

描述 / Descriptions

TO-251 塑封封装 N 沟道 MOS 场效应管。N-CHANNEL MOSFET in a TO-251 Plastic Package.

特征 / Features

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

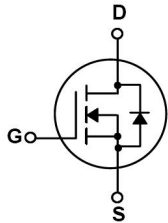
Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast speed switching.

用途 / Applications

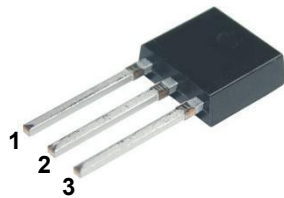
用于低压电路如: 汽车电路、DC/DC 转换、便携式产品的电源高效转换。

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.

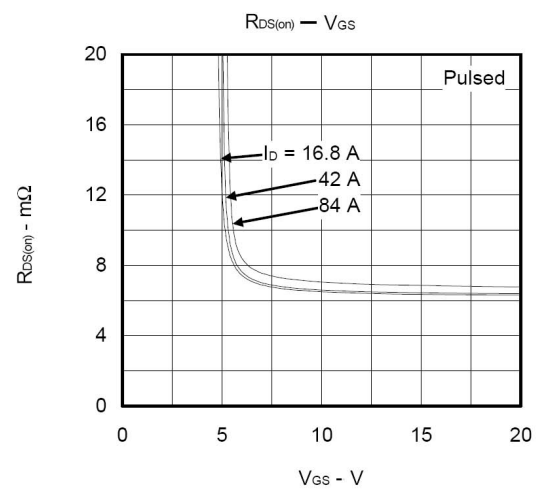
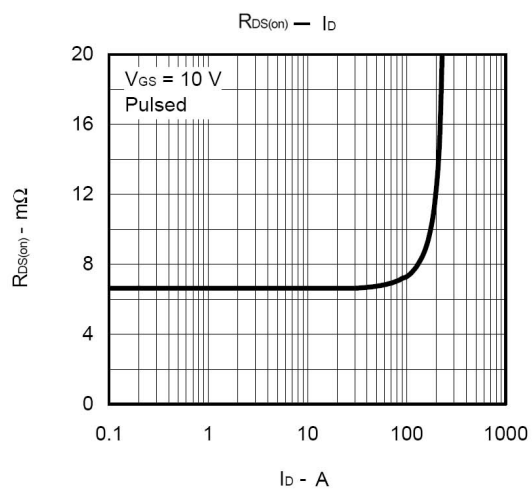
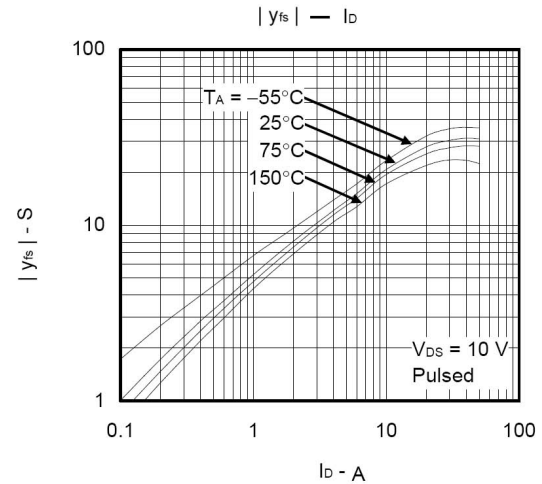
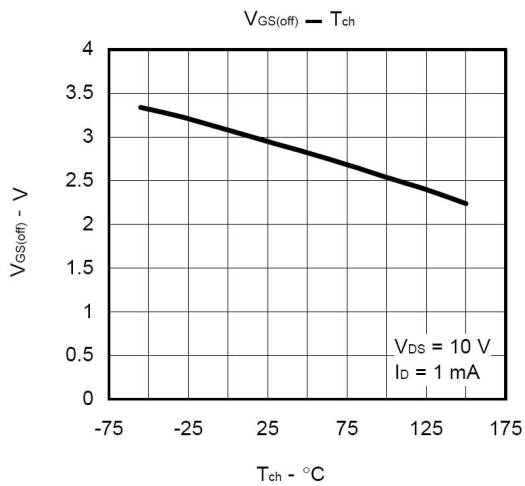
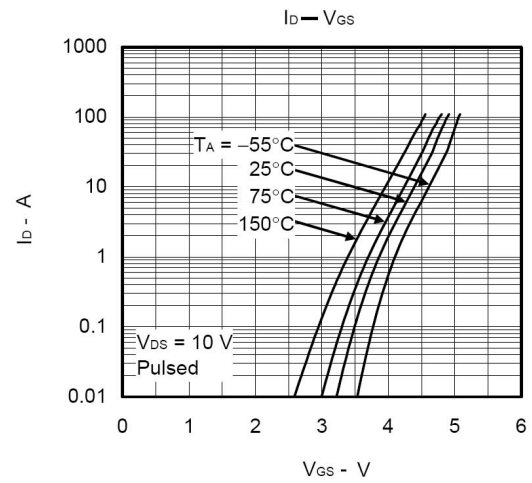
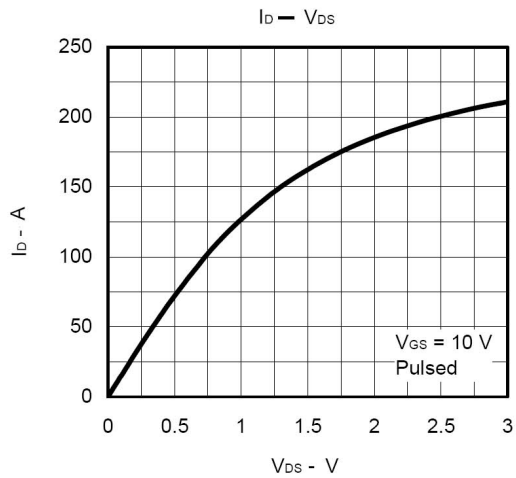

