

BRMJD31CDPQ

Rev.A Jan.-2023

描述 / Descriptions

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

特征 / Features

$BV_{CEO} > 100V$;

$I_C = 3A$ high Continuous Collector Current;

$I_{CM} = 5A$ Peak Pulse Current;

符合 AEC-Q101 标准高可靠性要求，无卤产品。

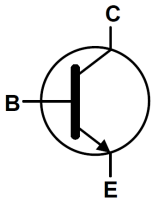
Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

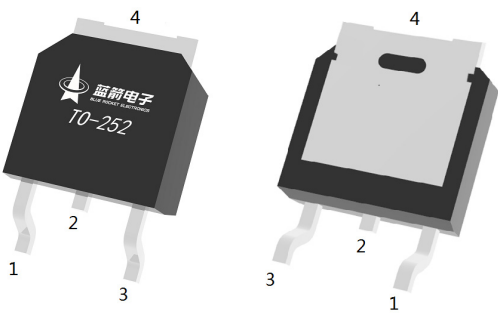
电源开关或放大应用，满足汽车应用的严格要求。

Power Switching or Amplification Applications, Meet the stringent requirements of automotive 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.

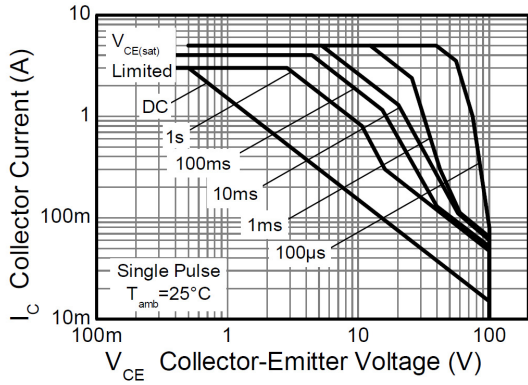
极限参数 / Absolute Maximum Ratings(Ta=25°C)

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}	6	V
Collector Current - Continuous	I _C	3	A
Peak Pulse Collector Current	I _{CM}	5	A
Continuous Base Current	I _B	1	A
Power Dissipation	P _D	1.6	W
Power Dissipation (T _c =25°C)	P _D	15	W
Junction-to-Ambient	R _{θJA}	78	°C/W
Junction-to-Case	R _{θJC}	8.3	°C/W

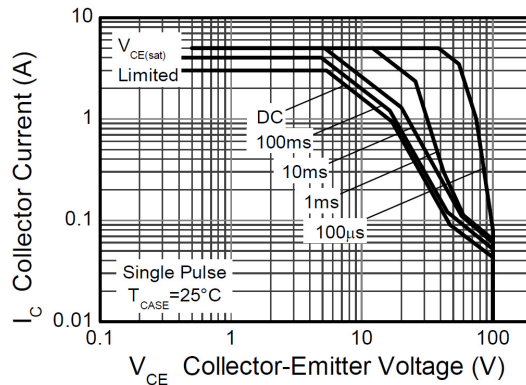
电性能参数 / Electrical Characteristics(Ta=25°C)

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 _{CB} = 60V I _B =0			1	μA
Collector Cut-off Current	I _{CES}	V _{CE} =100V V _{EB} =0			1	μA
Emitter Cut-off Current	I _{EBO}	V _{EB} =5V I _C =0			1	μA
Collector-Emitter Saturation Voltage (Note 10)	V _{CE(sat)}	I _C =4.0A I _B =0.4A			1.2	V
Base-Emitter Turn-On Voltage (Note 10)	V _{BE(on)}	I _C =3A V _{CE} =4V			1.8	V
DC Current Gain (Note 10)	h _{FE}	V _{CE} =5V I _C =1A	70		150	
		V _{CE} =4V I _C =3A	30		80	
Current Signal Current Gain	H _{fe}	V _{CE} =10V f=1KHz I _C =0.5A	20			
Current Gain-Bandwidth Product	f _T	I _C =500Ma f = 1MHz V _{CE} =10V	3.0			MHz

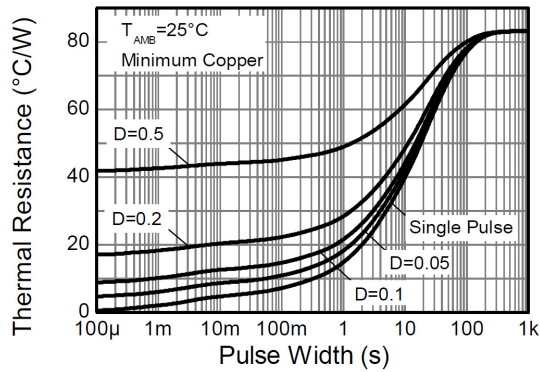
电参数曲线图 / Electrical Characteristic Curve



