

# BRCS150P02MC

Rev.B Mar.-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

$V_{DS} (V) = -20V$

$I_D = -7.0A$

$R_{DS(ON)}@-4.5V \leq 17m\Omega$  (Type. 15m $\Omega$ )

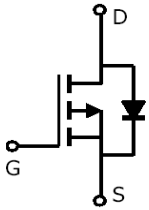
无卤产品。HF Product.

## 用途 / Applications

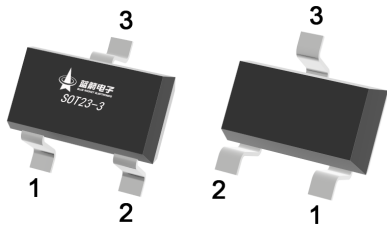
用于电源管理，便携式设备和电池供电系统。

Power Management in Notebook computer, Portable Equipment and Battery powered systems.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN 1 : G

PIN 2 : S

PIN 3 : D

## 印章代码 / Marking

Marking	HJW
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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 <sub>DSS</sub>	-20	V	
Gate-Source Voltage	V <sub>GSS</sub>	±12	V	
Continuous Drain Current	I <sub>D</sub>	7.0	A	
Pulsed Drain Current	I <sub>DM</sub>	38	A	
Avalanche Current	I <sub>AS</sub>	13	A	
Avalanche energy L=0.5mH	E <sub>AS</sub>	59	mJ	
Power Dissipation for Single Operation	P <sub>D</sub>	1.3	W	
Maximum Junction Temperature	T <sub>j</sub>	150	°C	
Storage Temperature Range	T <sub>stg</sub>	-55 ~ 150	°C	
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	t <sub>≤10s</sub>	90	°C/W
		Steady State	125	°C/W
Thermal Resistance-Junction to Lead	R <sub>θJL</sub>	80	°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	BV <sub>DSS</sub>	I <sub>D</sub> =-250μA V <sub>GS</sub> =0V	-20	-23		V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-20V V <sub>GS</sub> =0V			-1.0	μA
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V V <sub>GS</sub> =±12V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250μA	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-4.5V I <sub>D</sub> =-10A		15	17	mΩ
		V <sub>GS</sub> =-2.5V I <sub>D</sub> =-5A		19	25	
		V <sub>GS</sub> =-1.8V I <sub>D</sub> =-1A		27	38	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1A V <sub>GS</sub> =0V			-1.2	V
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		13.5		
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V V <sub>DS</sub> =-20V f=1MHz		2550		pF
Output Capacitance	C <sub>oss</sub>			205		
Reverse Transfer Capacitance	C <sub>rss</sub>			190		

## 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
Total Gate Charge	$Q_g$	$V_{GS}=-4.5V, V_{DS}=-10V,$ $I_D=-6.5A$		7.4		nC
Gate Source Charge	$Q_{gs}$			1.3		
Gate Drain Charge	$Q_{gd}$			2.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-4.5V R_L=1.54\Omega$ $V_{DS}=-10V R_{GEN}=3\Omega$		7.5		ns
Turn-On Rise Time	$t_r$			11		
Turn-Off Delay Time	$t_{d(off)}$			33		
Turn-Off Fall Time	$t_f$			10.5		

