

BRCS300P016MC

Rev.A Nov.-2023

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.

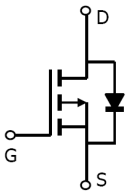
特征 / Features

$V_{DS} (V) = -16V$ $I_D = -5A$
 $R_{DS(ON)}@-4.5V \leq 32m\Omega$ (Type.27m Ω)
 $R_{DS(ON)}@-2.5V \leq 42m\Omega$ (Type.37.3m Ω)
 $R_{DS(ON)}@-1.8V \leq 60m\Omega$ (Type.51m Ω)
无卤产品。 HF Product.

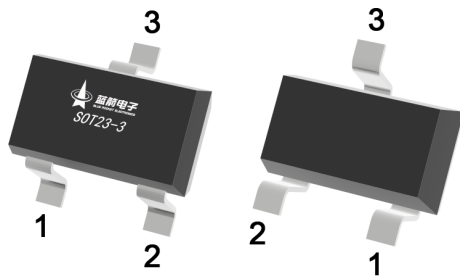
用途 / Applications

用于电源管理，便携式设备和电池供电系统。
Power Management in Notebook computer, Portable Equipment and Battery powered systems.

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

见印章说明。
See Marking Instructions.

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

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit	
Drain-Source Voltage	V _{DSS}	-16	V	
Gate-Source Voltage	V _{GSS}	±8	V	
Continuous Drain Current	I _D	-5	A	
Pulsed Drain Current	I _{DM}	-23	A	
Avalanche Current	I _{AS}	21	A	
Avalanche energy L=0.5mH	E _{AS}	308	mJ	
Power Dissipation for Single Operation	P _D	1.3	W	
Maximum Junction Temperature	T _J	150	°C	
Storage Temperature Range	T _{stg}	-55 ~ 150	°C	
Thermal Resistance-Junction to Ambient	R _{θJA}	t _{≤10s}	90	°C/W
		Steady State	125	°C/W
Thermal Resistance-Junction to Lead	R _{θJL}	80	°C/W	

电性能参数 / Electrical Characteristics(Tc=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	BV_{DSS}	$I_D=-250\mu A$ $V_{GS}=0V$	-16	-18		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-16V$ $V_{GS}=0V$			-1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V$ $V_{GS}=\pm 8V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.5	-0.6	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V$ $I_D=-2.0A$		27	32	m Ω
		$V_{GS}=-2.5V$ $I_D=-2.0A$		37.3	42	
		$V_{GS}=-1.8V$ $I_D=-2.0A$		51	60	
Diode Forward Voltage	V_{SD}	$I_S=-1A$ $V_{GS}=0V$		0.75		V
Total Gate Charge	Q_g	$V_{GS}=-4.5V$ $V_{DS}=-10V$ $I_D=-8A$		16		nC
Gate-Source Charge	Q_{gs}			2.5		
Gate-Drain Charge	Q_{gd}			3.5		
Input Capacitance	C_{iss}	$V_{GS}=0V$ $V_{DS}=-25V$ $f=1MHz$		740		pF
Output Capacitance	C_{oss}			290		
Reverse Transfer Capacitance	C_{rss}			190		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-4.5V$ $V_{DS}=-10V$ $R_L=1.25\Omega$ $R_{GEN}=3\Omega$		7.2		ns
Turn-on Rise Time	t_r			29		
Turn-off Delay Time	$t_{d(OFF)}$			100		
Turn-off Fall Time	t_f			50		

