

描述 / Descriptions

N 沟道 TO-220 塑封封装场效应管。

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

特征 / Features

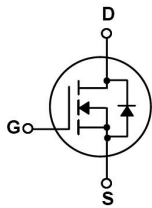
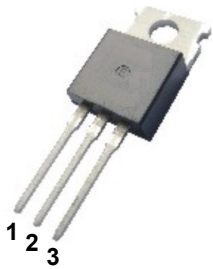
低栅电荷,低反馈电容,开关速度快。

Low gate charge, low crss, fast switching.

用途 / Applications

用于高功率 DC/DC 转换和功率开关。

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

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}	80	V
Drain Current	$I_D(T_c=25^{\circ}\text{C})$	100	A
Peak Drain Current	I_{DM}	330	A
Gate-Source Voltage	V_{GSS}	± 25	V
Single Pulsed Avalanche Energy(L=0.5mH)	E_{AS}	1000	mJ
Avalanche Current	I_{AS}	50	A
Total Power Dissipation	$P_D(T_c=25^{\circ}\text{C})$	316	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 175	$^{\circ}\text{C}$
Thermal Resistance-Junction to Case	$R_{\theta JC}$	0.47	$^{\circ}\text{C/W}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	65	

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}	$V_{GS}=0V$ $I_D=250\mu A$	80			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80V$ $V_{GS}=0V$			1	μA
		$V_{DS}=80V$ $V_{GS}=0V$ $T_J=125^{\circ}\text{C}$			10	μA
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 25V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2	3.3	4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V$ $I_D=60A$		7.1	8.5	$m\Omega$

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
Diode Forward Voltage	V_{SD}	$I_S=1A$ $V_{GS}=0V$			1.2	V
Input Capacitance	C_{iss}	$V_{GS}=0V$ $V_{DS}=25V$, $f=1.0MHz$		3080		pF
Output Capacitance	C_{oss}			400		
Reverse Transfer Capacitance	C_{rss}			232		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$, $f=1MHz$		1.1		Ω
Total Gate Charge	$Q_g(10V)$	$V_{GS}=10V$ $V_{DS}=40V$ $I_D=20A$		66.8		nC
Gate Source Charge	Q_{gs}			20.8		
Gate Drain Charge	Q_{gd}			20.2		
Turn-On DelayTime	$t_{D(on)}$	$V_{DS}=40V$ $R_L=2\Omega$ $V_{GS}=10V$ $R_{GEN}=3\Omega$		26		ns
Turn-On Rise Time	t_r			18		
Turn-Off DelayTime	$t_{D(off)}$			48		
Turn-Off Fall Time	t_f			21		

A. The value of R_{qJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$. The Power dissipation PDSM is based on R_{qJA} and the maximum allowed junction temperature of $175^\circ C$. The value in any given application depends on the user's specific board design, and the maximum temperature of $175^\circ C$ may be used if the PCB allows it.

B. The power dissipation PD is based on $T_{J(MAX)}=175^\circ C$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.

C. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=175^\circ C$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^\circ C$.

D. The R_{qJA} is the sum of the thermal impedance from junction to case R_{qJC} and case to ambient.

E. The static characteristics in Figures 1 to 6 are obtained using <300ms pulses, duty cycle 0.5% max.

F. These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of $T_{J(MAX)}=175^\circ C$. The SOA curve provides a single pulse rating.