极限参数 / Absolute Maximum Ratings(Ta=25°C)

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
Single Avalanche Current	I_{AS}	32	A
Gate-Source Voltage	V_{GS}	± 20	V
Single Avalanche Energy	E_{AS}	102	mJ
Total Power Dissipation	$P_{T1}(T_c=25^\circ\text{C})$	55	W
	$P_{T2}(T_a=25^\circ\text{C})$	1.0	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~150	$^\circ\text{C}$

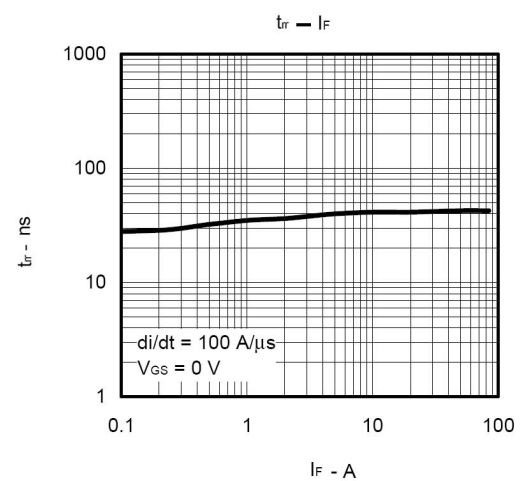
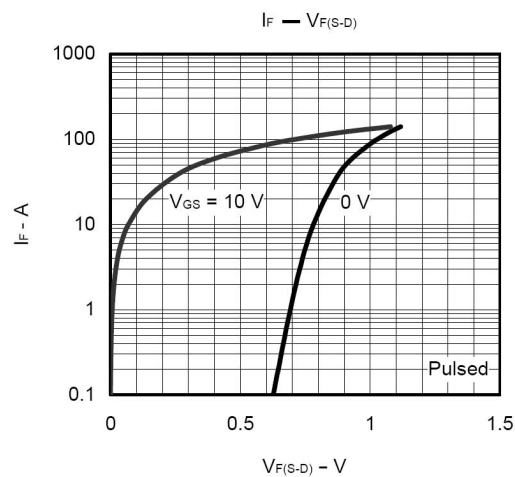
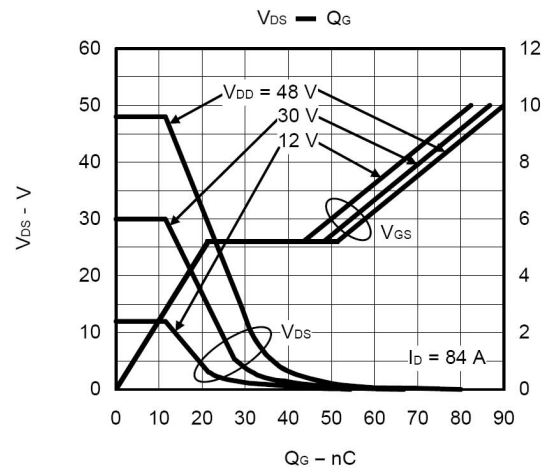
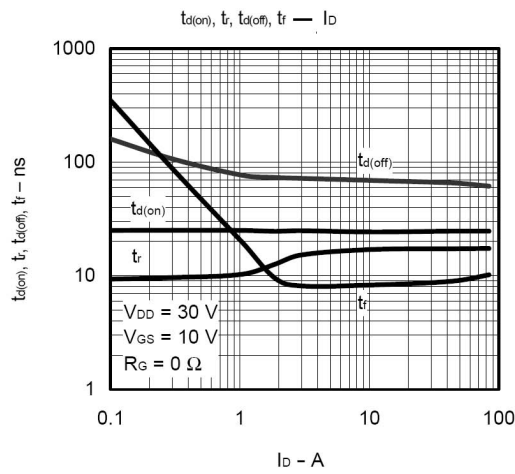
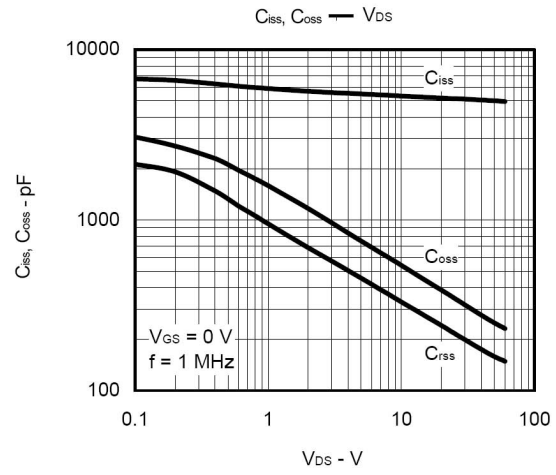
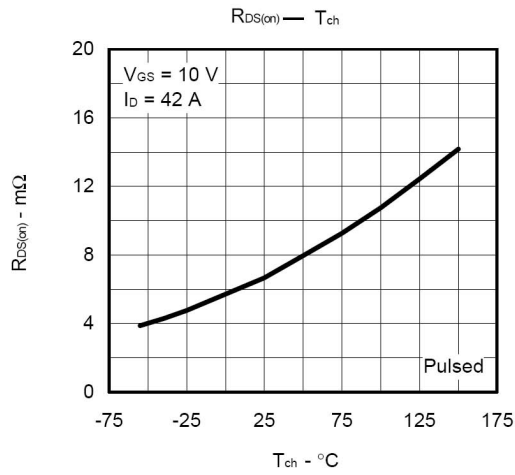
电性能参数 / Electrical Characteristics(Ta=25°C)

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	μA
Gate-Body Leakage Current, Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10\text{V}$ $I_D=1.0\text{mA}$	2.0	3.0	4.0	V
Drain-Source Diode Forward 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 Ω
Forward Transfer Admittance	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

