

# MJD112

Rev.E May.-2016

## 描述 / Descriptions

TO-252 塑封封装 NPN 半导体三极管。Silicon NPN transistor in a TO-252 Plastic Package.

## 特征 / Features

直流电流增益高，E 与 C 间内置阻尼二极管电性能与 TIP112 等同。

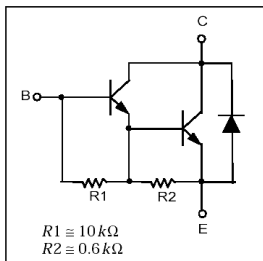
High DC current gain, built-in a damper diode at E-C, electrically similar to popular TIP112.

## 用途 / Applications

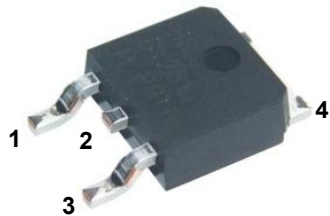
用于中功率放大或开关电路。

Medium power switching applications.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1 : Base

PIN 2,4 : Collector

PIN 3 : Emitter

## 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
Collector to Base Voltage	$V_{CBO}$	100	V
Collector to Emitter Voltage	$V_{CEO}$	100	V
Emitter to Base Voltage	$V_{EBO}$	5.0	V
Collector Current - Continuous	$I_C$	2.0	A
Collector Current – Continuous(Pulse)	$I_{C(Pulse)}$	4.0	A
Base Current - Continuous	$I_B$	50	mA
Collector Power Dissipation	$P_C$	1.75	W
Collector Power Dissipation	$P_C(T_C=25^\circ C)$	20	W
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

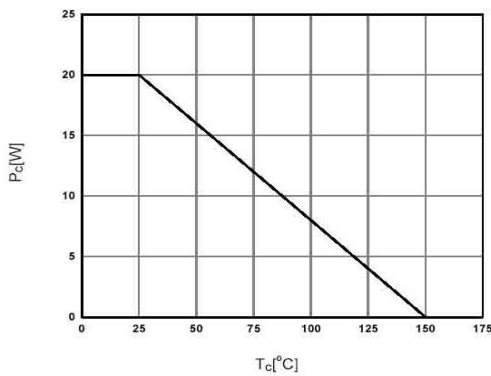
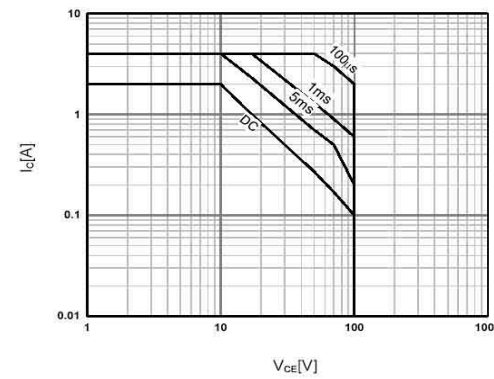
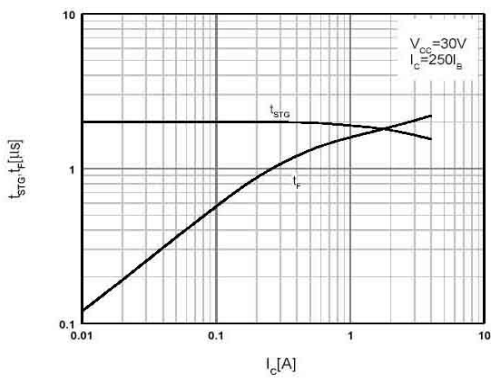
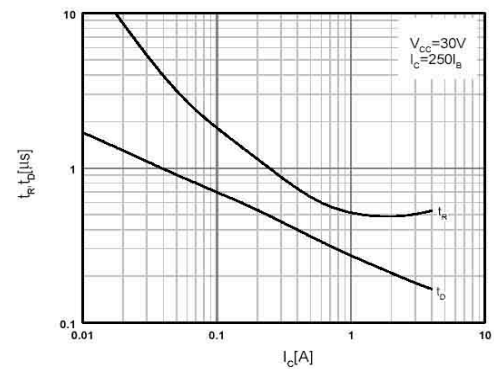
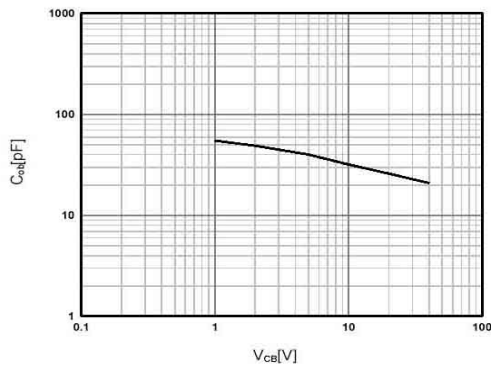
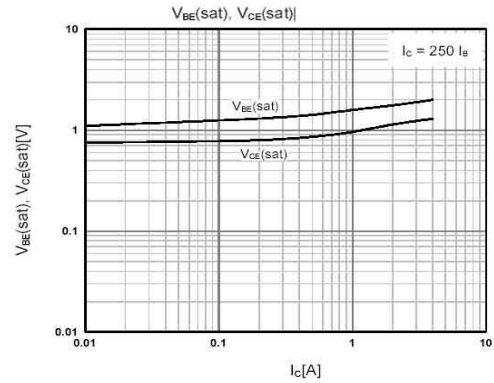
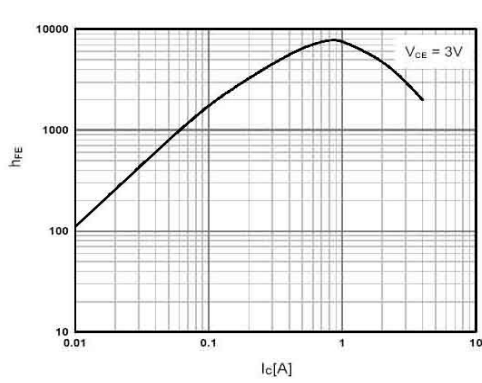
Pulse Test:PW≤300μs,Duty Cycle≤2%

