

描述 / Descriptions

SOT-23 塑封封装 P 道 MOS 场效应管。

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

特征 / Features

$V_{DS} = -20V$ $I_D = -4.0A$

$R_{DS(on)} @ -4.5V \leq 42m\Omega$, (Typ. $32m\Omega$)

$R_{DS(on)} @ -2.5V \leq 55m\Omega$, (Typ. $43m\Omega$)

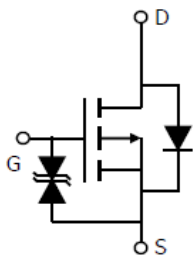
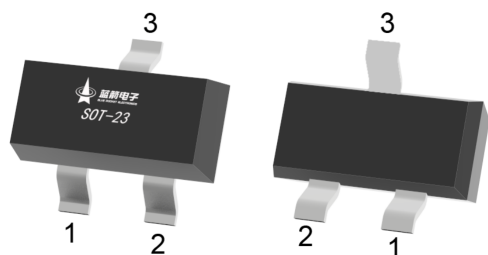
ESD Protected

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**

PIN1 : G

PIN 2 : S

PIN 3 : D

印章代码 / Marking

Marking	.3415E
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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}	± 10	V
Drain Current-Continuous	I_D	-4.0	A
Drain Current-Continuous($T_A = 70^\circ\text{C}$)	I_D	-3.5	A
Drain Current-Pulsed	I_{DM}	-20	A
Maximum Power Dissipation	P_D	1.2	W
Maximum Power Dissipation($T_A = 70^\circ\text{C}$)	P_D	0.9	W
Operating Junction Temperature Range and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	105	$^\circ\text{C/W}$

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	$B_{V_{DS}}$	$V_{GS}=0V \quad I_D = -250\mu A$	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V \quad V_{GS}=0V$			-1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS}=\pm 10V \quad V_{DS}=0V$			± 25	μA
Gate Threshold Voltage	V_{TH}	$V_{DS}=V_{GS} \quad I_D=-250\mu A$	-0.45		-0.9	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V \quad I_D=-4.0A$		32	42	$m\Omega$
		$V_{GS}=-2.5V \quad I_D=-4.0A$		43	55	
Input Capacitance	C_{iss}	$V_{DS}=-10V \quad V_{GS}=0V$ $f=1MHz$		1420		pF
Output Capacitance	C_{oss}			210		
Reverse Transfer Capacitance	C_{rss}			190		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-10V \quad V_{GS}=-4.5V$ $R_{GEN}=3\Omega \quad R_L=2.5\Omega$		9.5		ns
Rise Time	t_r			17		
Turn-Off Delay Time	$t_{d(off)}$			94		
Fall Time	t_f			35		
Total Gate Charge	Q_g	$V_{DS}=-10V \quad I_{DS}=-4A$ $V_{GS}=-4.5V$		17.2		nC
Gate-Source Charge	Q_{gs}			1.3		
Gate-Drain Charge	Q_{gd}			4.5		
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V \quad I_{DS}=-2.2A$			-1.0	V
Reverse Recovery Time	t_{rr}	$I_F=-4A, dI/dt=100A/\mu s$		31		ns
Reverse Recovery Charge	Q_{rr}	$I_F=-4A, dI/dt=100A/\mu s$		13.8		nC

