

**描述 / Descriptions**

TO-220 塑封封装 N 沟道 MOS 场效应管。N-CHANNEL MOSFET in a TO-220 Plastic Package.

**特征 / Features**

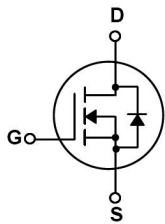
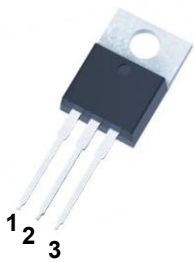
$R_{DS(on)}$  小, 门电荷低,  $C_{rss}$  小, 开关速度快。

Low  $R_{DS(on)}$ , low gate charge, low  $C_{rss}$ , fast switching.

**用途 / Applications**

用于低压电路如: 汽车电路、DC/DC 转换、便携式产品的电源高效转换。

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

**内部等效电路 / Equivalent Circuit****引脚排列 / Pinning**

PIN1 : G

PIN 2 : D

PIN 3 : S

**放大及印章代码 /  $h_{FE}$  Classifications & Marking**

见印章说明。 See Marking Instructions.

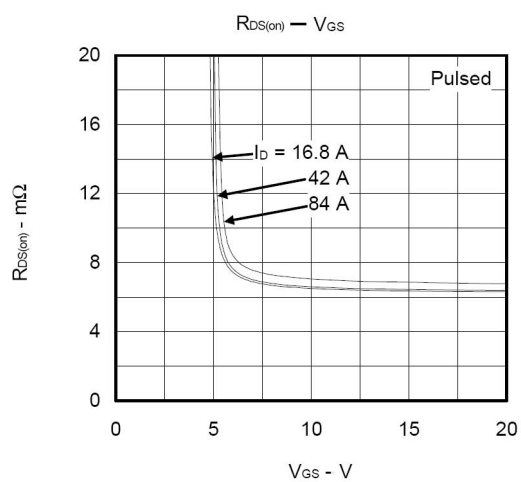
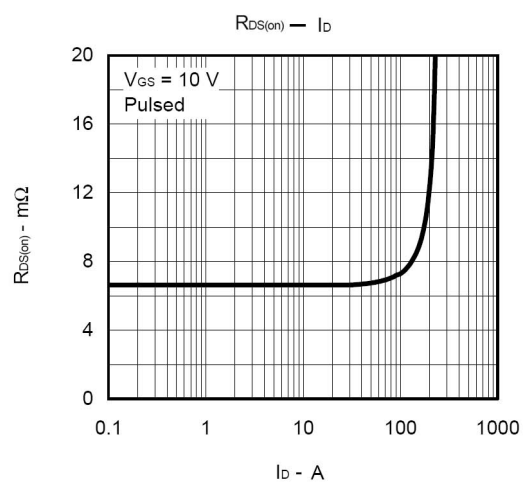
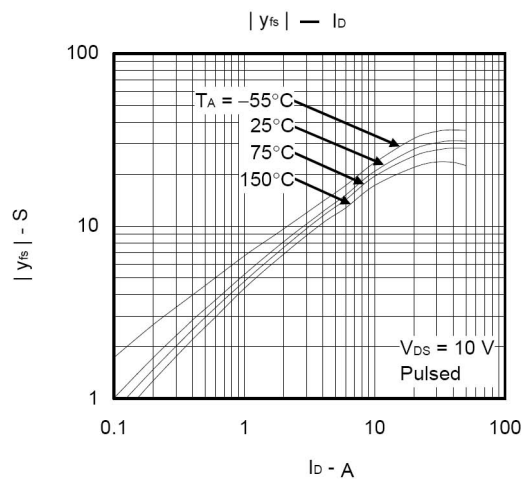
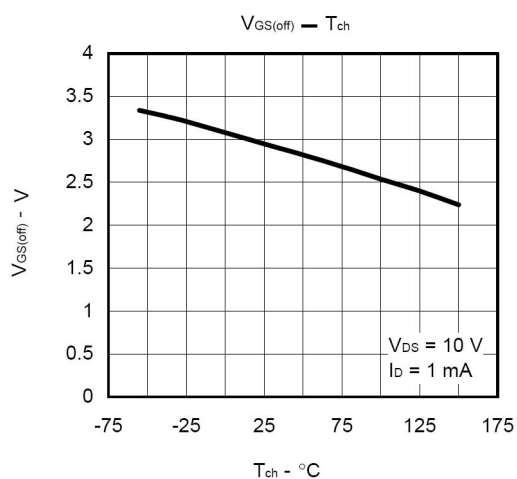
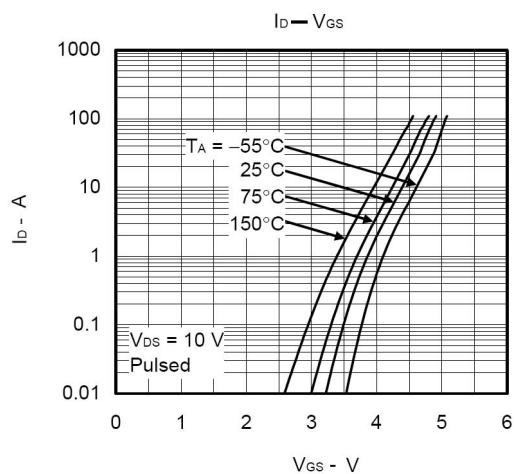
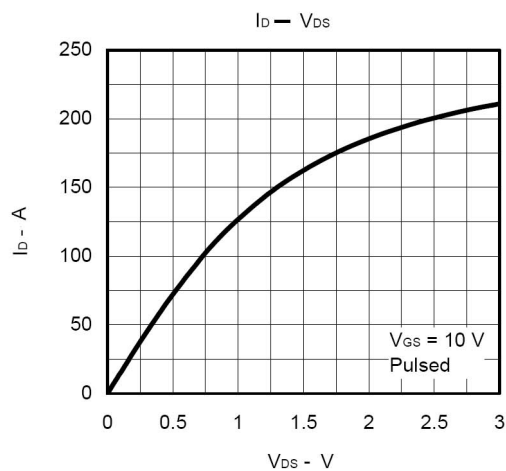

