

/ Descriptions

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

/ Features

饱和压降小， h_{FE} 高且线性好，符合 AEC-Q101 标准高可靠性要求，无卤产品。

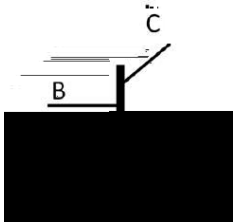
Low saturation voltage, excellent h_{FE} linearity and high h_{FE} , Qualified to AEC-Q101 Standards for High Reliability, HF Product.

/ Applications

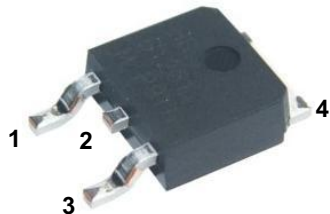
用于 3 瓦音频放大输出，电压调节器，电源转换和继电器驱动，满足汽车应用的严格要求。

Output stage of 3 watts audio amplifier, voltage regulator, DC-DC converter and relay driver, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 : Base

PIN 2,4 : Collector

PIN 3 : Emitter

/ h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	R	Q	P	E
h_{FE} Range	60~120	100~200	160~320	200~400

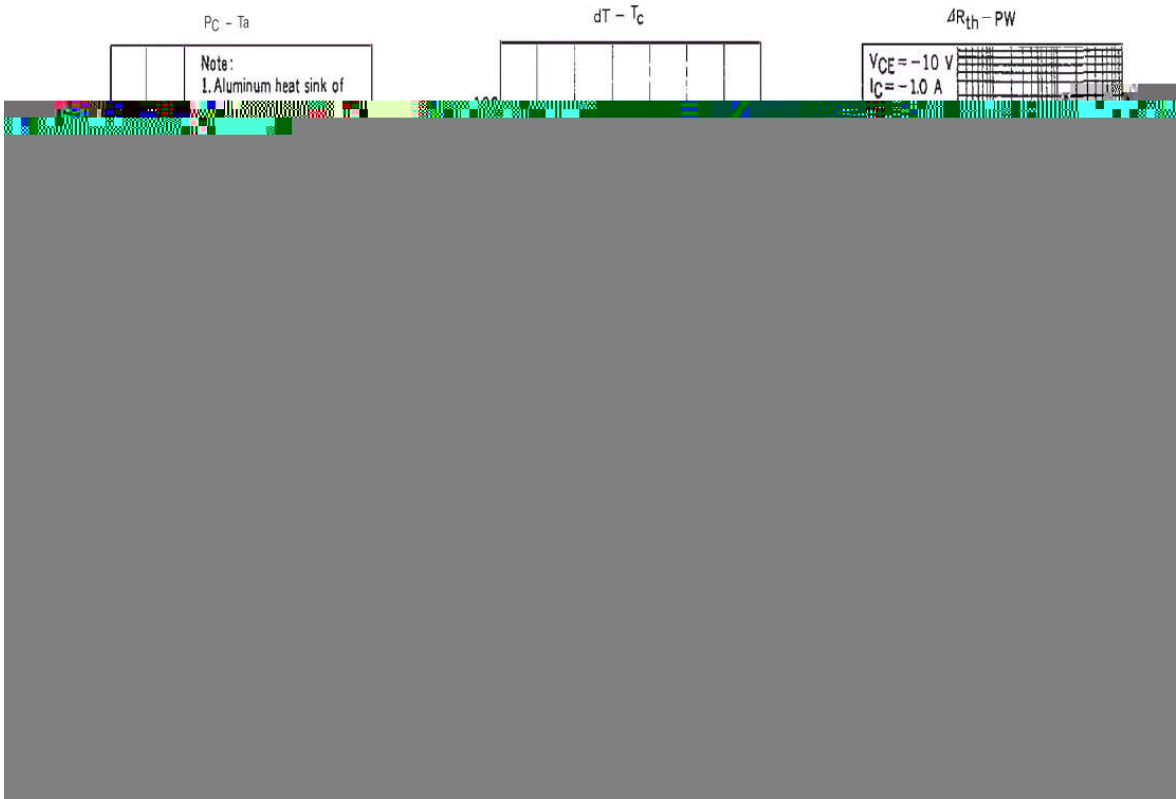
/ Absolute Maximum Ratings($T_a=25$)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-40	V
Collector to Emitter Voltage	V_{CEO}	-30	V
Emitter to Base Voltage	V_{EBO}	-5.0	V
Collector Current - Continuous	I_C	-3.0	A
Collector Power Dissipation	P_C	1.0	W
	$P_C(T_C=25^\circ\text{C})$	10	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~150	$^\circ\text{C}$