电参数曲线图 / Electrical Characteristic Curve

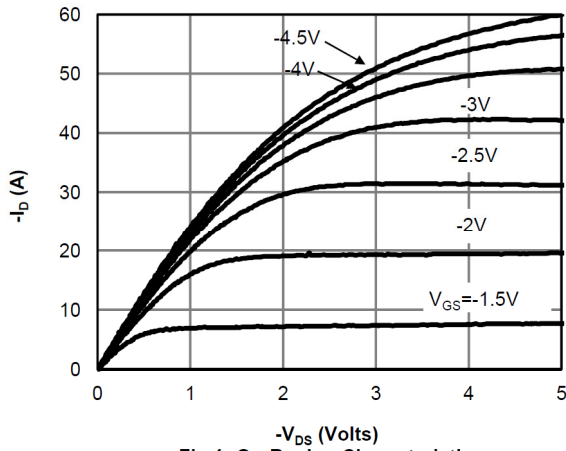


Fig 1: On-Region Characteristics

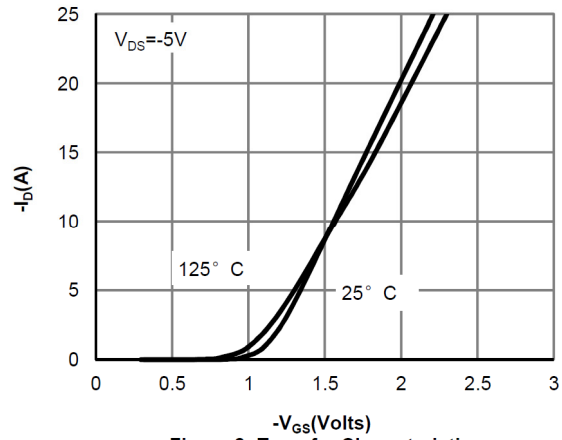


Figure 2: Transfer Characteristics

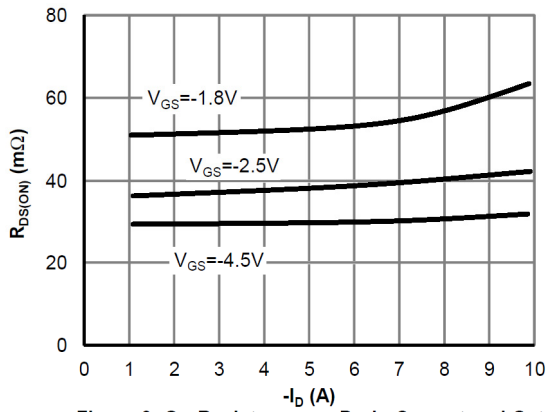


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

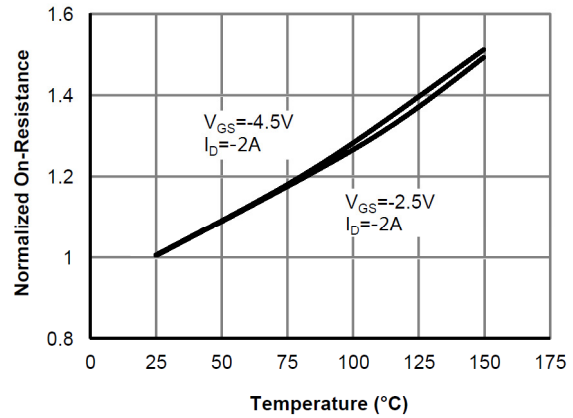


Figure 4: On-Resistance vs. Junction Temperature

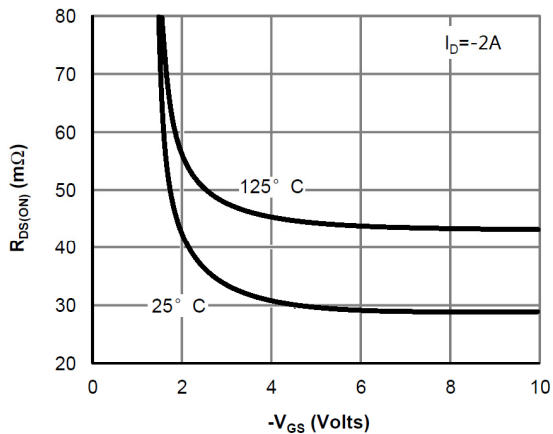


