

描述 / Descriptions

TO-220 塑封封装 N 沟道场效应管。

N-CHANNEL MOSFET in a TO-220 Plastic Package.

特征 / Features

$V_{DS} (V) = 200V$ $I_D = 67A (V_{GS} = \pm 20V)$

$R_{DS(ON)} @ 10V \leq 20m\Omega (Typ. 17m\Omega)$

$R_{DS(ON)} @ 6V \leq 22m\Omega (Typ. 19m\Omega)$

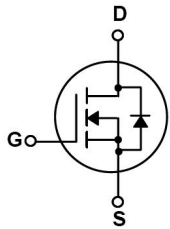
无卤产品。HF Product.

用途 / Applications

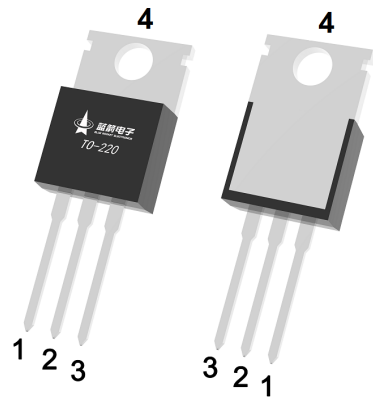
电机驱动器，DC - DC 转换器。

Motor drivers, DC - DC Converter.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1 : G

PIN 2、4 : D

PIN 3 : S

印章代码 / Marking

见印章说明。

See Marking Instructions.

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_{DSS}	200	V
Drain Current	$I_D(T_C=25^{\circ}C)$	67	A
	$I_D(T_C=100^{\circ}C)$	42	A
Pulsed Drain Current*	I_{DM}	175	A
Gate-Source Voltage	V_{GS}	± 20	V
Single Pulsed Avalanche Energy ($V_{DD}=50V, L=1.0mH$)	E_{AS}	685	mJ
Continuous-Source Current	I_S	67	A
Total Power Dissipation	$P_D(T_C=25^{\circ}C)$	227	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}C$
Thermal Resistance-Junction to Ambient**	$R_{\theta JA}$	42	$^{\circ}C/W$
Thermal Resistance-Junction to Case	$R_{\theta JC}$	0.55	

Notes :

* Pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$ ** Surface Mounted on 1 in² pad area, $t \leq 10$ sec

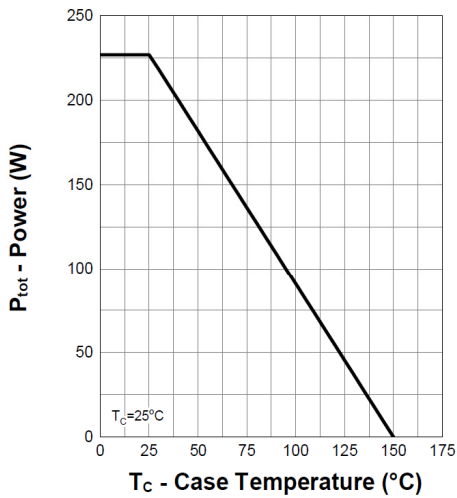
电性能参数 / Electrical Characteristics(Ta=25°C)

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_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	200			V
Drain Leakage Current	I_{DSS}	$V_{DS}=160V$ $V_{GS}=0V$			1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=30A$		17	20	m Ω
	$R_{DS(on)}$	$V_{GS}=6V$ $I_D=20A$		19	22	
Forward On Voltage	V_{SD}	$V_{GS}=0V$ $I_S=30A$			1.3	V
Reverse Recovery Time	t_{rr}	$I_{DS} = 30 A, V_{GS} = 0 V$ $di_{SD}/dt = 100 A/\mu s$		118		nS
Reverse Recovery Charge	Q_{rr}			441		nC
Input Capacitance	C_{iss}	$V_{DS}=100V$ $V_{GS}=0V$ $f=1MHz$		3517		pF
Output Capacitance	C_{oss}			200		
Reverse Transfer Capacitance	C_{rss}			30		
Total Gate Charge	Q_g	$V_{DS}=100V$ $V_{GS}=10V$ $I_D=30A$		59		nC
Gate-Source Charge	Q_{gs}			20		
Gate-Drain Charge	Q_{gd}			14		