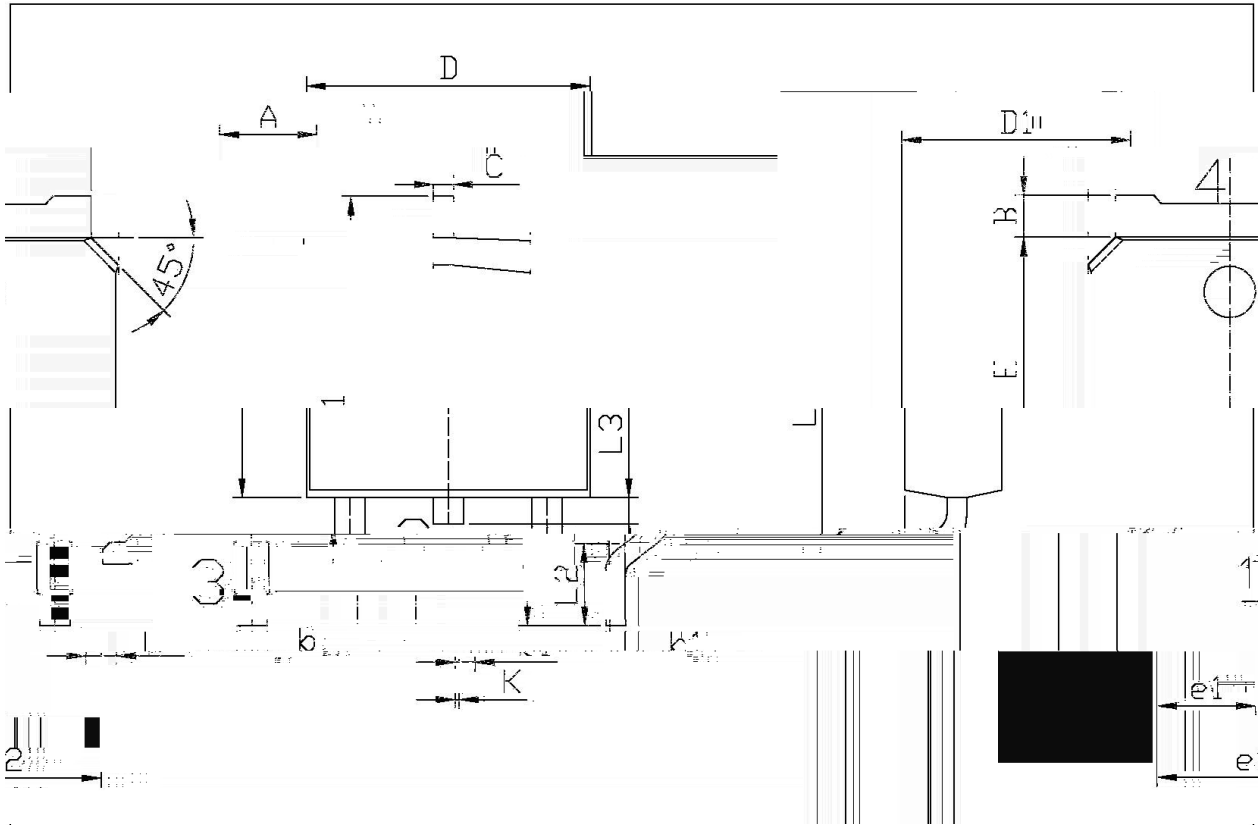
/ Electrical Characteristics($T_a=25$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=-100\mu\text{A}$ $I_E=0$	-40			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=-1\text{mA}$ $I_B=0$	-30			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=-10\mu\text{A}$ $I_C=0$	-5.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=-30\text{V}$ $I_E=0$			-1.0	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=-3.0\text{V}$ $I_C=0$			-1.0	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-2.0\text{V}$ $I_C=-1.0\text{A}$	60	160	400	
	$h_{FE(2)}$	$V_{CE}=-2.0\text{V}$ $I_C=-20\text{mA}$	30	220		
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-2.0\text{A}$ $I_B=-0.2\text{A}$		-0.3	-0.5	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-2.0\text{A}$ $I_B=-0.2\text{A}$		-1.0	-2.0	V
Transition Frequency	f_T	$I_C=-1.0\text{A}$ $V_{CE}=-5.0\text{V}$		80		MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10\text{V}$ $f=1.0\text{MHz}$ $I_E=0$		55		pF