电参数曲线图 / Electrical Characteristic Curve

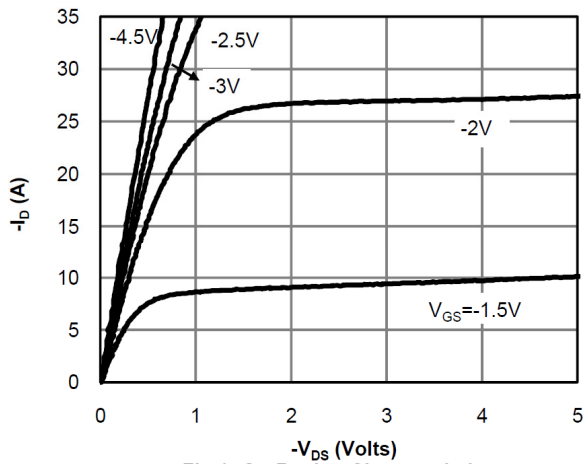


Fig 1: On-Region Characteristics

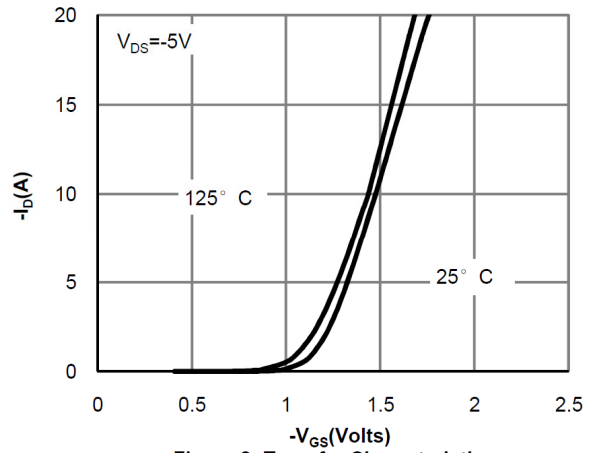


Figure 2: Transfer Characteristics

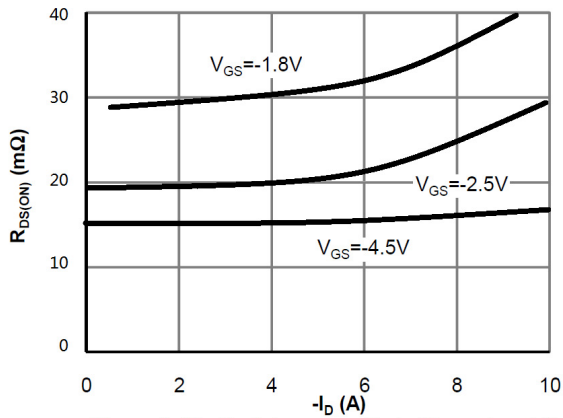


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

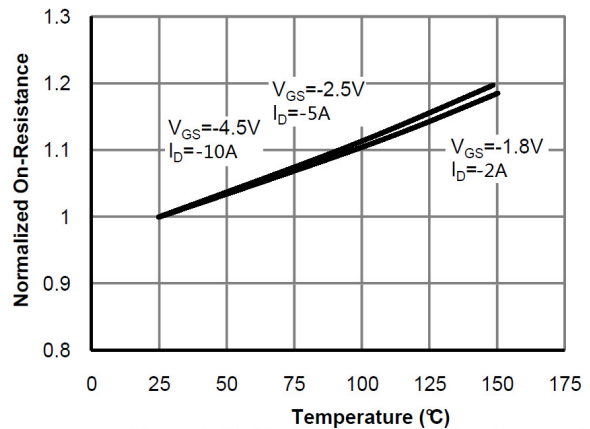