Figure 5: On-Resistance vs. Gate-Source Voltage

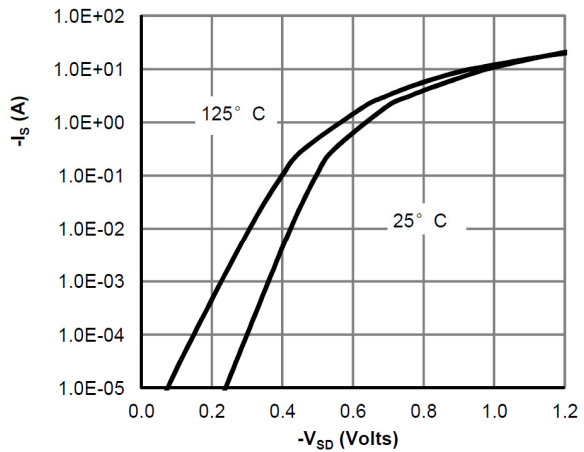


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

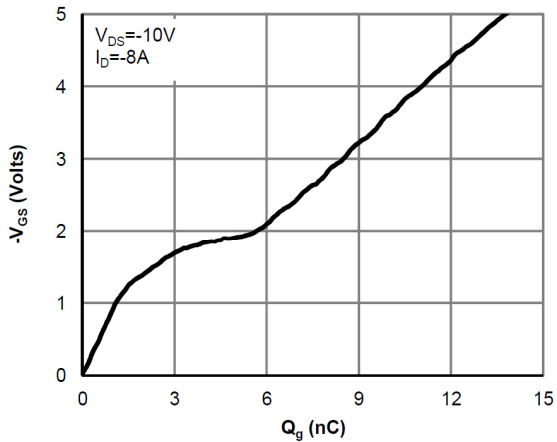


Figure 7: Gate-Charge Characteristics

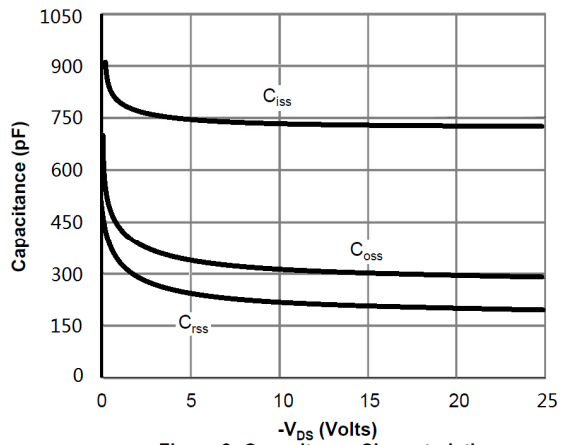


Figure 8: Capacitance Characteristics

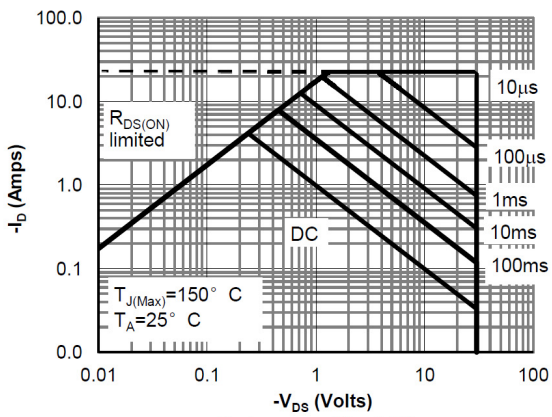


Figure 9: Maximum Forward Biased Safe Operating Area
 $V_{GS} > \text{or equal to } -1.8V$