**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	$V_{DS}$	60	V
Drain Current	$I_D(T_c=25^{\circ}\text{C})$	84	A
Drain Current	$I_D$	215	A
Peak Drain Current	$I_{AS}$	32	A
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Repetitive Avalanche Energy	$E_{AS}$	102	mJ
Total Power Dissipation	$P_{T1}(T_c=25^{\circ}\text{C})$	84	W
Total Power Dissipation	$P_{T2}(T_a=25^{\circ}\text{C})$	1.5	W
Channel Temperature	$T_{ch}$	150	$^{\circ}\text{C}$
Junction and Storage Temperature Range	$T_{stg}$	-55~150	$^{\circ}\text{C}$

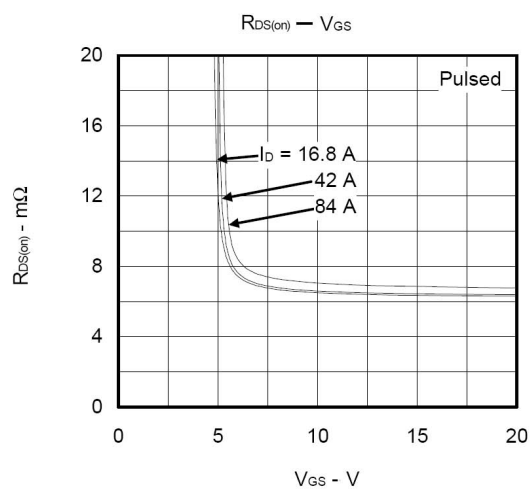
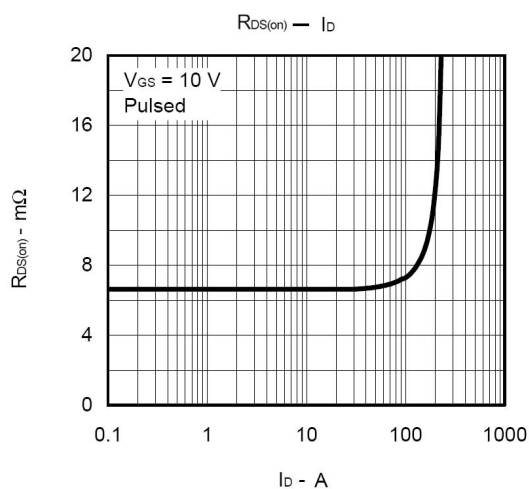
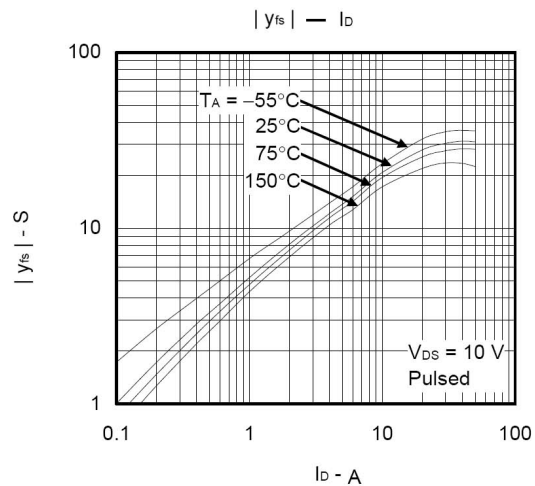
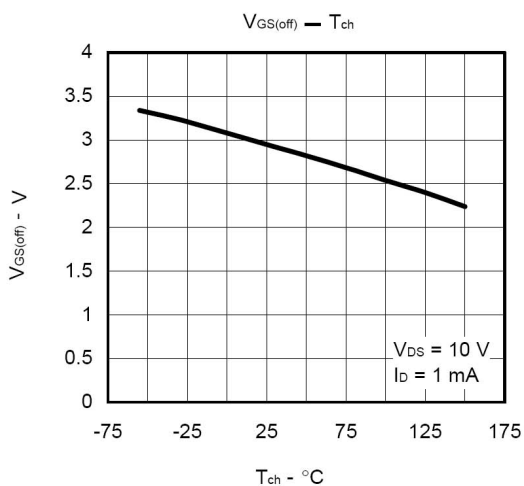
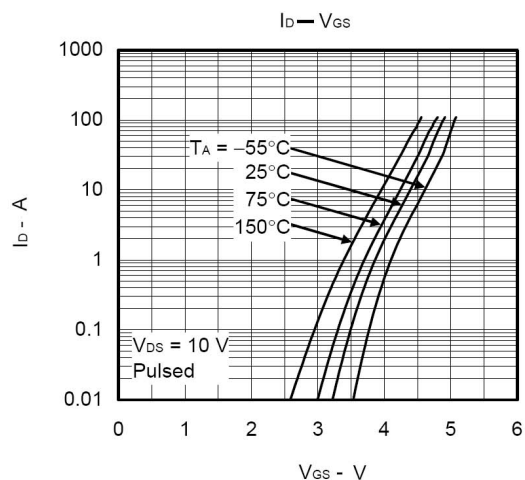
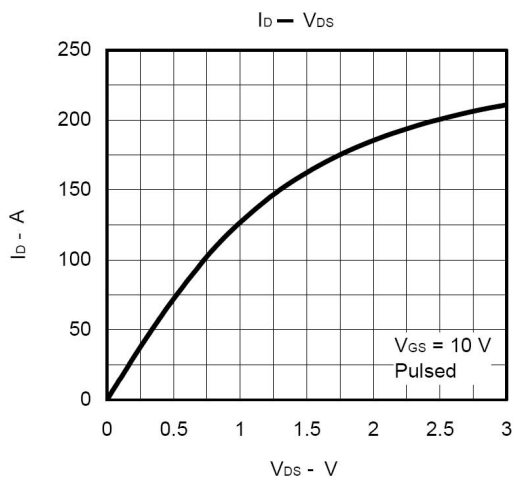
**电性能参数 / Electrical Characteristics(Ta=25°C)**