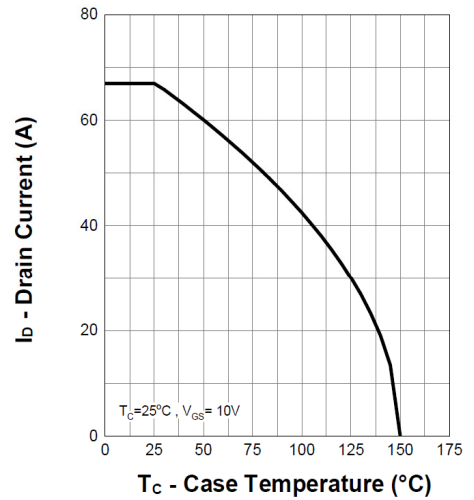
电性能参数 / Electrical Characteristics(Ta=25°C)

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
Turn-On Delay Time	t _{d(on)}	V _{GEN} =10V V _{DS} =100V R _L =3.3Ω R _G =3.9Ω I _{DS} =30A		16		ns
Turn-On Rise Time	t _r			82		
Turn-Off Delay Time	t _{d(off)}			38		
Turn-Off Fall Time	t _f			86		

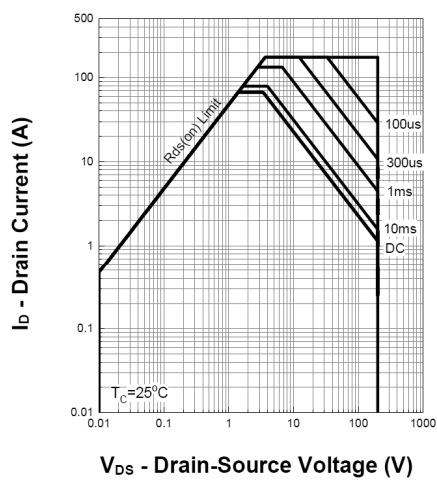
电参数曲线图 / Electrical Characteristic Curve



