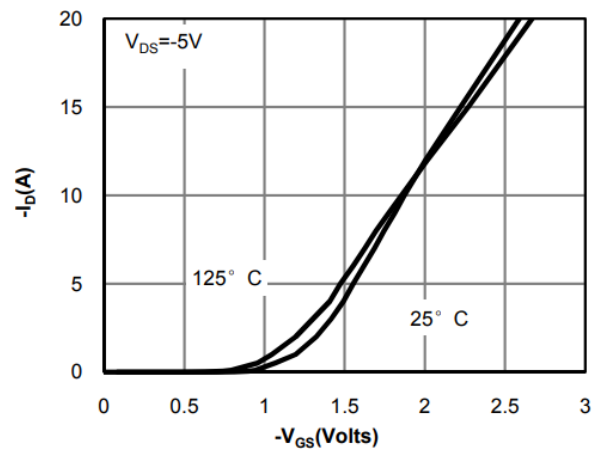


Figure 2: Transfer Characteristics

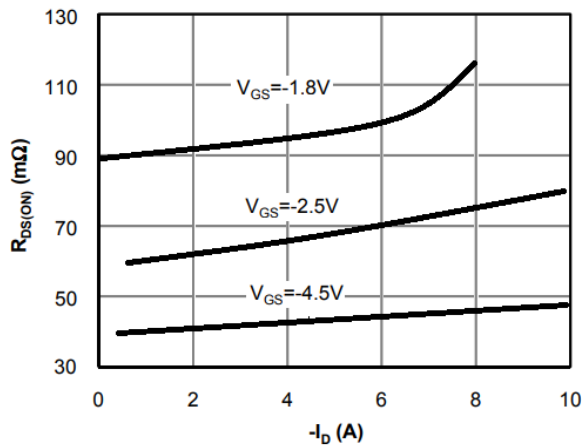


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

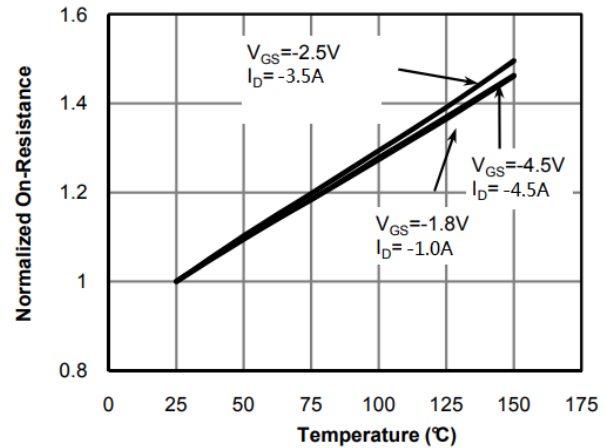


Figure 4: On-Resistance vs. Junction Temperature

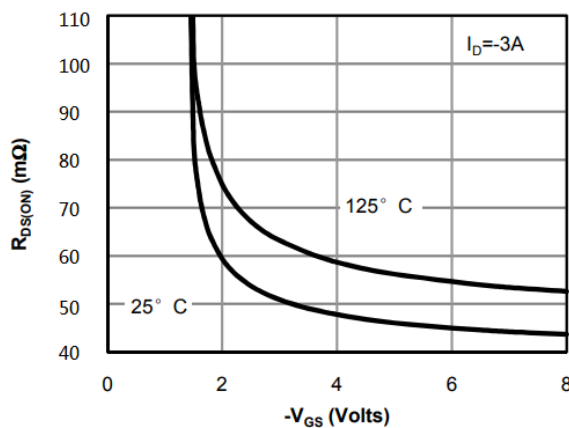


Figure 5: On-Resistance vs. Gate-Source Voltage

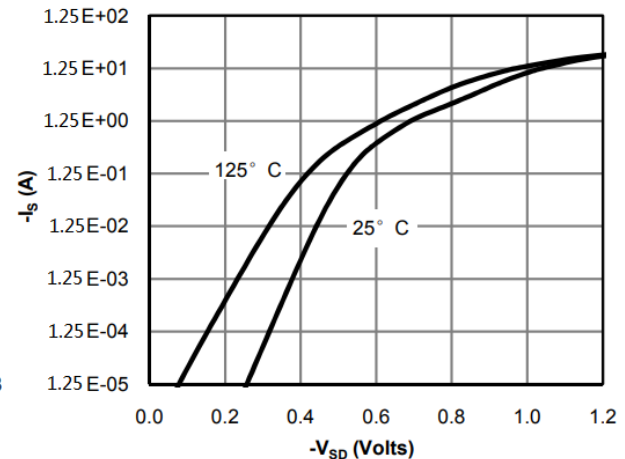