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
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60\text{V}$ $V_{GS}=0\text{V}$			10	$\mu\text{A}$
Gate-Body Leakage Current Forward	$I_{GSS}$	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			$\pm 0.1$	$\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10\text{V}$ $I_D=1.0\text{mA}$	2.0	3.0	4.0	V
Forward On Voltage	$V_{SD}$	$I_F=84\text{A}$ $V_{GS}=0\text{V}$		1.0	1.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$ $I_D=42\text{A}$		7	10	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{GS}=10\text{V}$ $I_D=30\text{A}$	16	31		S
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		5300		pF
Output Capacitance	$C_{oss}$			540		
Reverse Transfer Capacitance	$C_{rss}$			330		
Total Gate Charge	$Q_G$	$V_{DD}=48\text{V}$ $I_D=84\text{A}$ $V_{GS}=10\text{V}$		90		nC
Gate to Source Charge	$Q_{GS}$			21		nC
Gate to Drain Charge	$Q_{GD}$			30		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30\text{V}$ $V_{GS}=10\text{V}$ $I_D=42\text{A}$ $R_G=0\Omega$		25		ns
Turn-On Rise Time	$t_r$			17		
Turn-Off Delay Time	$t_{d(off)}$			66		
Turn-Off Fall Time	$t_f$			9		
Reverse Recovery Time	$t_{rr}$	$I_F=84\text{A}$ $V_{GS}=0\text{V}$ $di/dt=100\text{A}/\mu\text{S}$		43		ns
Reverse Recovery Charge	$Q_{rr}$			62		nC

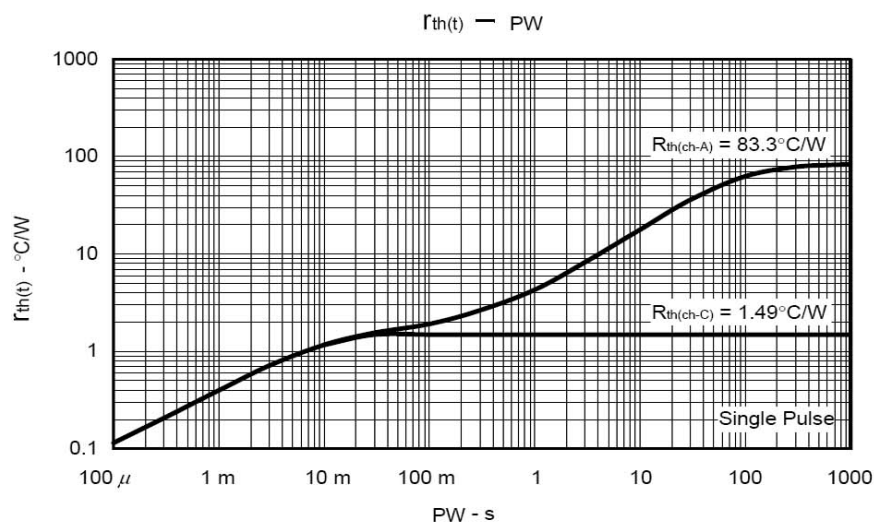
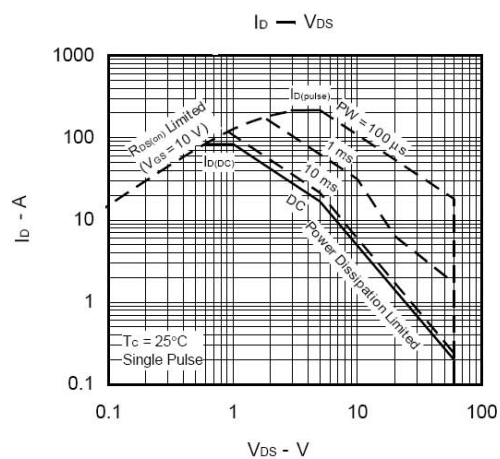
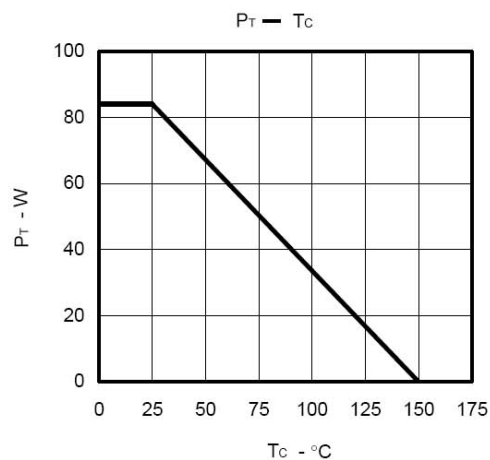
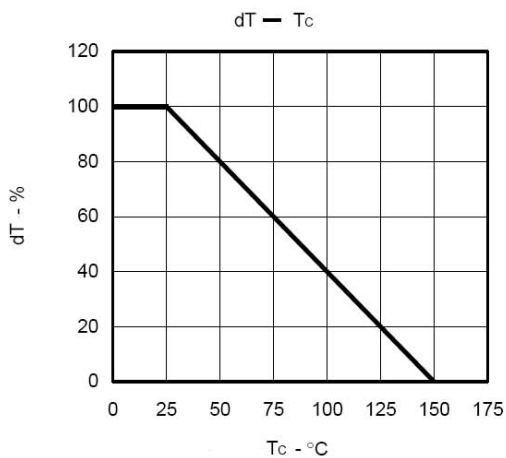
## 电参数曲线图 / Electrical Characteristic Curve