G. The maximum current limited by package.

H. These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$.

电参数曲线图 / Electrical Characteristic Curve

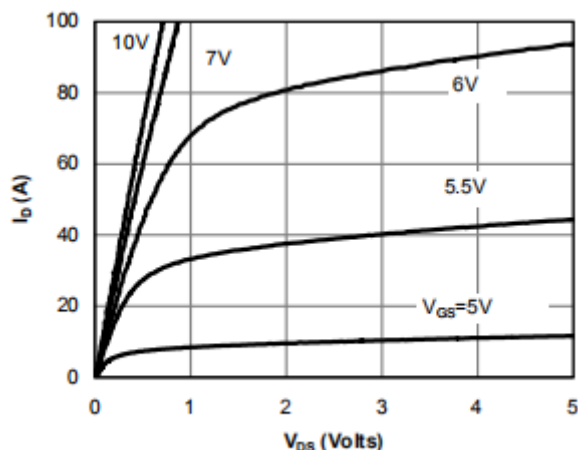


Fig 1: On-Region Characteristics

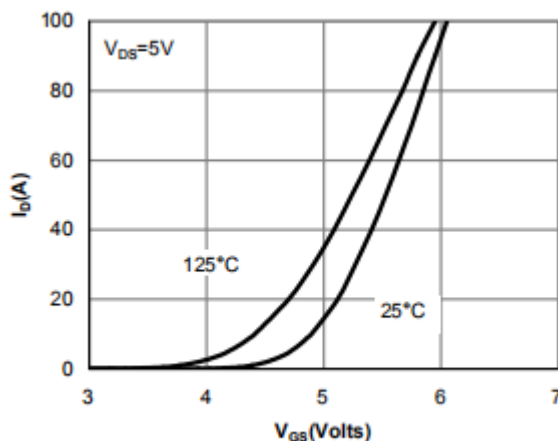


Figure 2: Transfer Characteristics

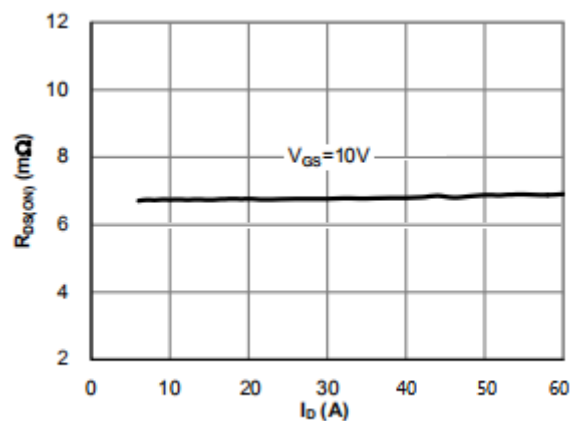


Figure 3: On-Resistance vs. Drain Current and Gate

