2SD1899

Rev.E May.-2016

蓝箭电子 BLUE ROCKET ELECTRONICS

DATA SHEET

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

饱和压降低，电流大，f_T高，极好的放大线性，开关速度快。

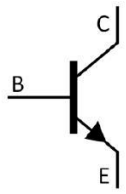
Low $V_{CE(sat)}$, high current and high f_T, excellent linearity of h_{FE}, fast switching time.

用途 / Applications

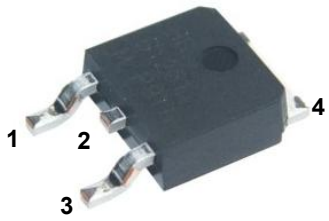
用于继电器驱动电路、高速转换电路、大电流开关电路。

Relay drivers, high-speed inverters, general high-current 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

h_{FE} Classifications Symbol	M	L	K
h_{FE} Range	100～200	160～320	200～400

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

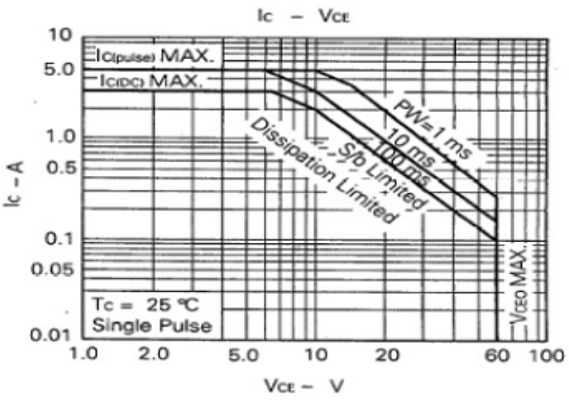
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	60	V
Emitter to Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous	I_C	3.0	A
Collector Power Dissipation*	*P_C	2.0	W
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃

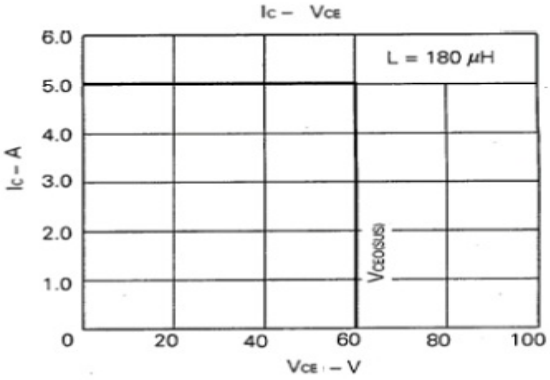
*在 7.5×7.5×0.7mm 陶瓷板上。
*When mounted on a 7.5×7.5×0.7mm ceramic board

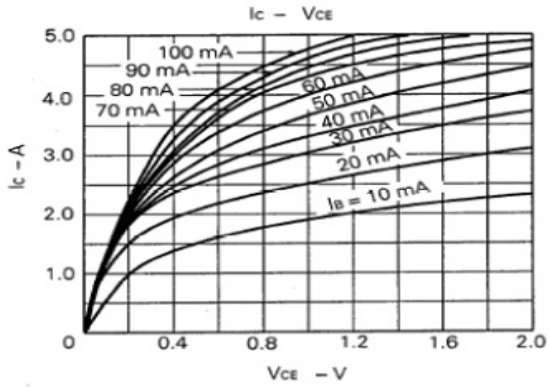
电性能参数 / Electrical Characteristics(Ta=25℃)