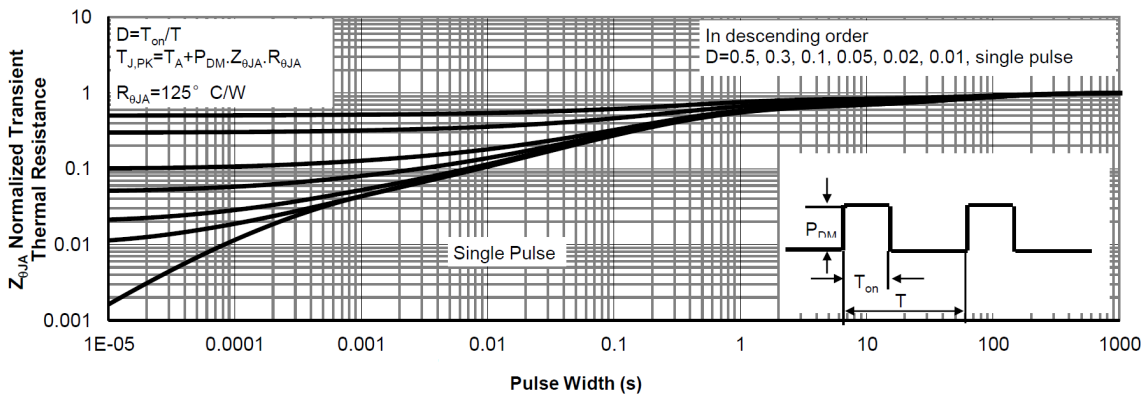
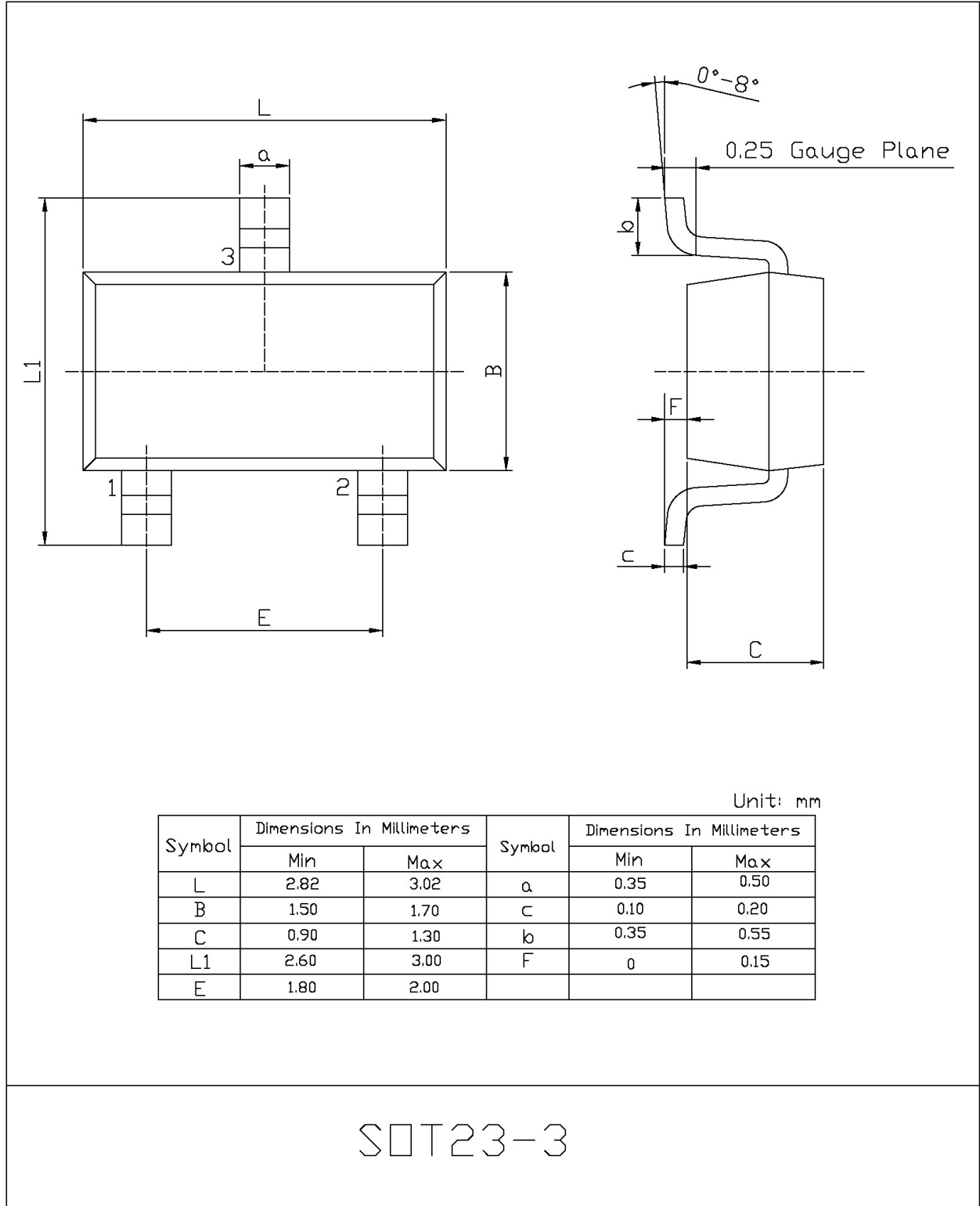
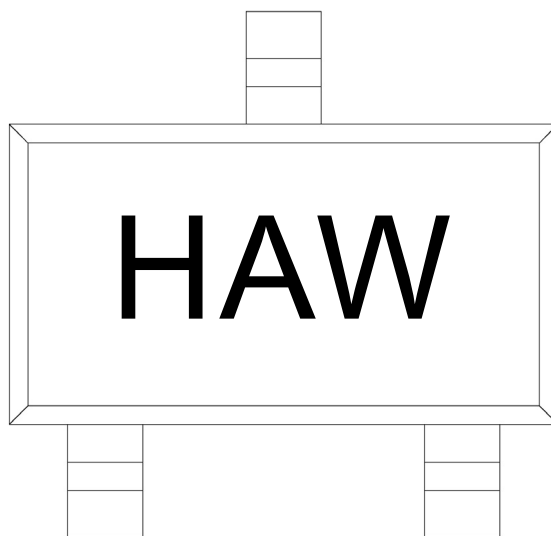