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

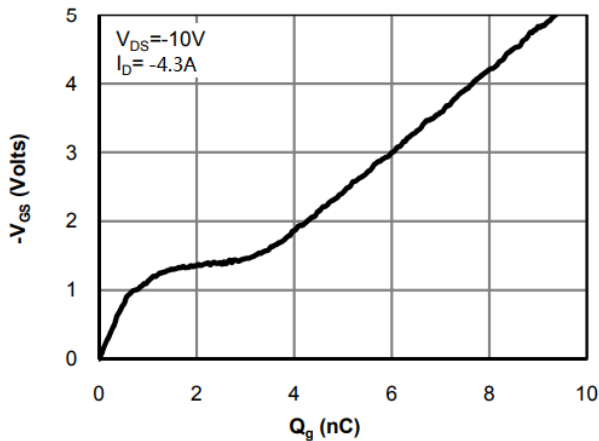


Figure 7: Gate-Charge Characteristics

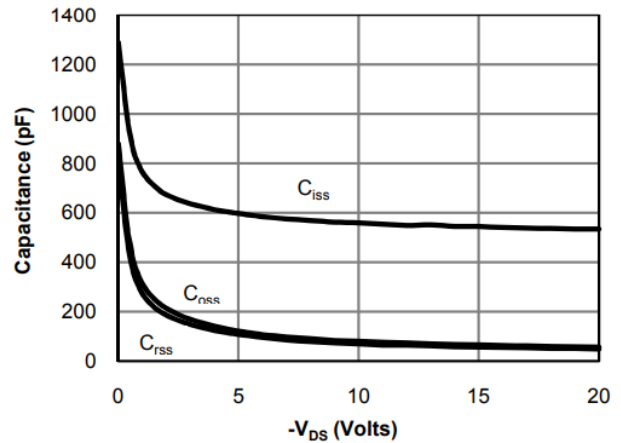


Figure 8: Capacitance Characteristics

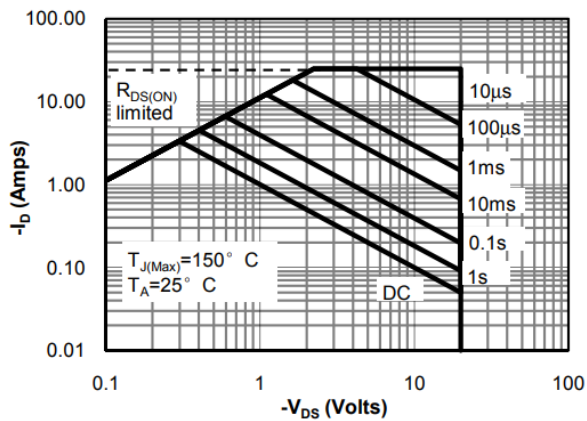


Figure 9: Maximum Forward Biased Safe Operating Area

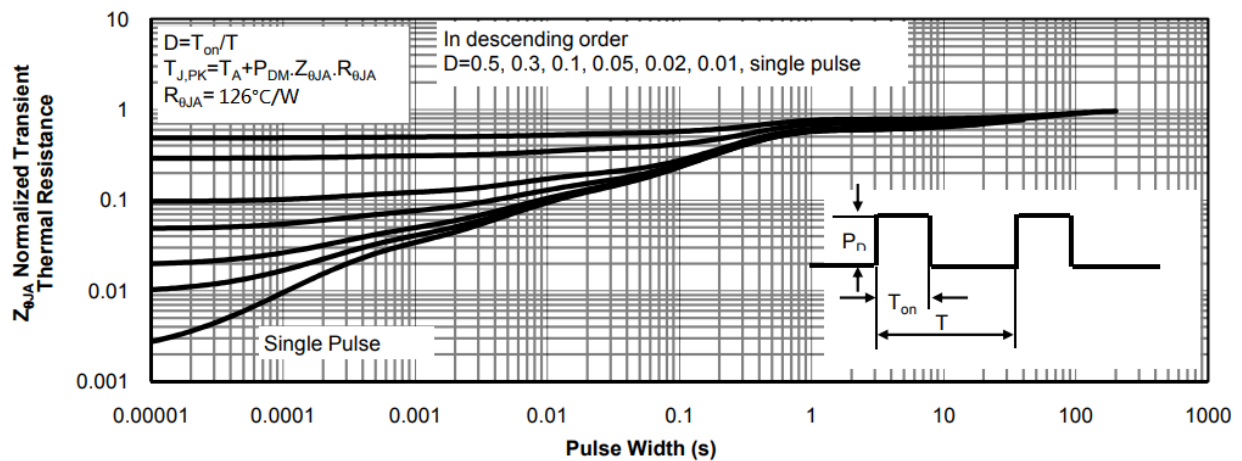
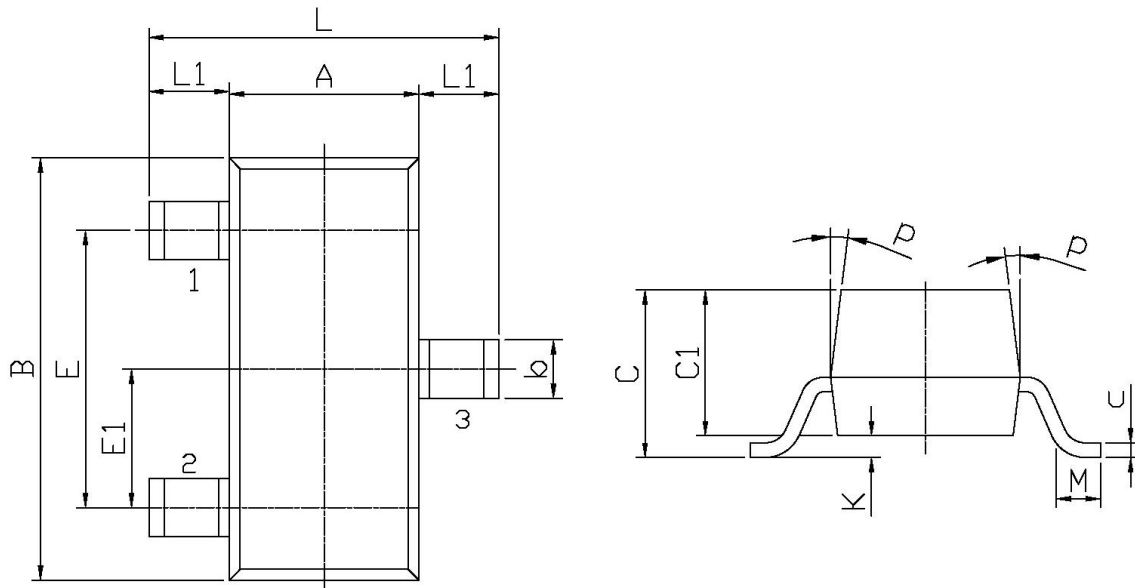