Figure 4: On-Resistance vs. Junction Temperature

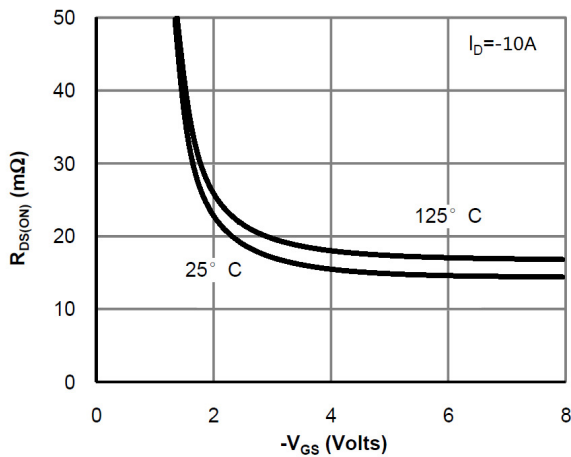


Figure 5: On-Resistance vs. Gate-Source Voltage

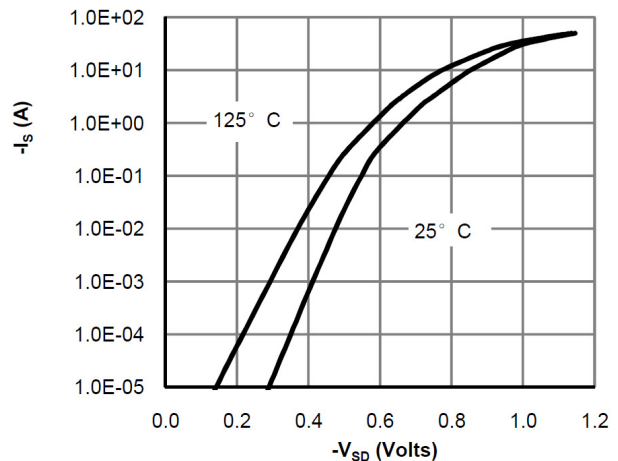


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

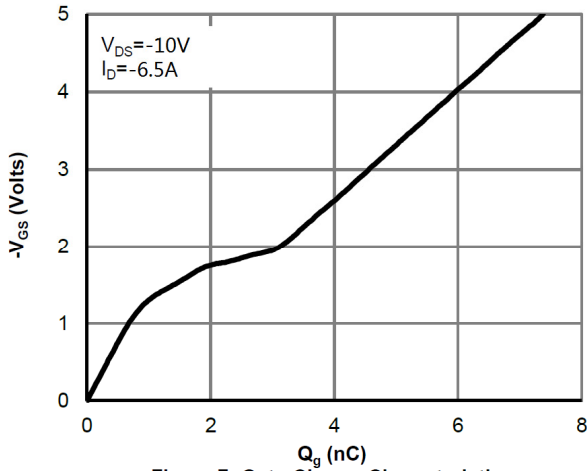


Figure 7: Gate-Charge Characteristics