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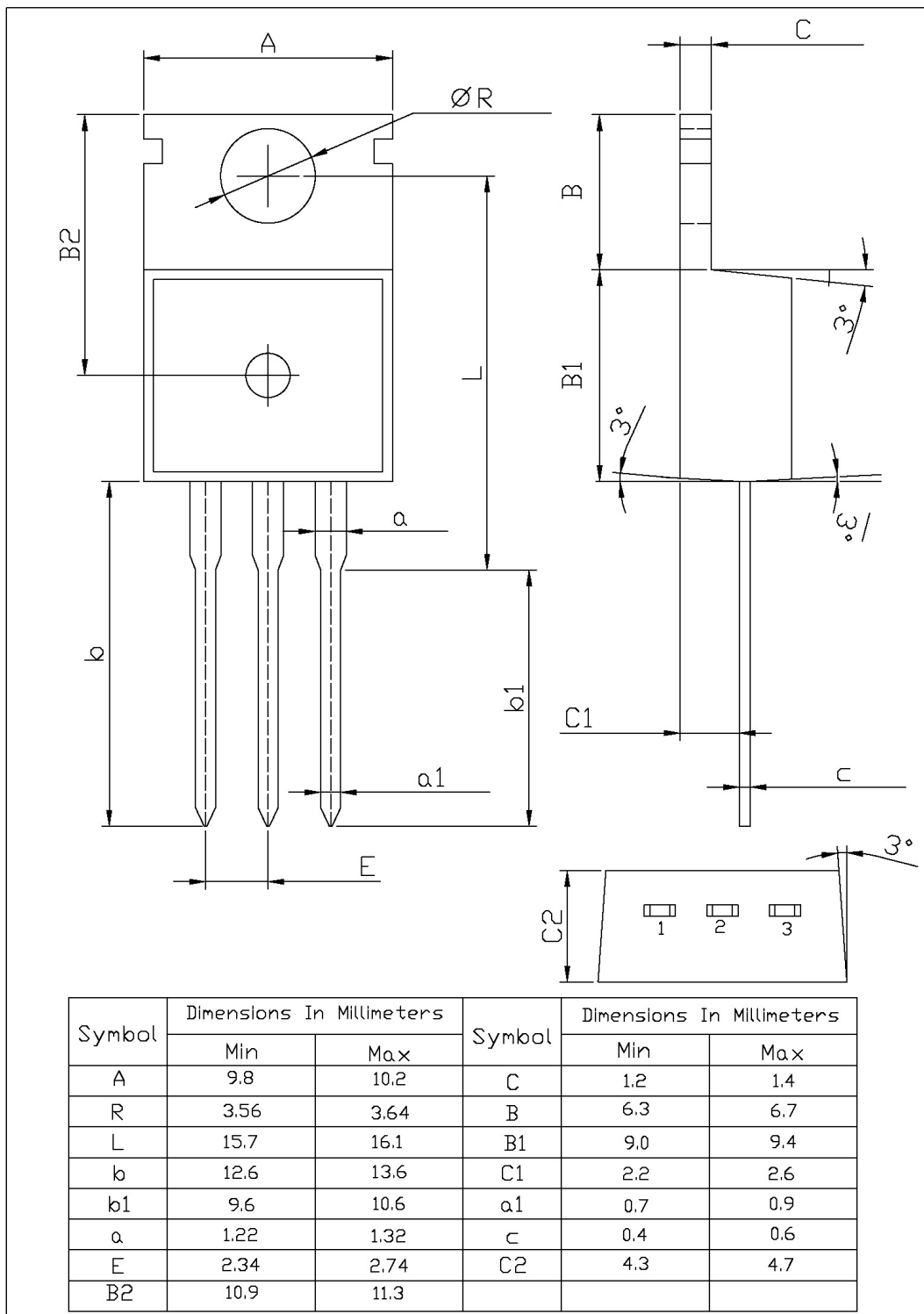
## 电参数曲线图 / Electrical Characteristic Curve