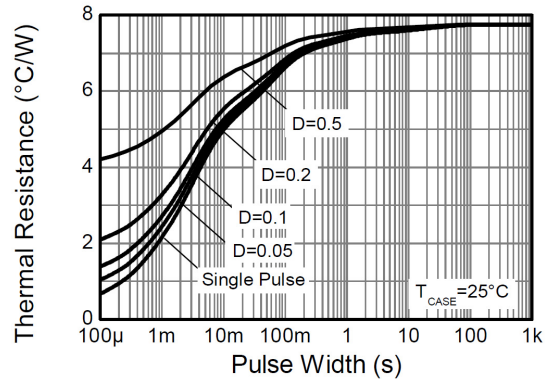
Safe Operating Area



Safe Operating Area



Transient Thermal Impedance



Transient Thermal Impedance

电参数曲线图 / Electrical Characteristic Curve

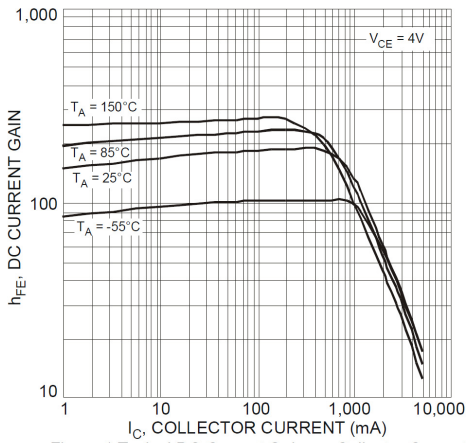


Figure 1 Typical DC Current Gain vs. Collector Current

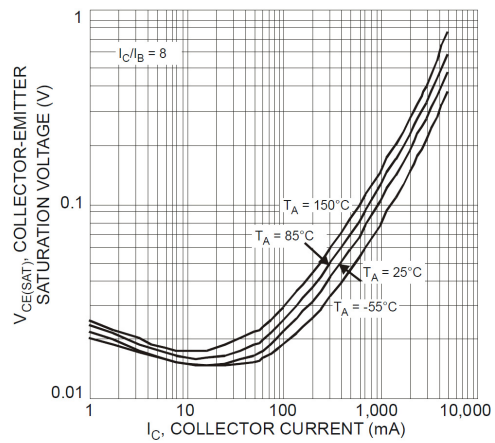


Figure 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current

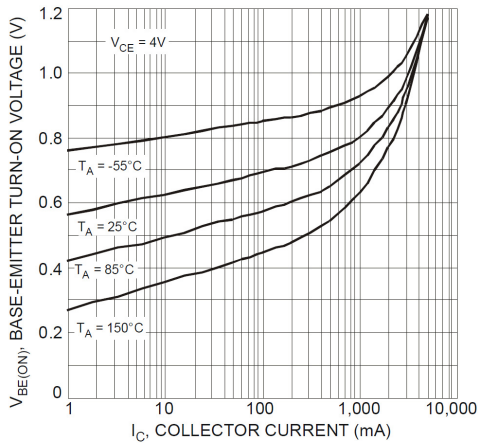


Figure 3 Typical Base-Emitter Turn-On Voltage vs. Collector Current

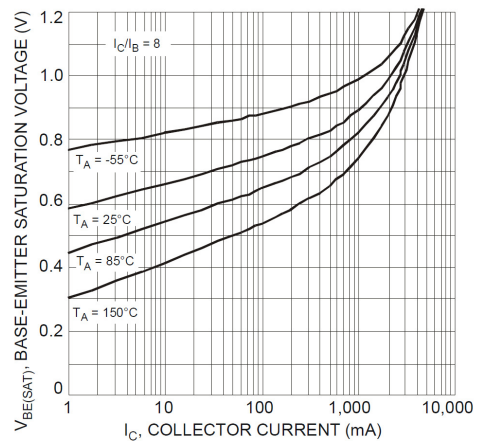
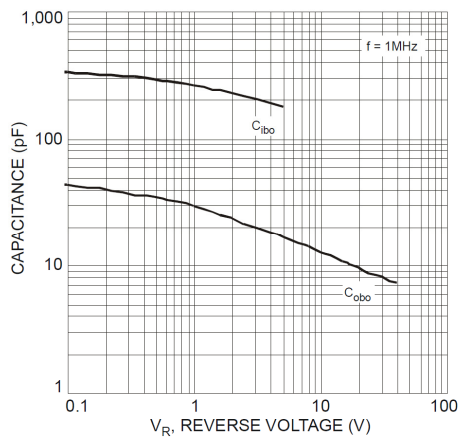
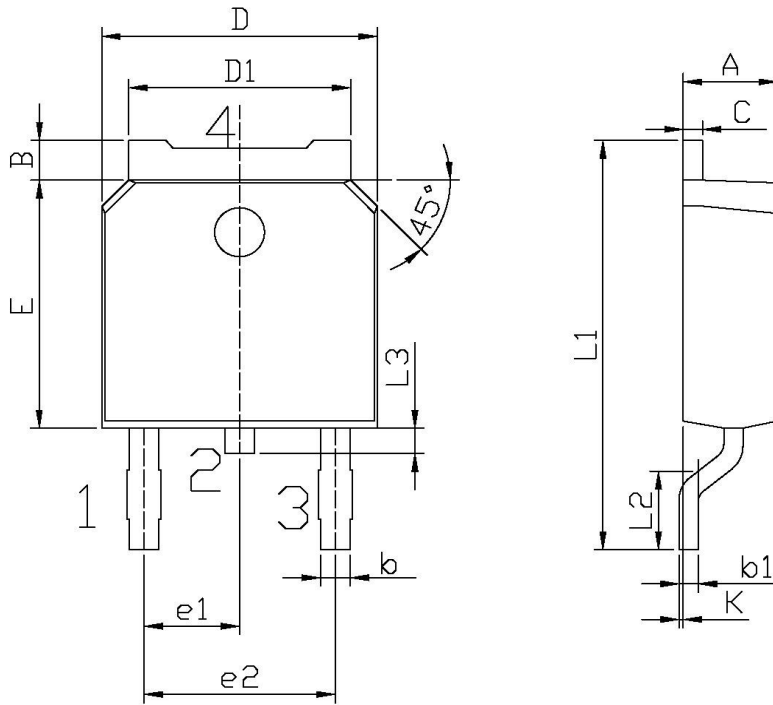