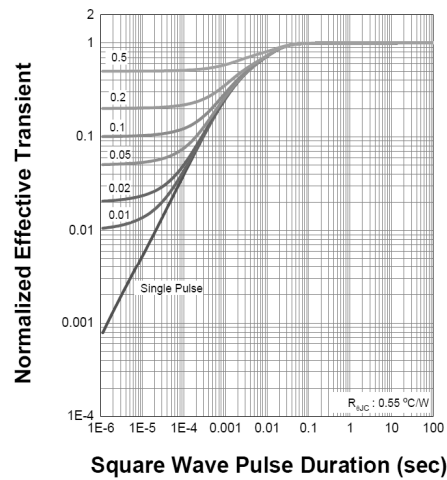
1. Power Capability



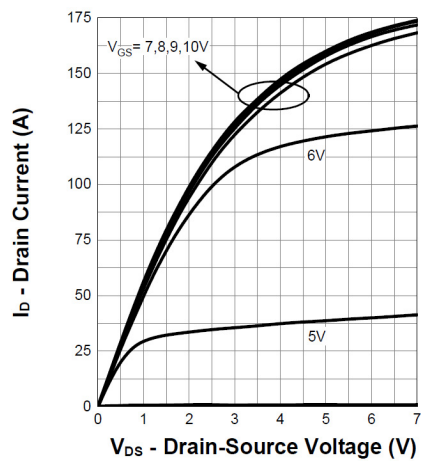
2. Current Capability



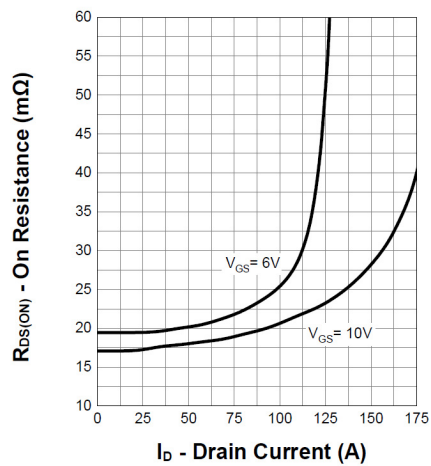
3. Safe Operating Area



4. Transient Thermal Impedance

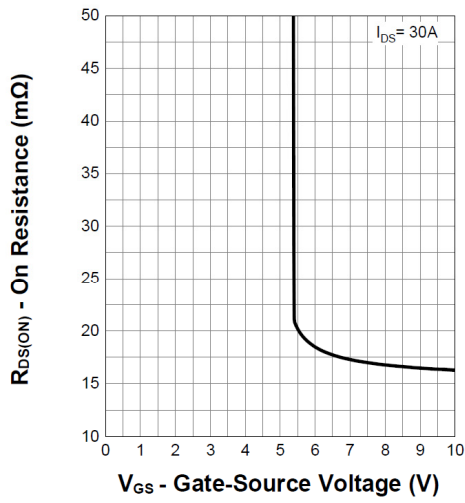


5. Output Characteristics

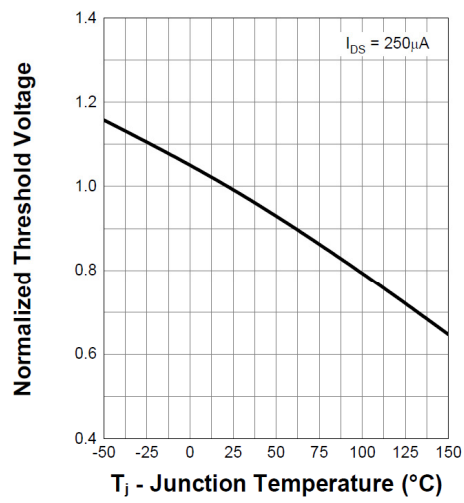


6. On Resistance

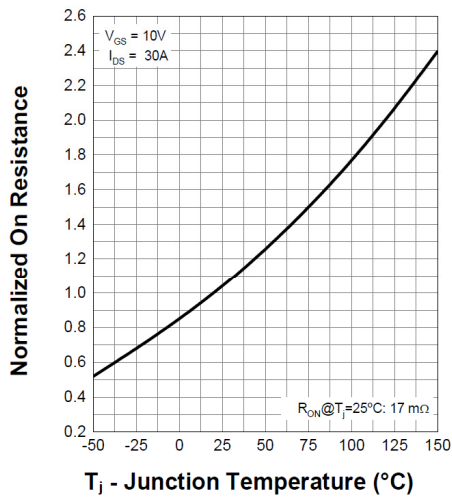
电参数曲线图 / Electrical Characteristic Curve