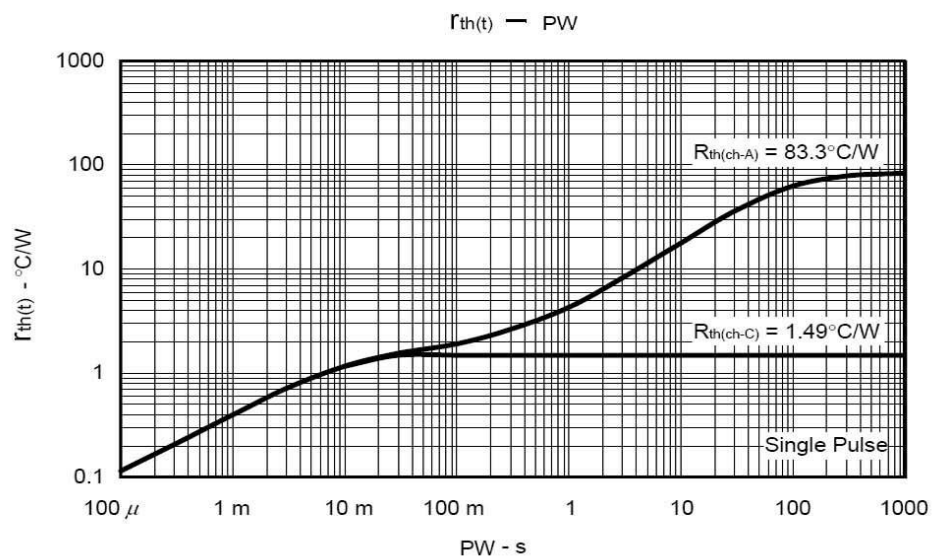
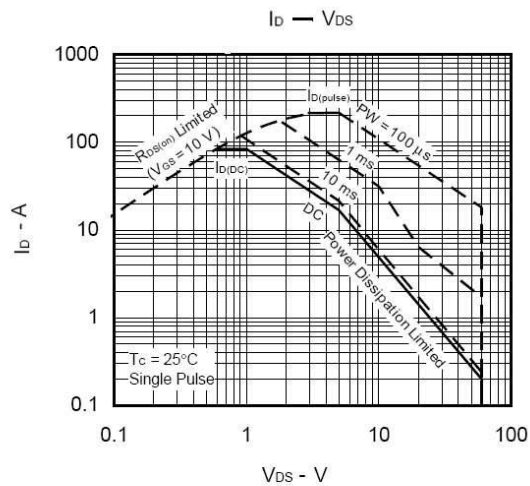
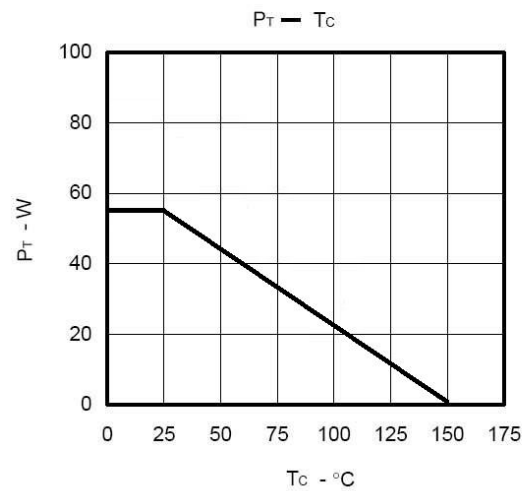
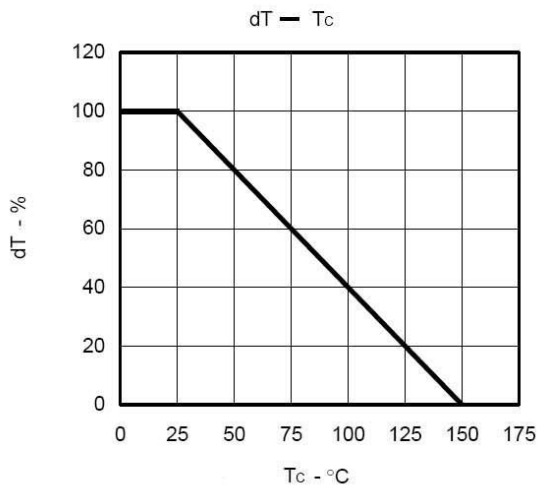