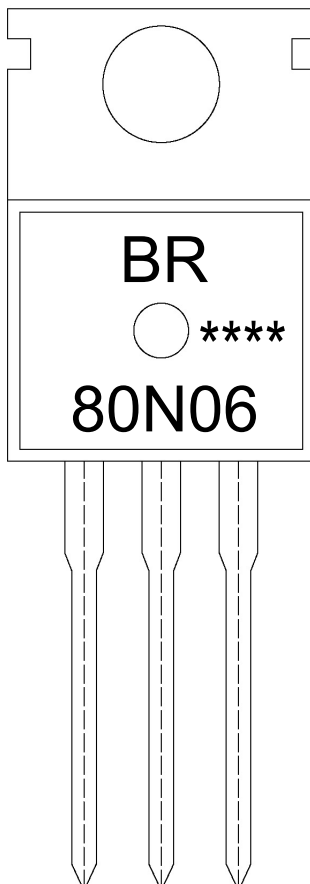
外形尺寸图 / Package Dimensions

T0-220

单位: mm



**印章说明 / Marking Instructions**



说明：

BR： 为公司代码

80N06： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

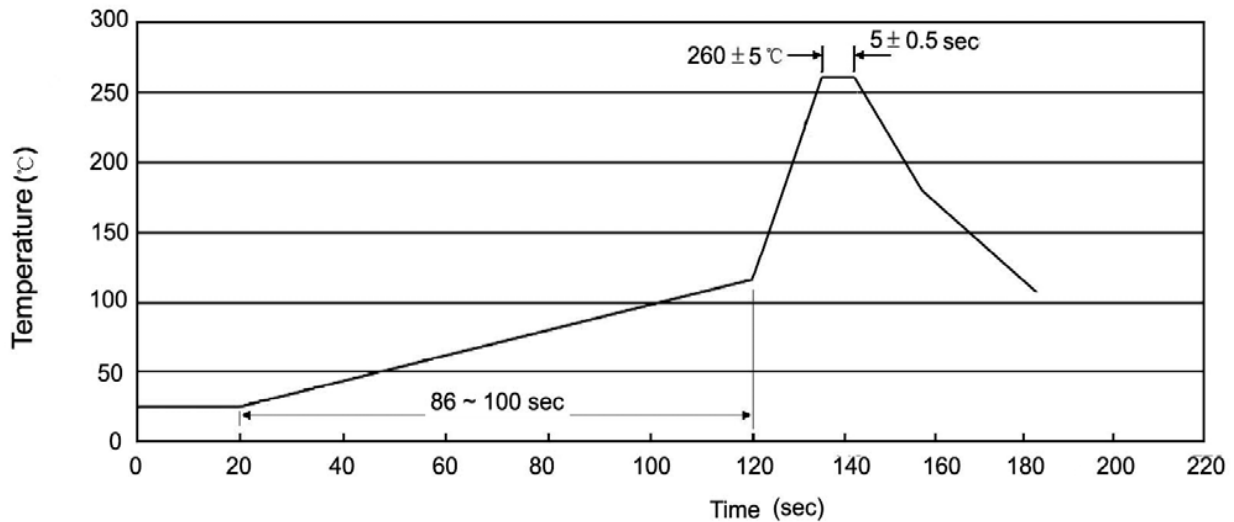
Note:

BR: Company Code

80N06: Product Type.

\*\*\*\*: 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°C，时间 60 ~ 90sec;
- 2、峰值温度 260±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.:260±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：270±5°C

时间：10±1 sec.

Temp.:270±5°C

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 <sup>3</sup> )		
	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 <sup>3</sup> )		
	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