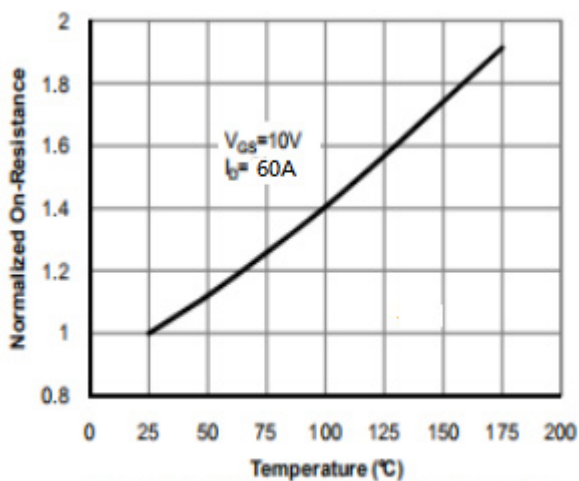


Figure 4: On-Resistance vs. Junction Temperature

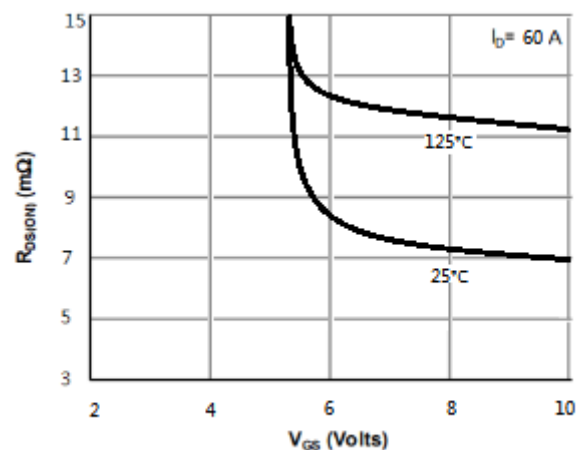


Figure 5: On-Resistance vs. Gate-Source Voltage

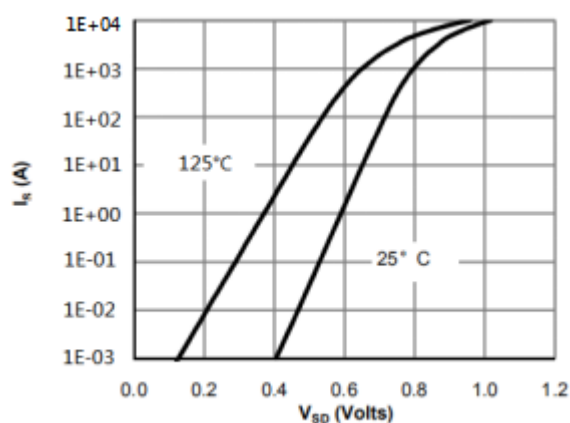
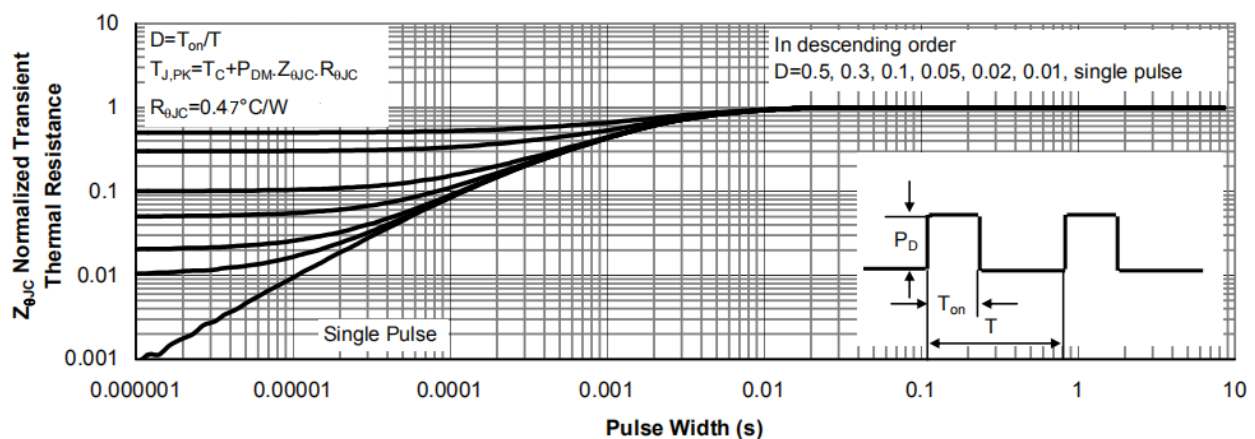
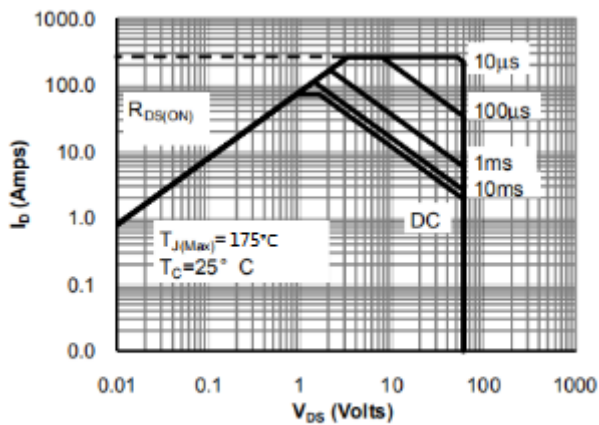
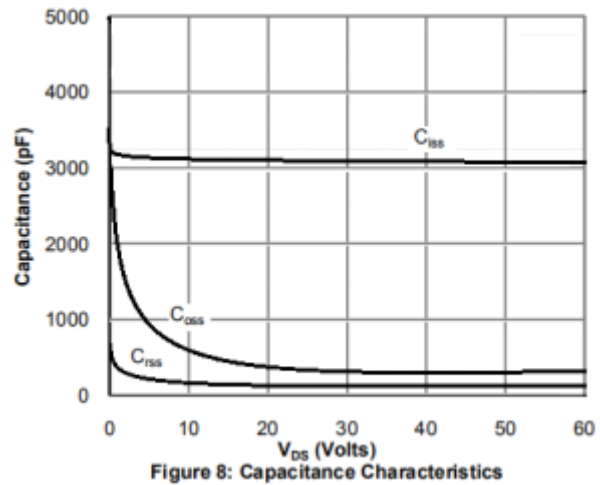
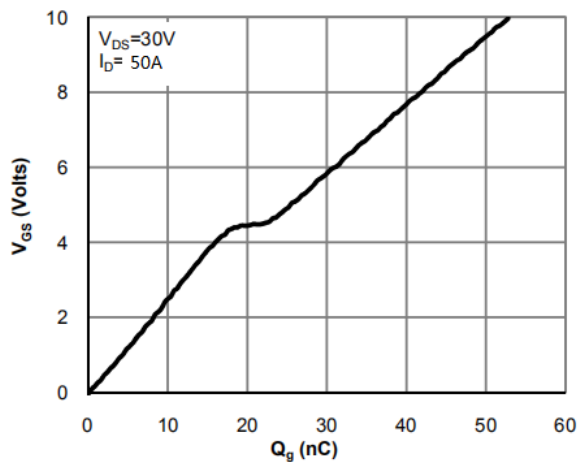