电参数曲线图 / Electrical Characteristic Curve

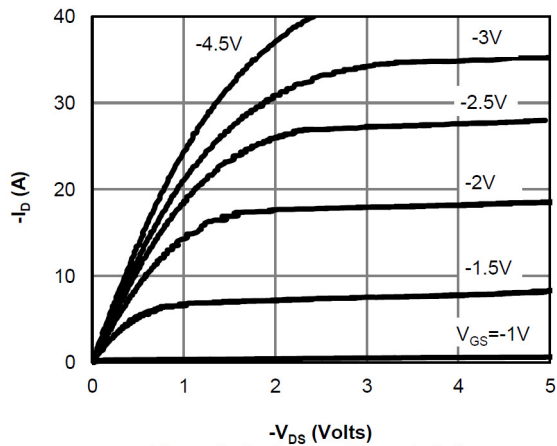


Figure 1: On-Region Characteristics

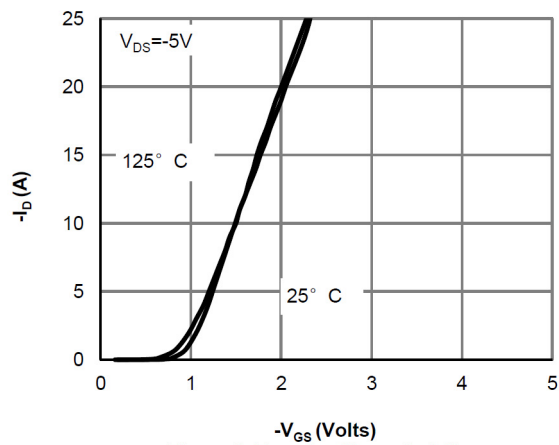


Figure 2: Transfer Characteristics

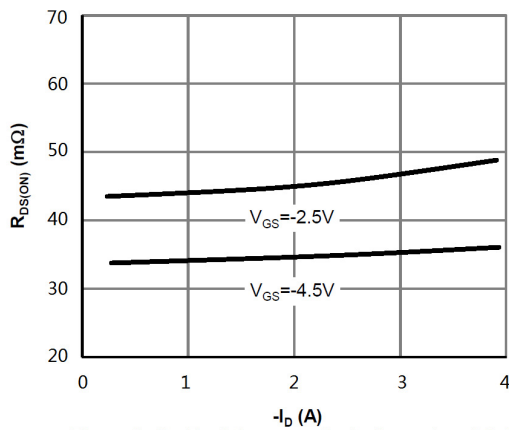


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