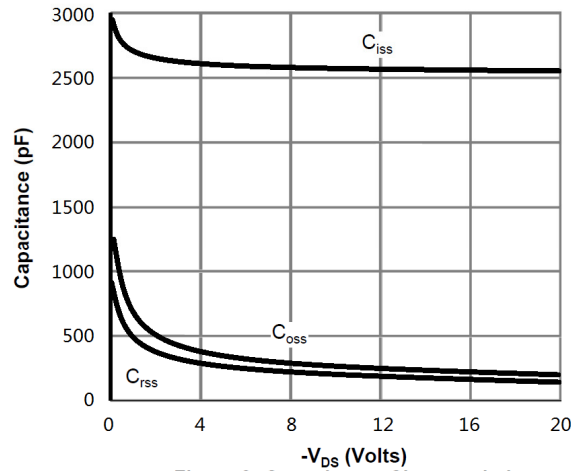


Figure 8: Capacitance Characteristics

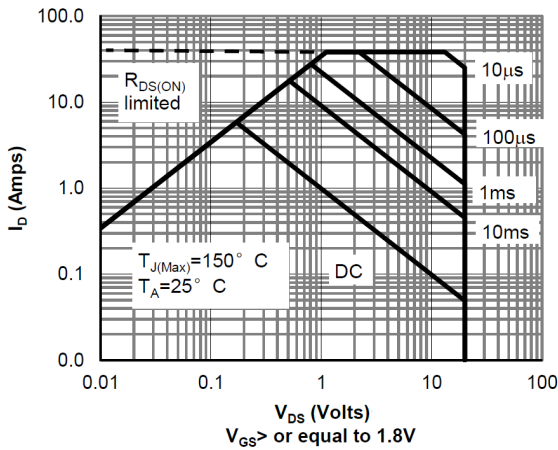


Figure 9: Maximum Forward Biased Safe Operating Area

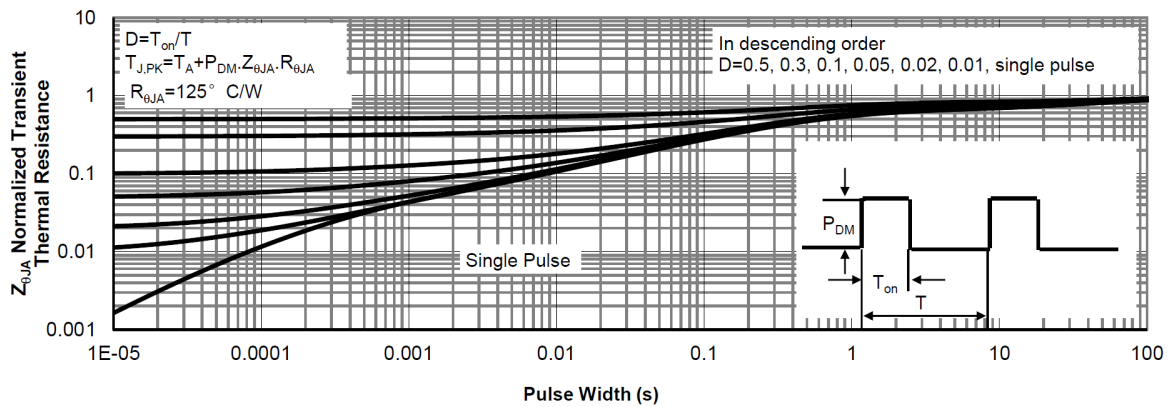
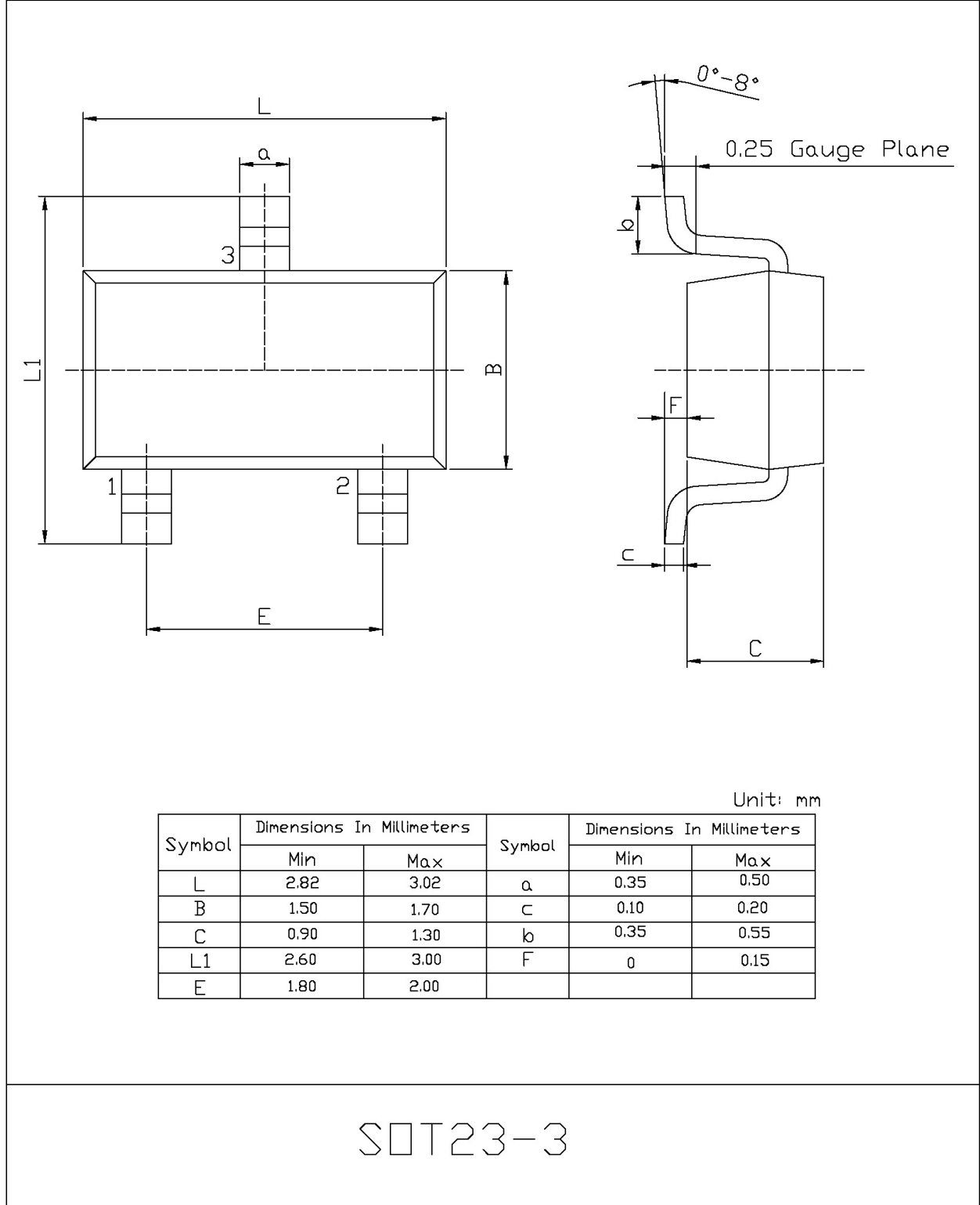
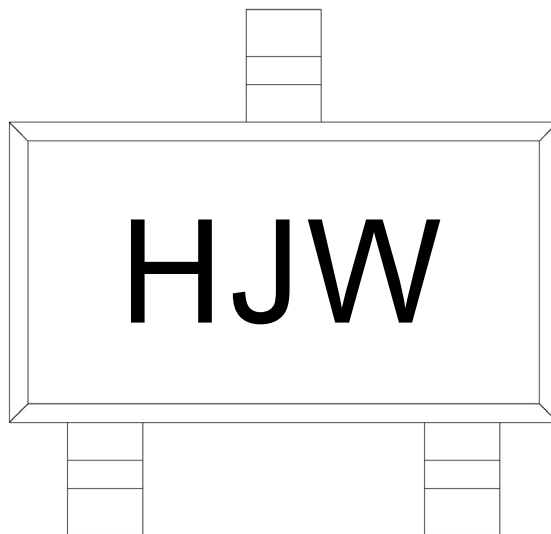