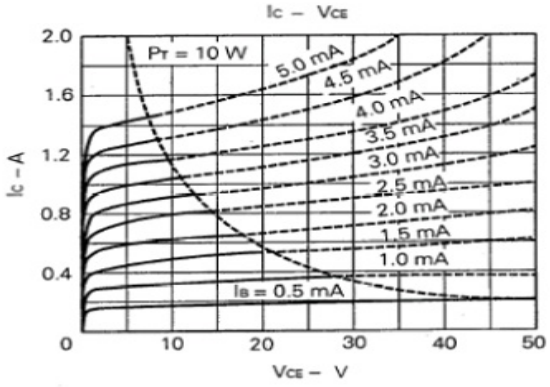
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Base Breakdown Voltage	V_{CBO}	I_C=100μA I_E=0	60			V
Collector to Emitter Breakdown Voltage	V_{CEO}	I_C=1.0mA I_B=0	60			V
Emitter to Base Breakdown Voltage	V_{EBO}	I_E=100μA I_C=0	7.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=60V I_E=0			10.0	μA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=7.0V I_C=0			10.0	μA
DC Current Gain	$h_{FE(1)}$	V_{CE}=2.0V I_C=600mA	100		400	
	$h_{FE(2)}$	V_{CE}=2.0V I_C=200mA	60			
	$h_{FE(3)}$	V_{CE}=2.0V I_C=2.0A	50			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=1.5A I_B=150mA			0.25	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=1.5A I_B=150mA			1.2	V
Transition Frequency	f_T	V_{CE}=5.0V I_C=1.5A		120		MHz
Collector output capacitance	C_{ob}	V_{CB}=10V I_E=0 f=1.0MHz		30		pF
Turn-On Time	t_{on}	V_{CC}=10V I_C=1A I_{B1}=-I_{B2}=-0.1			0.5	μs
Storage Time	t_{stg}				2.0	μs
Fall Time	t_f				0.5	μs

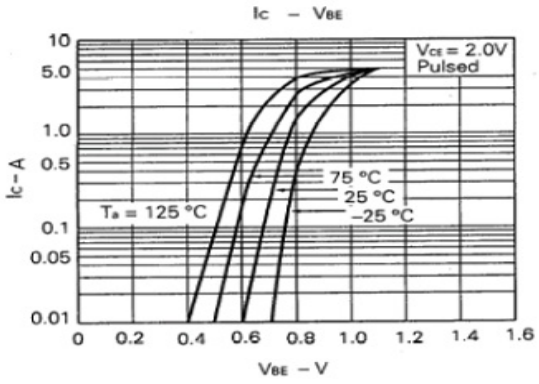
电参数曲线图 / Electrical Characteristic Curve