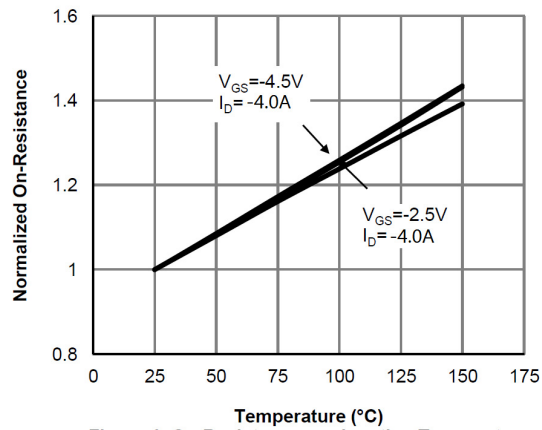


Figure 4: On-Resistance vs. Junction Temperature

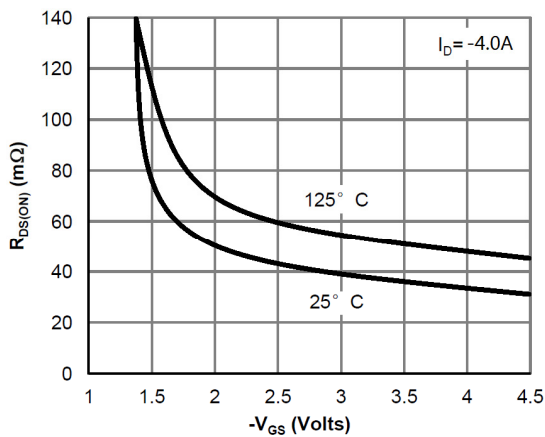


Figure 5: On-Resistance vs. Gate-Source Voltage

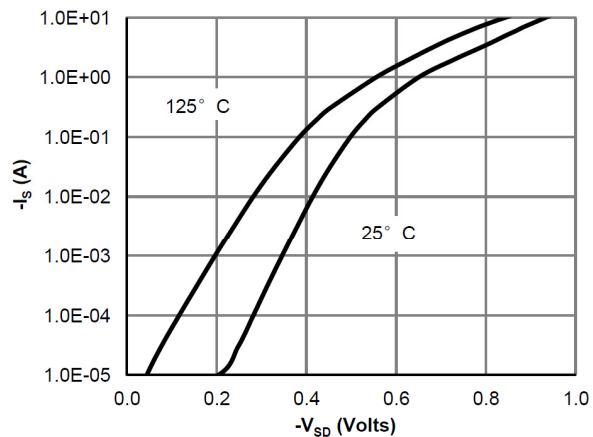


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

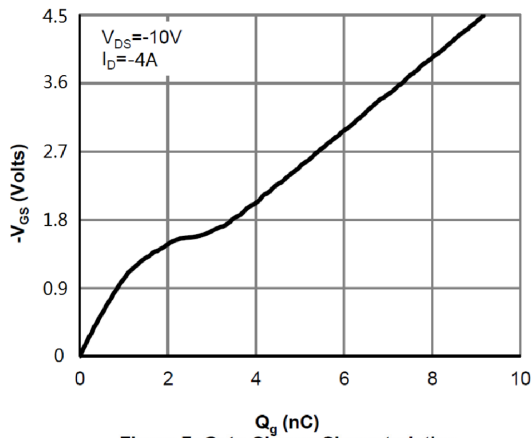