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

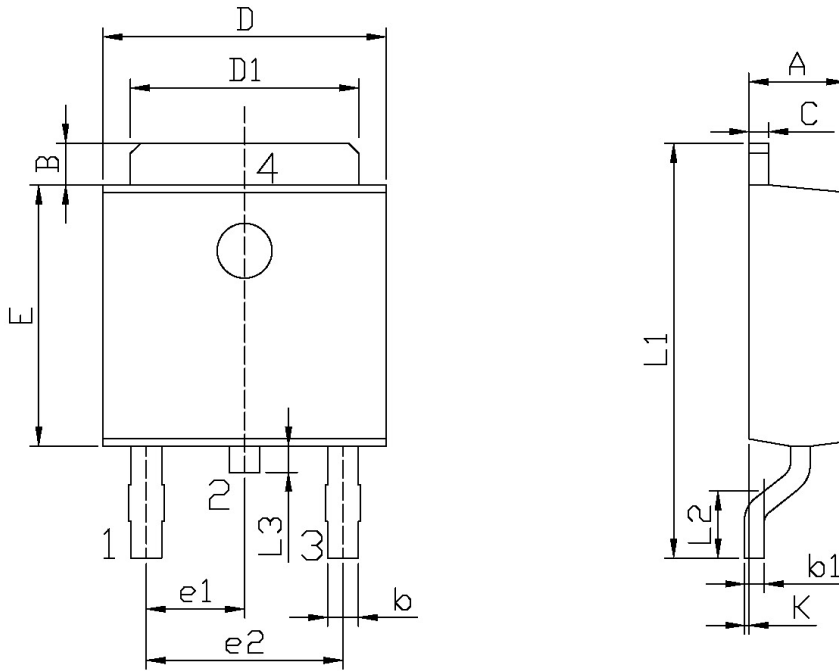
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Emitter Breakdown Voltage*	$V_{CEO}^*$	$I_C=30mA$ $I_B=0$	100			V
Collector Cut-Off Current	$I_{CEO}$	$V_{CE}=50V$ $I_B=0$			0.02	mA
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=100V$ $I_E=0$			0.02	mA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=5.0V$ $I_C=0$			2.0	mA
DC Current Gain	$h_{FE(1)}^*$	$V_{CE}=3.0V$ $I_C=2.0A$	1000		12K	
	$h_{FE(2)}^*$	$V_{CE}=3.0V$ $I_C=0.5A$	500			
	$h_{FE(3)}^*$	$V_{CE}=3.0V$ $I_C=4.0A$	200			
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}^*$	$I_C=2.0A$ $I_B=8.0mA$			2.0	V
	$V_{CE(sat)2}^*$	$I_C=4.0A$ $I_B=40mA$			3.0	V
Base-Emitter Saturation Voltage*	$V_{BE(sat)}^*$	$I_C=4.0A$ $I_B=40mA$			4.0	V
Base-Emitter-On Voltage*	$V_{BE(on)}^*$	$V_{CE}=3.0V$ $I_C=2.0A$			2.8	V
Current Gain Bandwidth Product	$f_T$	$V_{CE}=10V$ $I_C=0.75A$	25			MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V$ $I_E=0$ $f=0.1MHz$			100	pF

\*Pulse Test:Pulse Width≤380us,Duty Cycle≤2%. \*脉冲测试：脉宽≤380us,占空比≤2%。

电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

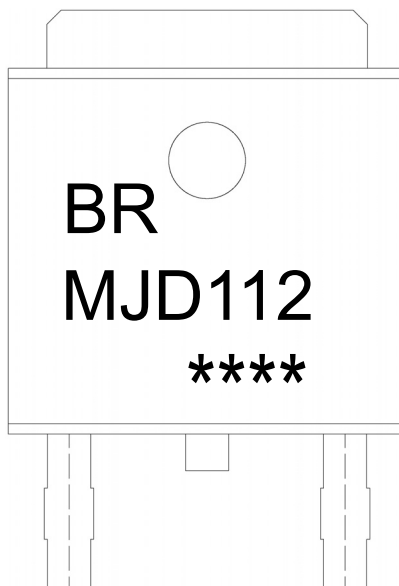


单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.50	0.70	e2	4.43	4.73
b1	0.45	0.55	L1	9.45	9.95
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

T0-252

印章说明 / Marking Instructions



说明：

BR： 为公司代码

MJD112： 为产品型号

\*\*\*\*： 为生产批号代码，随生产批号变化。

Note:

BR: Company Code

MJD112: Product Type.

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

**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 25~150°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:25~150°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
TO-252	2,500	2	5,000	5	25,000	13" × 16	360×360×50	385×257×392

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-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**