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions



印章说明 / Marking Instructions



说明：

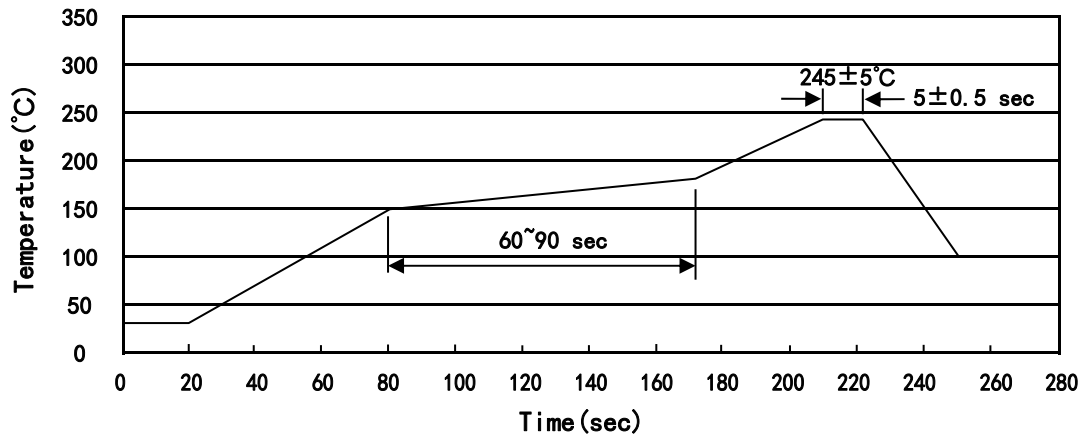
H: 为公司代码

AW: 为型号代码

Note:

H: Company Code

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

使用说明 / Notices