Figure 7: Gate-Charge Characteristics

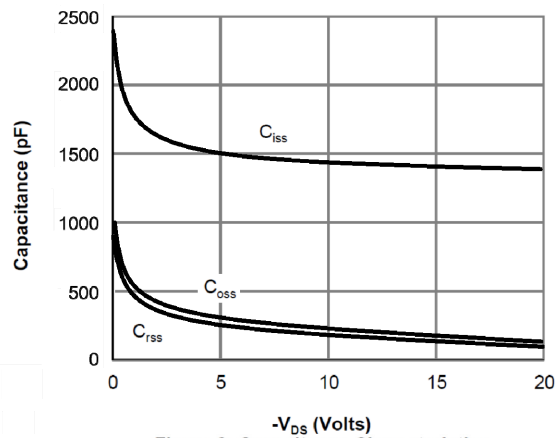


Figure 8: Capacitance Characteristics

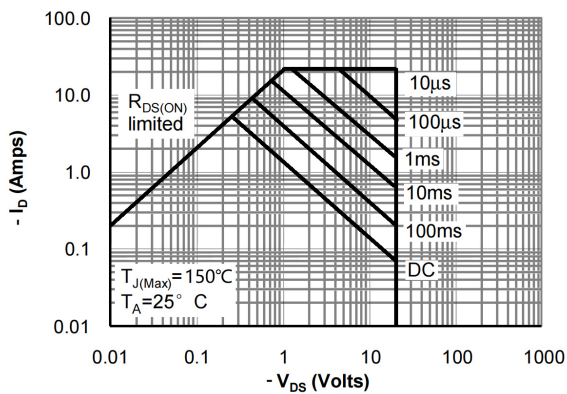


Figure 9: Maximum Forward Biased Safe Operating Area

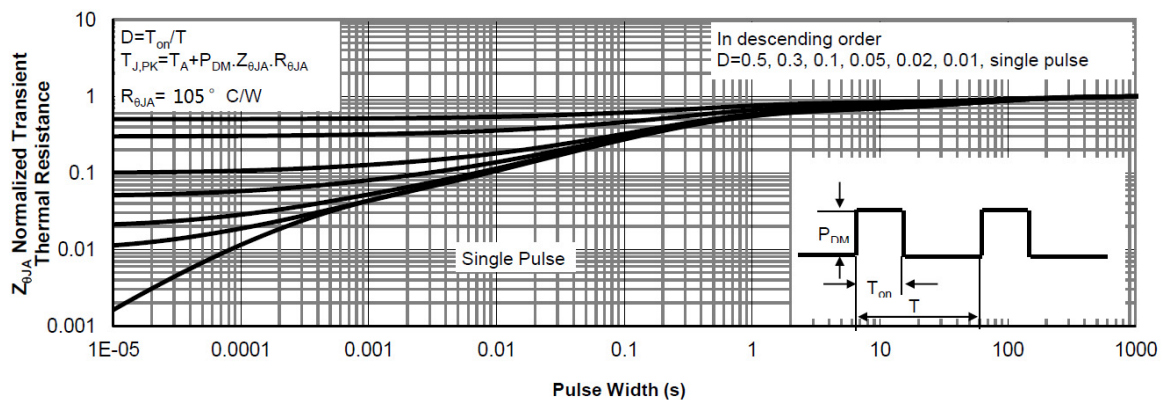
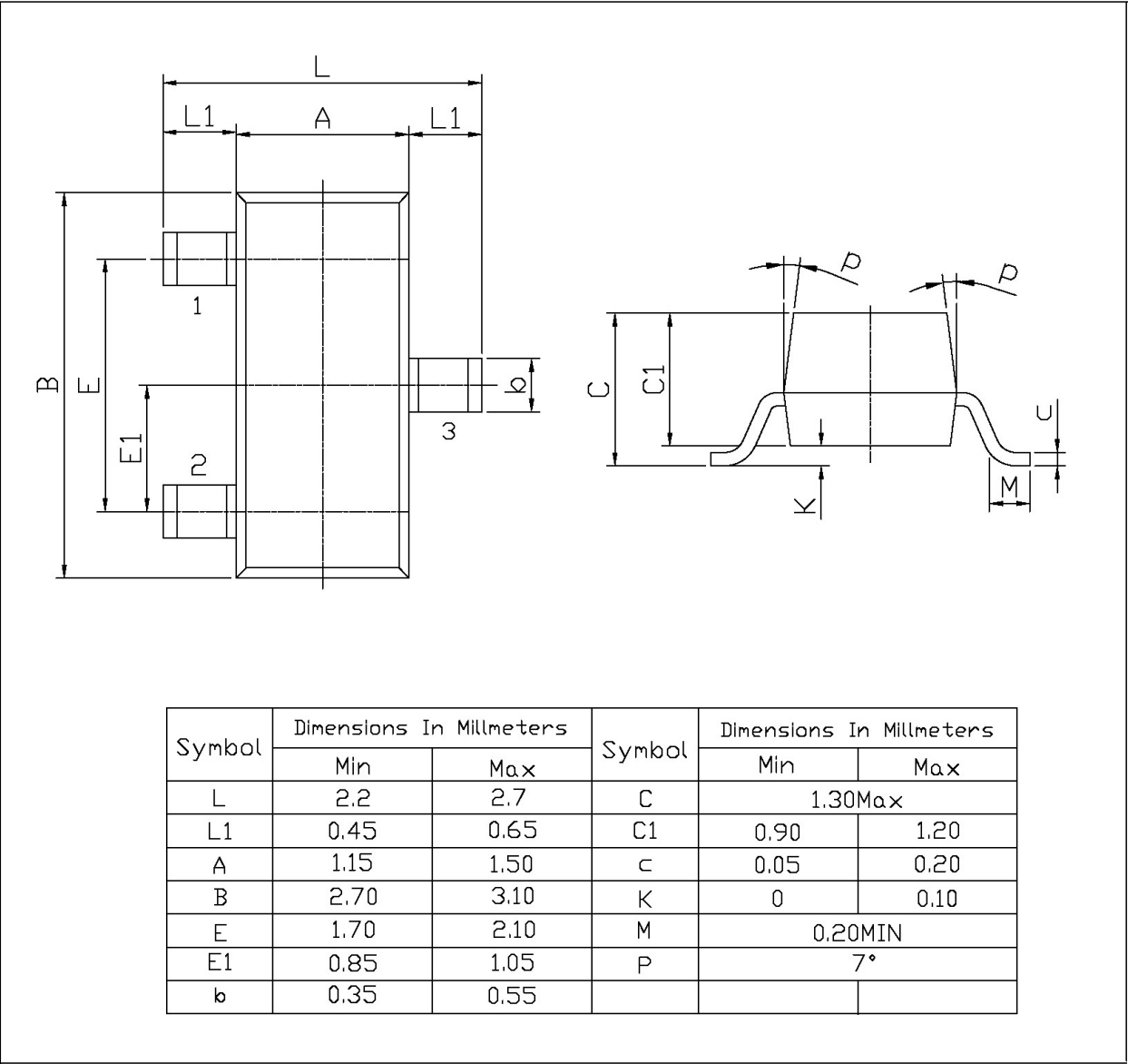