电参数曲线图 / Electrical Characteristic Curve



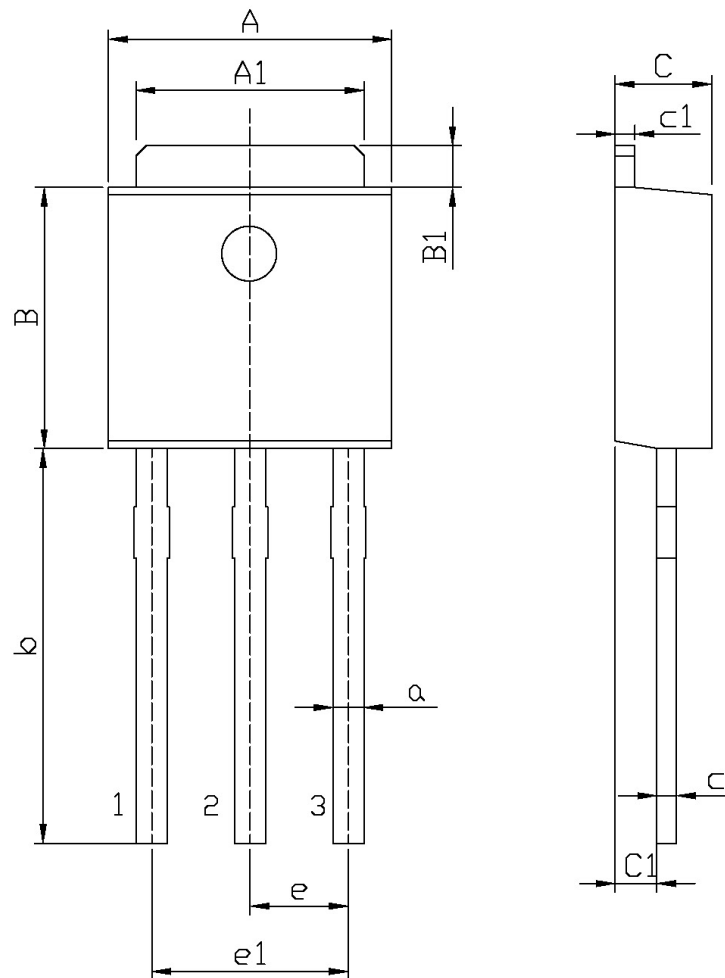
电参数曲线图 / Electrical Characteristic Curve