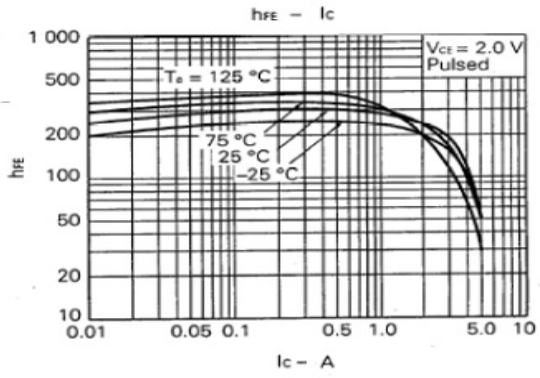


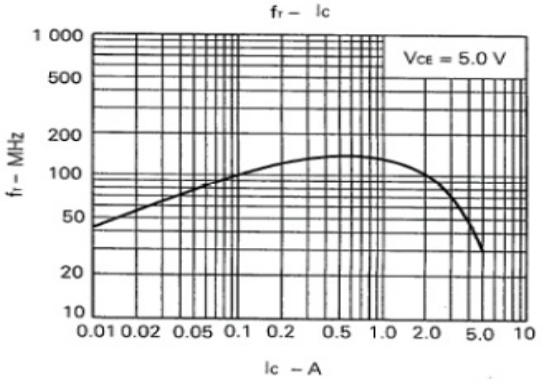


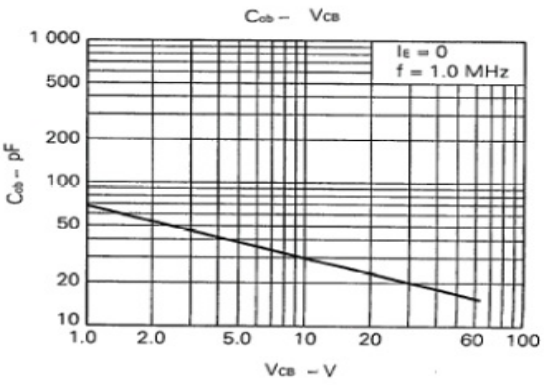




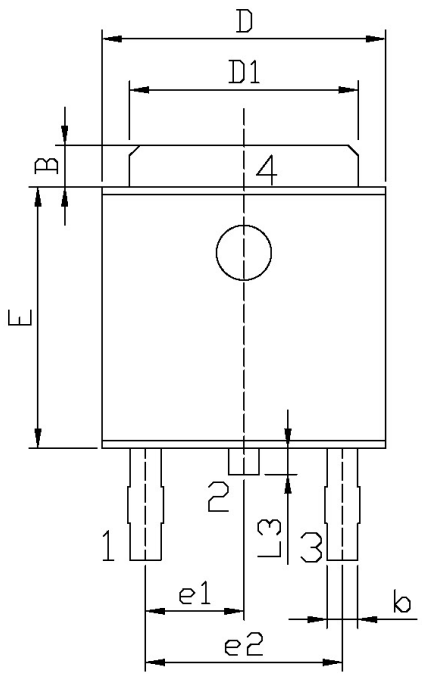


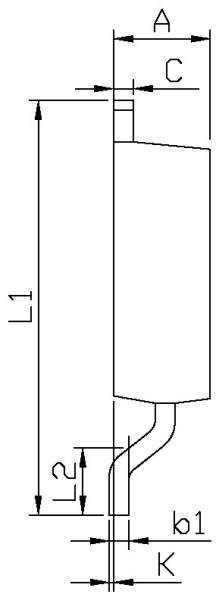






外形尺寸图 / Package Dimensions



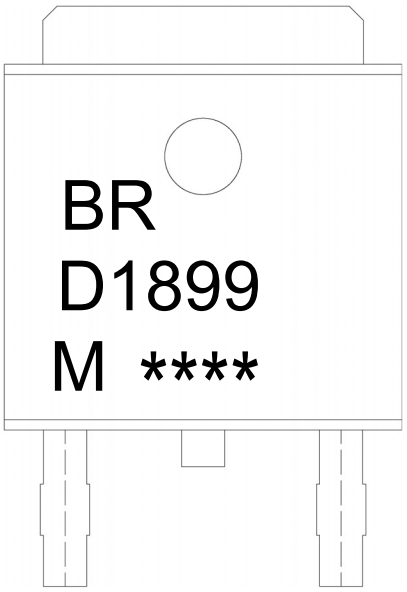


单位：mm

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

TO-252

印章说明 / Marking Instructions



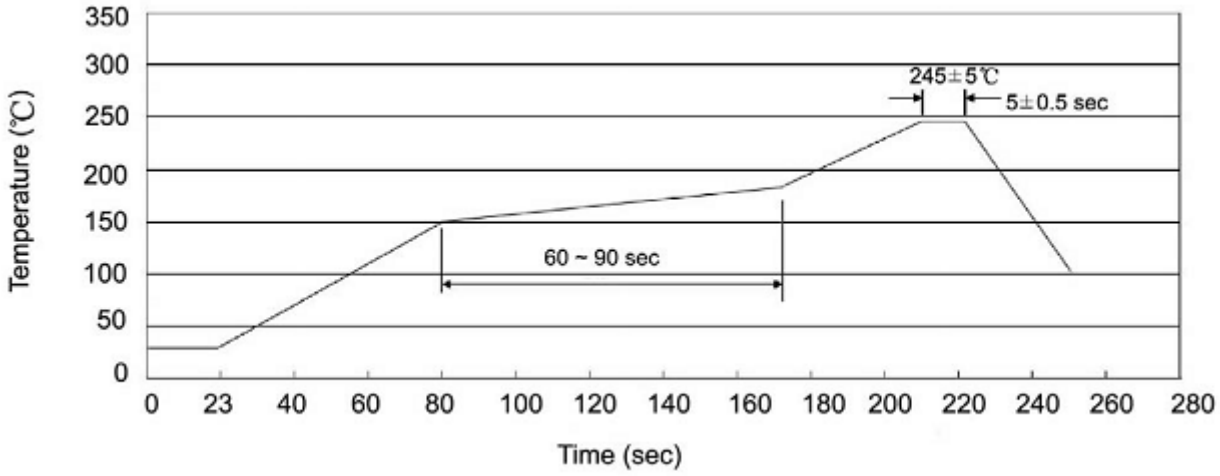
说明：

BR：	为公司代码
D1899：	为型号代码
M:	为 h_{FE} 分档代码
****：	为生产批号代码，随生产批号变化

Note:

BR:	Company Code
D1899:	Product Type.
M:	h_{FE} Classifications Symbol
****:	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℃，时间 60～90sec;

2、峰值温度 245±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:25~150℃, Time:60~90sec.

2.Peak Temp.:245±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5℃　　时间：10±1 sec.　　Temp.:260±5℃　　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: mm³)		
	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: mm³)		
	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