Figure 4 Typical Base-Emitter Saturation Voltage vs. Collector Current



外形尺寸图 / Package Dimensions

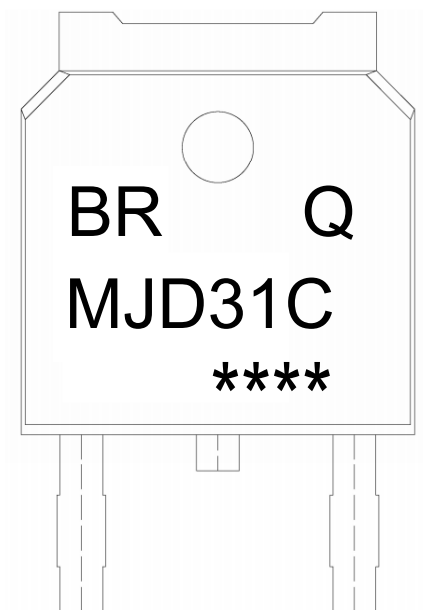


单位: mm

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	0.70	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.85	10.35
C	0.45	0.55	L2	1.70	2.00
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

TO-252

印章说明 / Marking Instructions



说明：

BR： 为公司代码

Q： 为汽车无卤产品标识

MJD31C： 为产品型号

****： 为生产批号代码，随生产批号变化

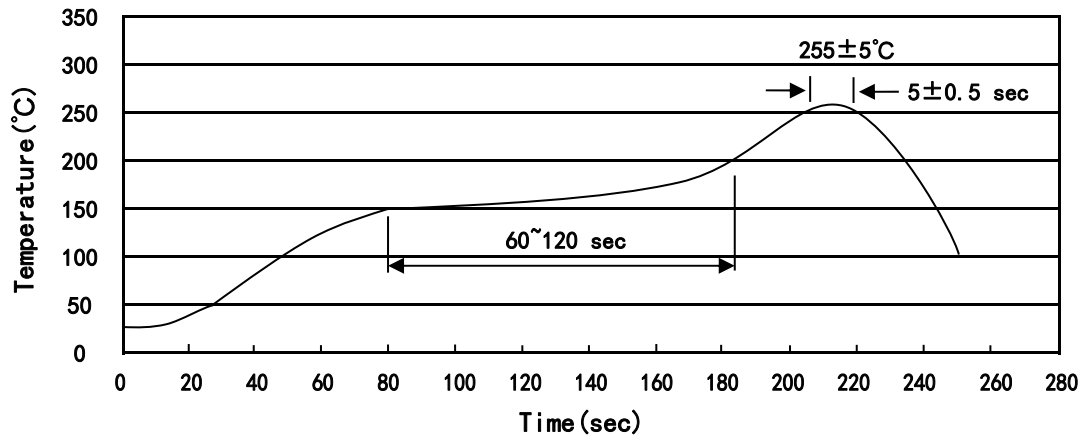
Note:

BR: Company Code

Q: Automobile halogen-free product Code

MJD31C: 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 150~200°C，时间 60~120sec;
- 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:150~200°C, Time:60~120sec.
- 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：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 ³)		
	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	6	30,000	13" ×16	360×360×50	380×335×366

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