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

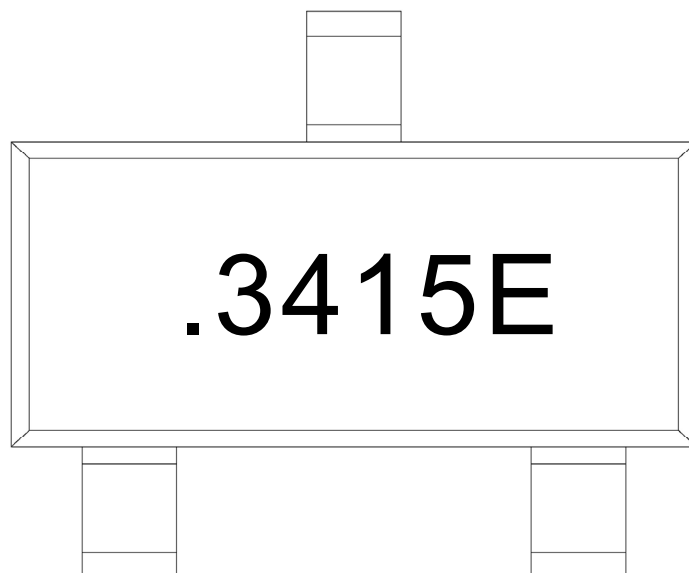
SOT-23

单位：mm





印章说明 / Marking Instructions



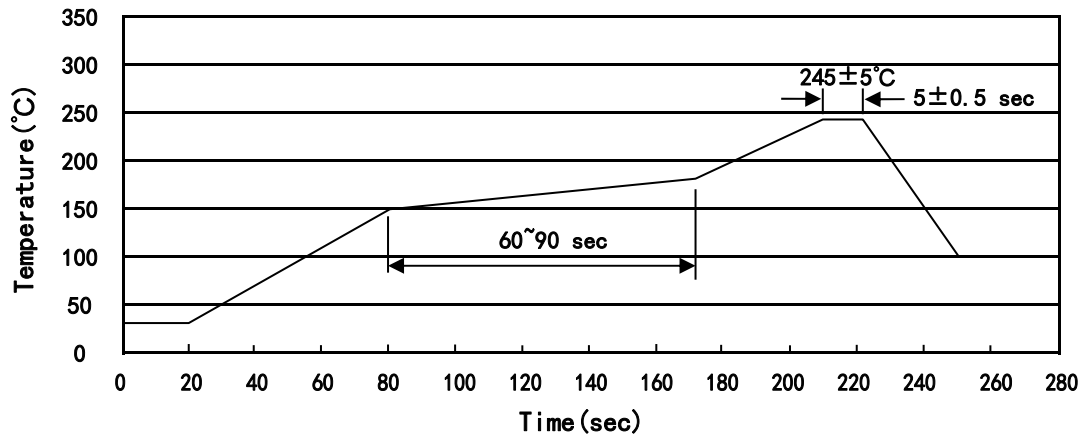
说明：

.3415E： 为型号代码

Note:

.3415E: 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

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