/ Electrical Characteristic Curve



/ Package Dimensions



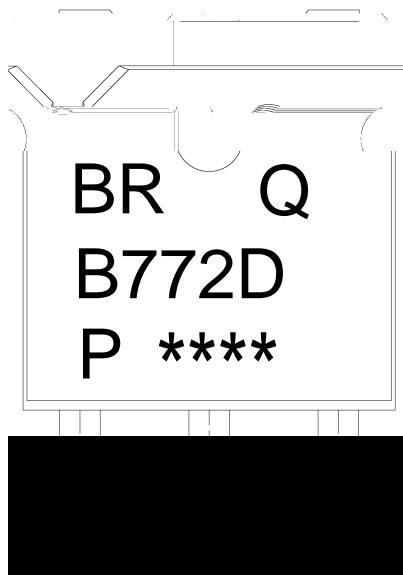
单位: mm

Dimensions in Millimeters		Symbol	Dimensions in Millimeters		Symbol
Min	Max		Min	Max	
7.95	8.35	A	2.20	2.40	B
2.24	2.32	B	0.95	1.25	C
4.48	4.73	C	0.70	0.90	D
9.85	10.35	D	0.45	0.55	E
2.00	0.45	L1	0.50	0.70	L2
0.90	6.45	D	6.75	0.60	L3
0.30	5.10	D1	5.50	0.00	K

T0-252



/ Marking Instructions



BR

Q

B772D

P: h

Note:

BR: Company Code

Q: Automobile halogen-free product Code

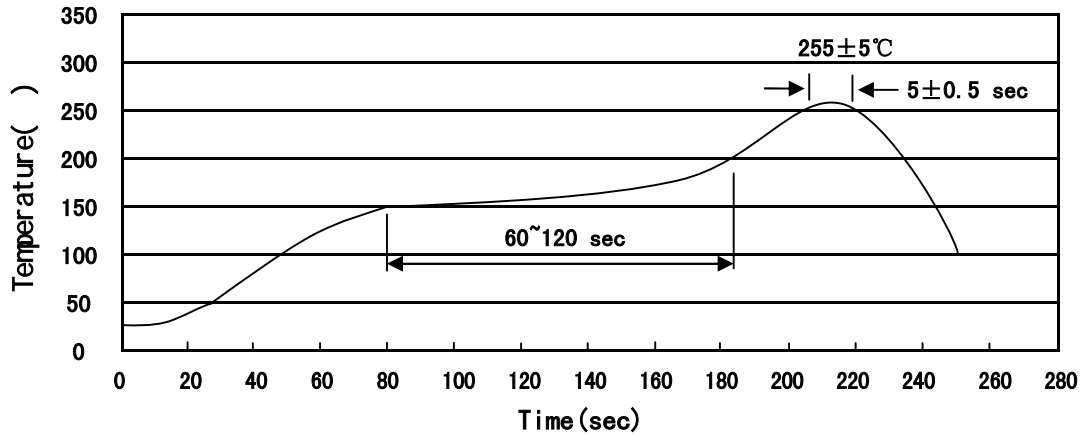
B772D: Product Type Code

P: h_{FE} Classifications Symbol

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



() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1 150 200 60 120sec; 1.Preheating:150~200°C, Time:60~120sec.
- 2 255±5 5±0.5sec; 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
- 3 2 10°C/sec. 3. Cooling Speed: 2~10°C/sec.

/ Resistance to Soldering Heat Test Conditions

260±5°C 10±1 sec. Temp.:260±5°C Time:10±1 sec

/ Packaging SPEC.

/ 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

/ 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

/ Notices