Figure 6: Body-Diode Characteristics

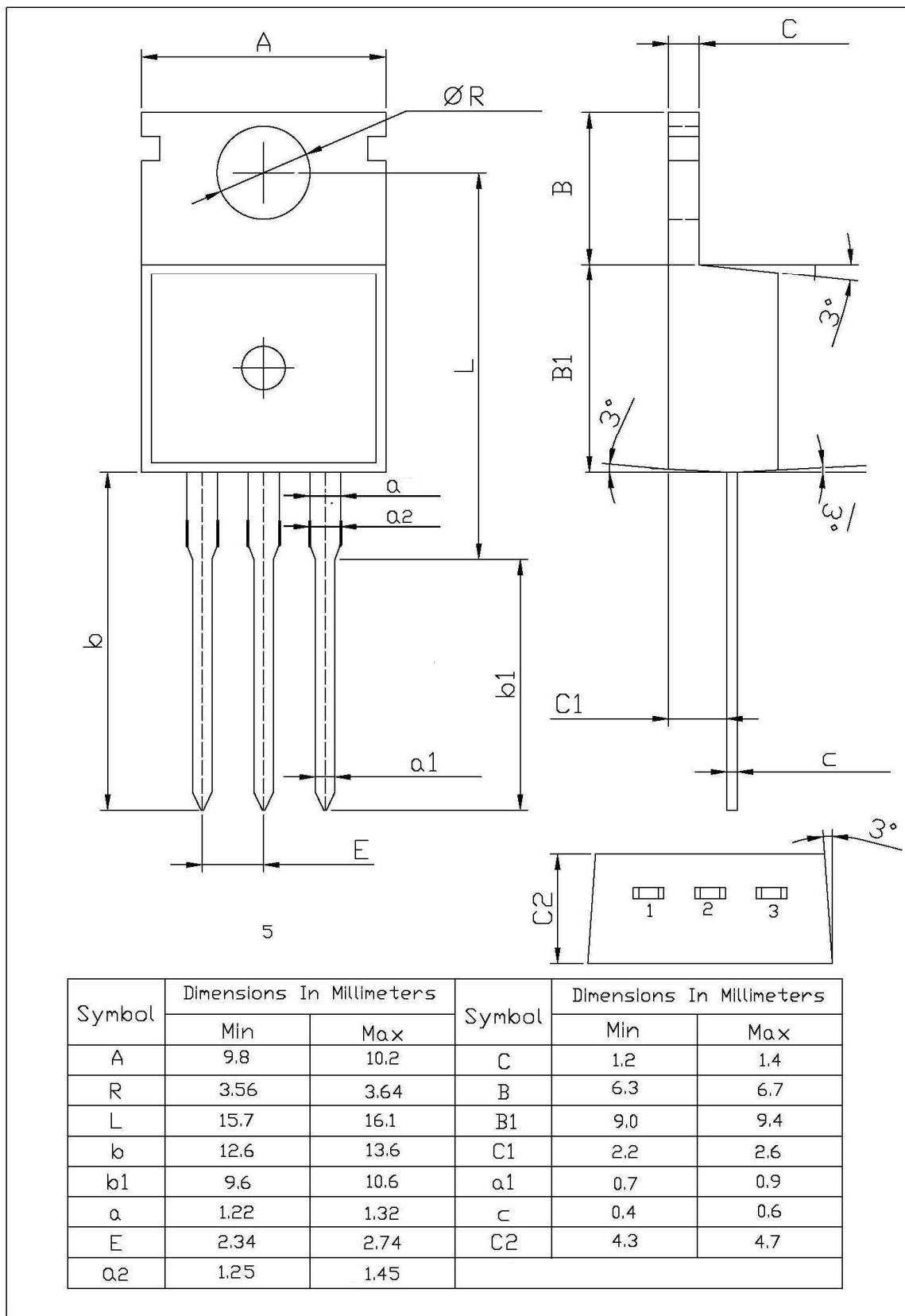
电参数曲线图 / Electrical Characteristic Curve