电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

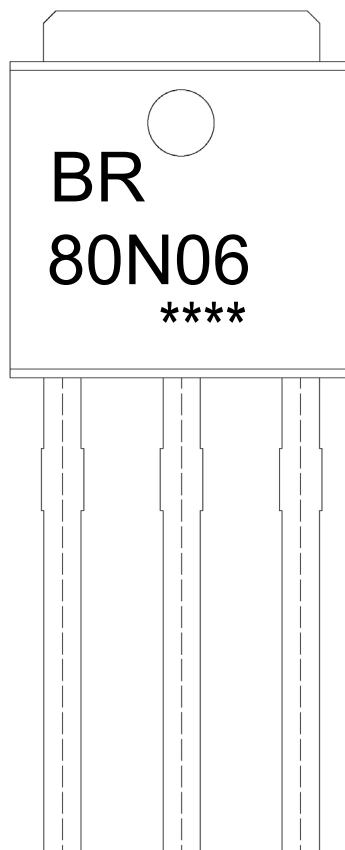


单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	6.45	6.75	a	0.50	0.70
A1	5.10	5.50	b	9.00	9.40
B	5.95	6.25	C	0.45	0.55
B1	0.95	1.25	c1	0.45	0.55
C	2.20	2.40	e	2.24	2.34
C1	0.95	1.15	e1	4.43	4.73

TO-251

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。

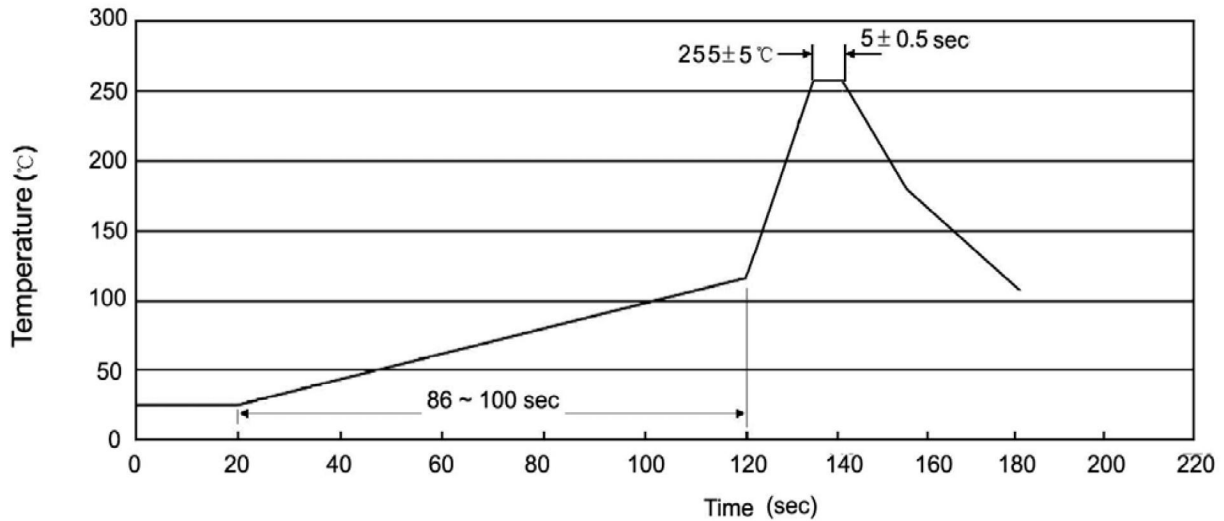
Note:

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 255±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.:255±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 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-251	1,000	10	10,000	5	50,000	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-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

使用说明 / Notices