Figure 10: Normalized Maximum Transient Thermal Impedance

**外形尺寸图 / Package Dimensions**



印章说明 / Marking Instructions



说明：

H： 为公司代码

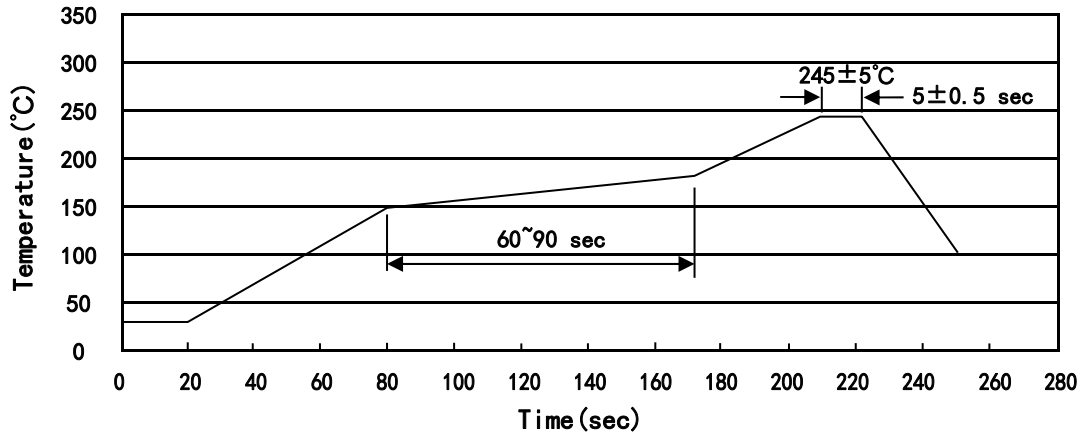
JW： 为型号代码

Note:

H: Company Code

JW: 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 <sup>3</sup> )		
	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	3,000	10	30,000	4	120,000	7" ×8	210×205×205	445×230×435

**使用说明 / Notices**