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

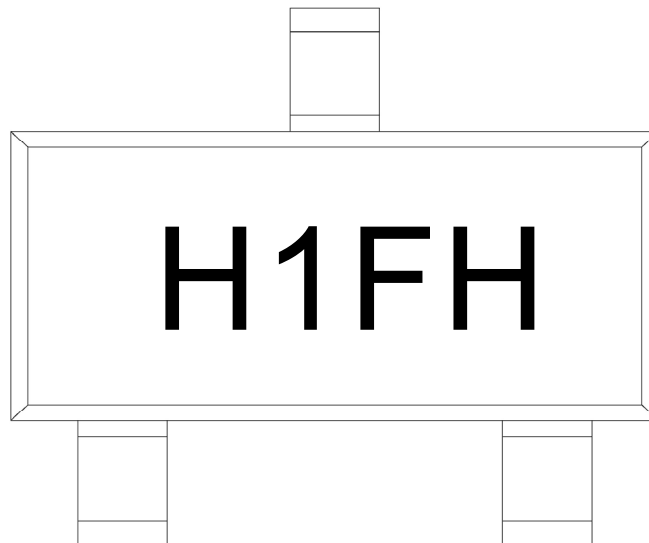
SOT-23

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

印章说明 / Marking Instructions



说明：

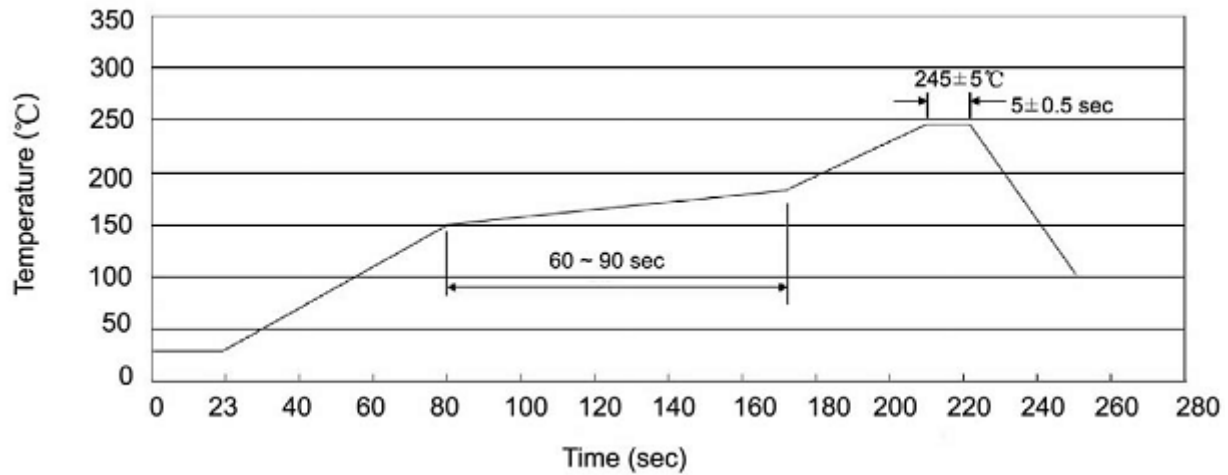
H: 为公司代码

1FH: 为型号代码

Note:

H: Company Code.

1FH: 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 25 ~ 150°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:25~150°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