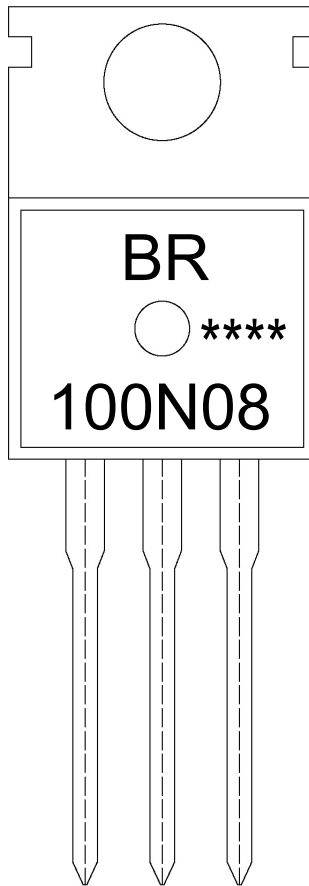


外形尺寸图 / Package Dimensions

TO-220

单位: mm



印章说明 / Marking Instructions

说明：

BR： 为公司代码

100N08： 为型号代码

****： 为生产批号代码，随生产批号变化。

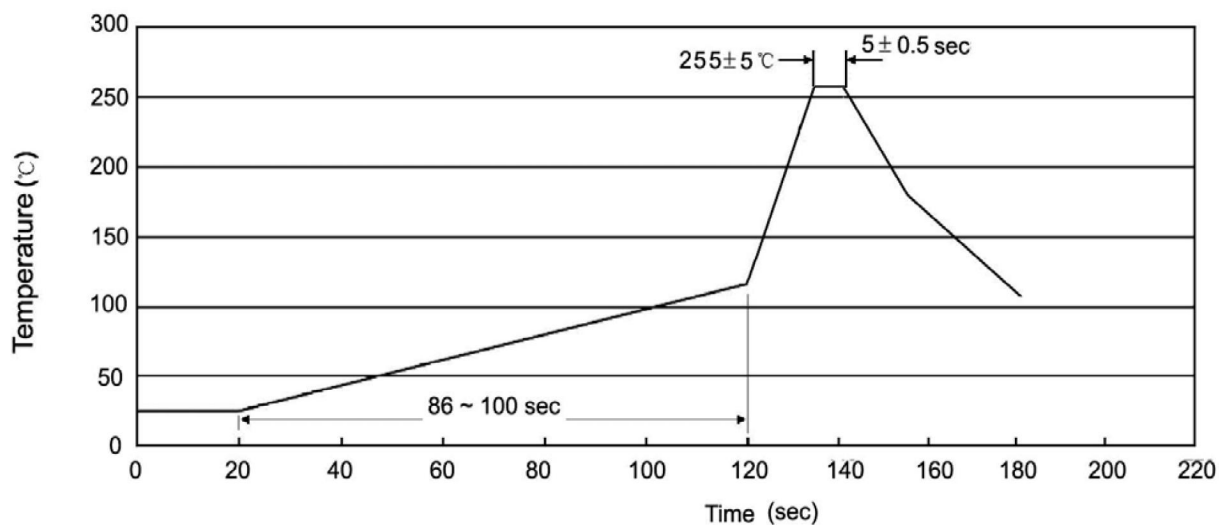
Note:

BR: Company Code

100N08: 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-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