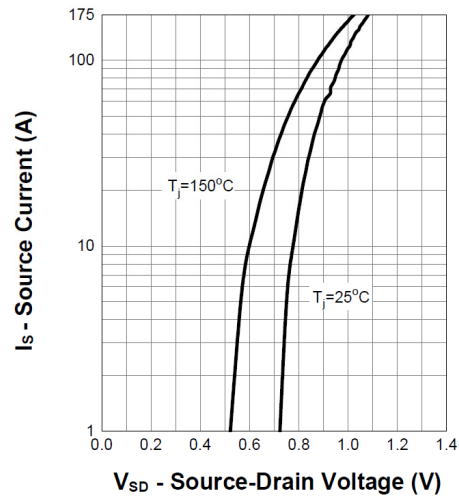
7. Transfer Characteristics



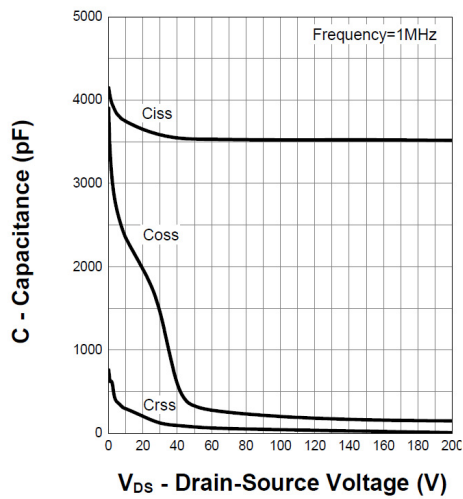
8. Normalized Threshold Voltage



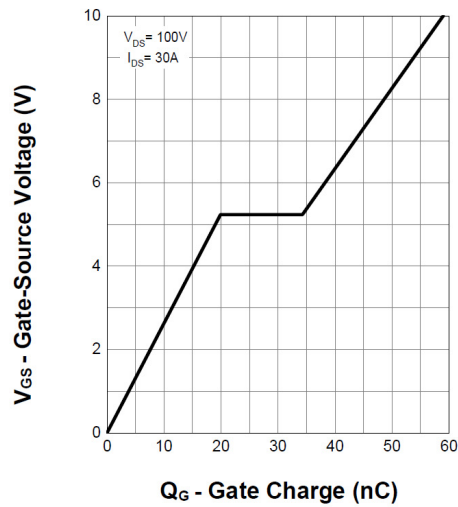
9. Normalized On Resistance



10. Diode Forward Current



11. Capacitance

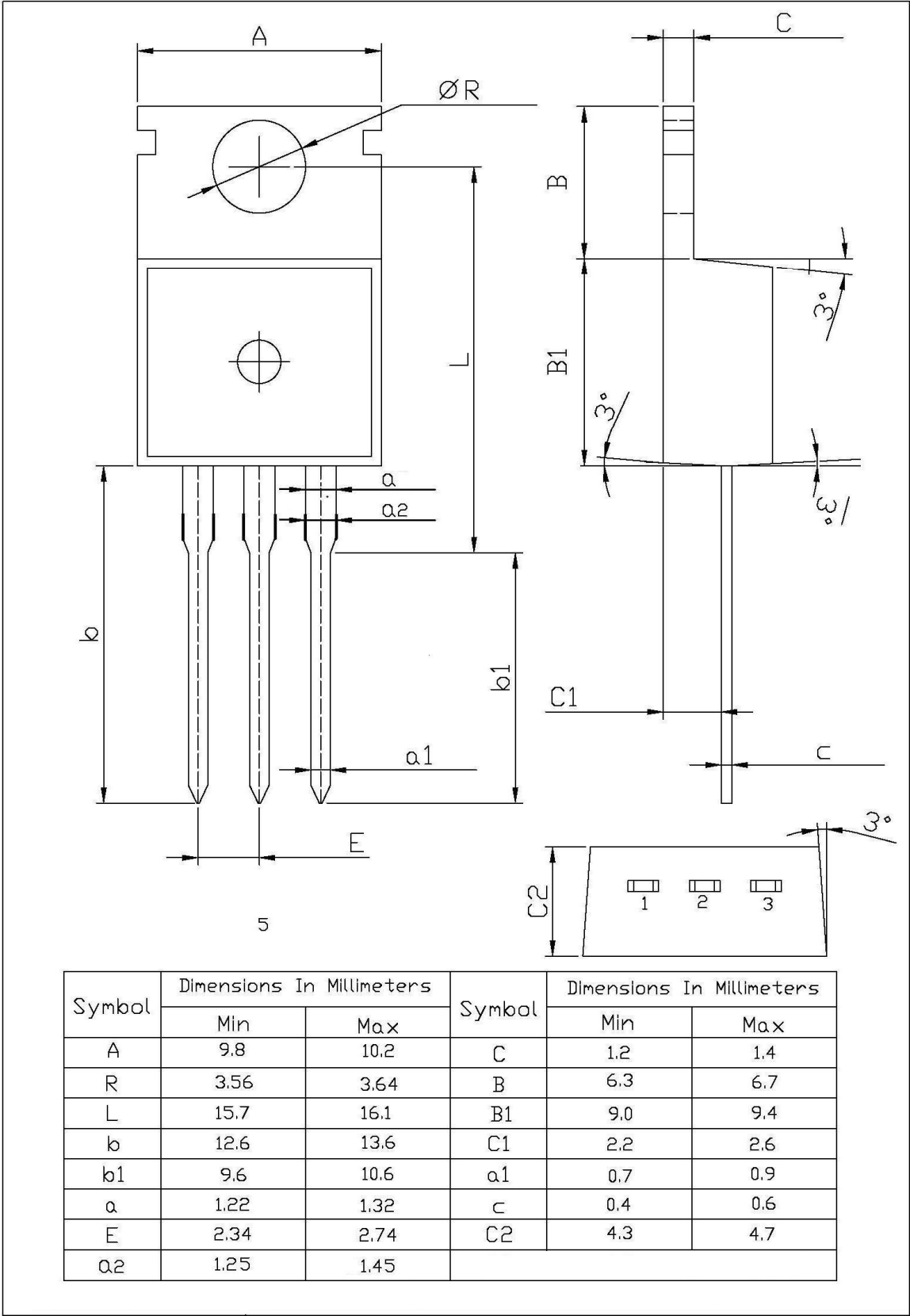


12. Gate Charge

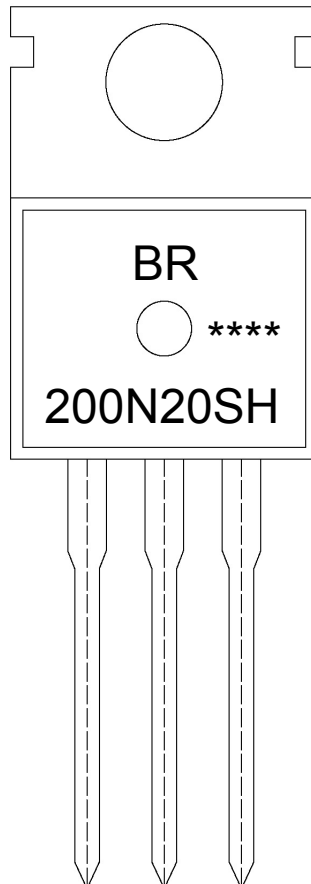
外形尺寸图 / Package Dimensions

T□-220

单位: mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

200N20SH： 为型号代码

****： 为生产批号代码，随生产批号变化

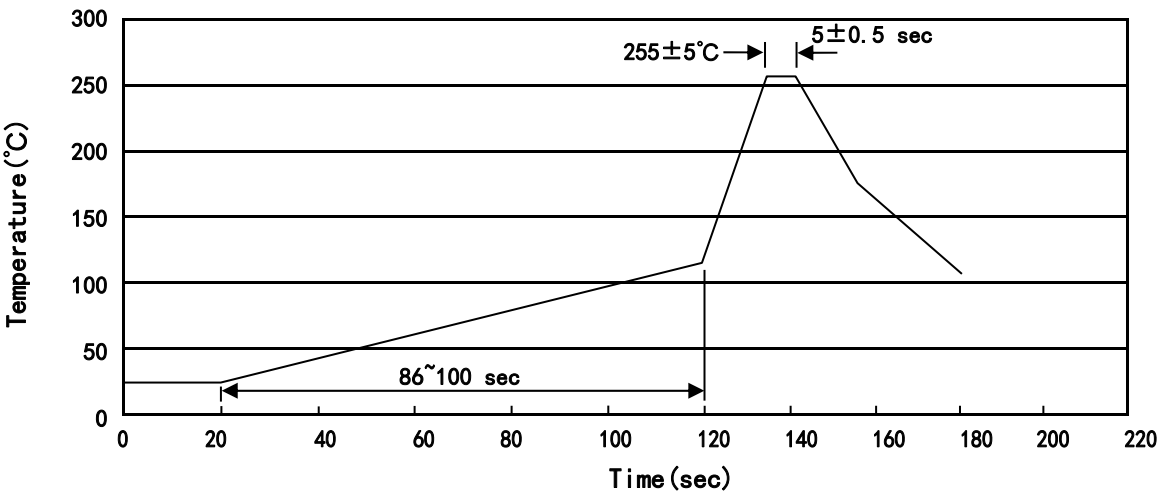
Note:

BR: Company Code

200N20SH: Product Type Code

****: Lot No. Code, code change with Lot No.

波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)



- 说明 :
- 1、预热温度 25 ~ 150℃ , 时间 60 ~ 90sec;
 - 2、峰值温度 255±5℃ , 时间持续为 5±0.5sec;
 - 3、焊接制程冷却速度为 2 ~ 10℃/sec.
- Note:
- 1.Preheating:25~150℃, Time:60~90sec.
 - 2.Peak Temp.:255±5℃, Duration:5±0.5sec.
 3. Cooling Speed: 2~10℃/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度 : 270±5℃ 时间 : 10±1 sec. Temp.:270±5℃ Time:10±1 sec

包装规格 / Packaging SPEC.

散件包装 / BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

使用说明 / Notices