

/ Revised record

E	2016-5				
F	2020-4-27	1			
A	2021-12-17	all	BR Q 4R Q AEC-Q101 , Q 245±5°C 5±0.5sec 255±5°C 5± 0.5sec		

/ 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。

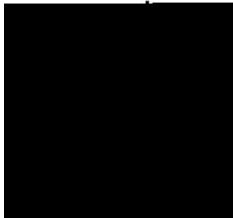
Low saturation voltage, excellent h_{FE} linearity and high h_{FE} , Qualified to AEC-Q101 Standards for High Reliability, HF Product.

/ Applications

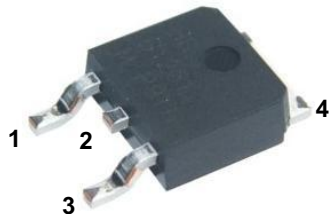
用于 3 瓦音频放大输出，电压调节器，电源转换和继电器驱动，满足汽车应用的严格要求。

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(Ta=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	$^{\circ}\text{C}$

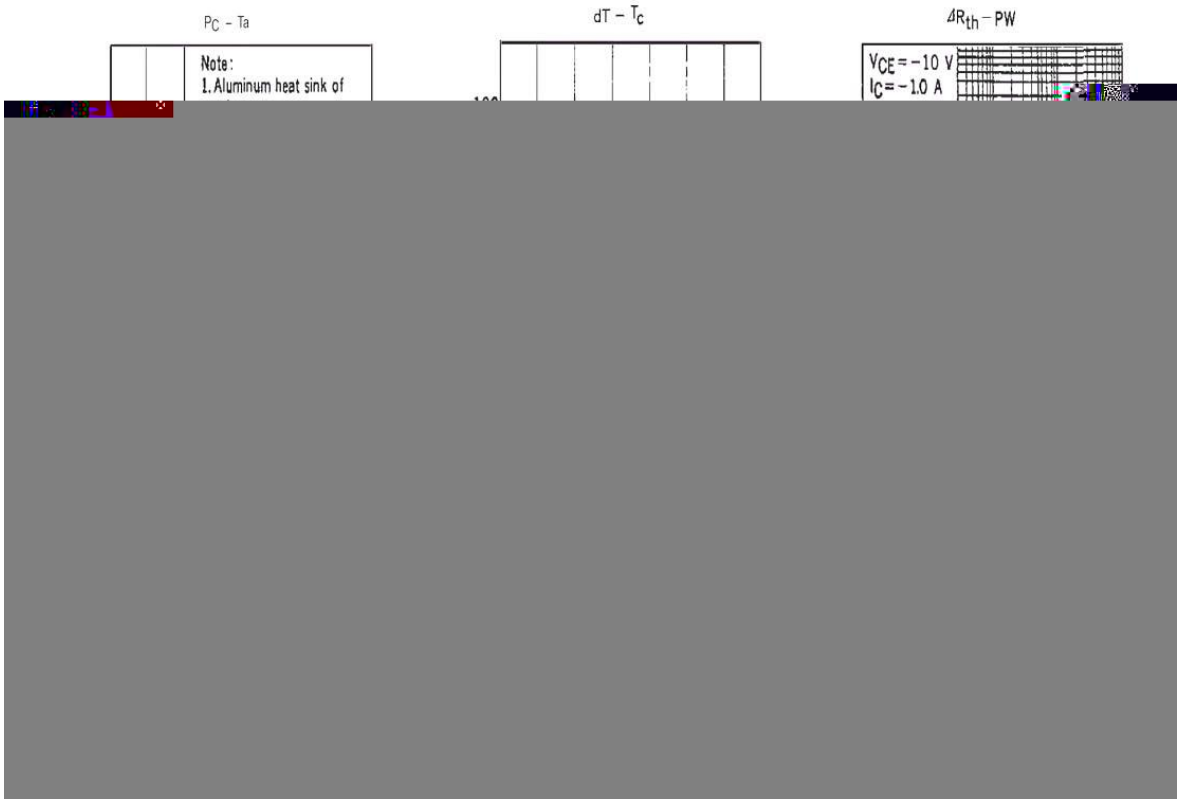
/ Electrical Characteristics(Ta=25)

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}	$V_{CB}=-10\text{V}$ $I_E=0$ $f=1.0\text{MHz}$		55		pF

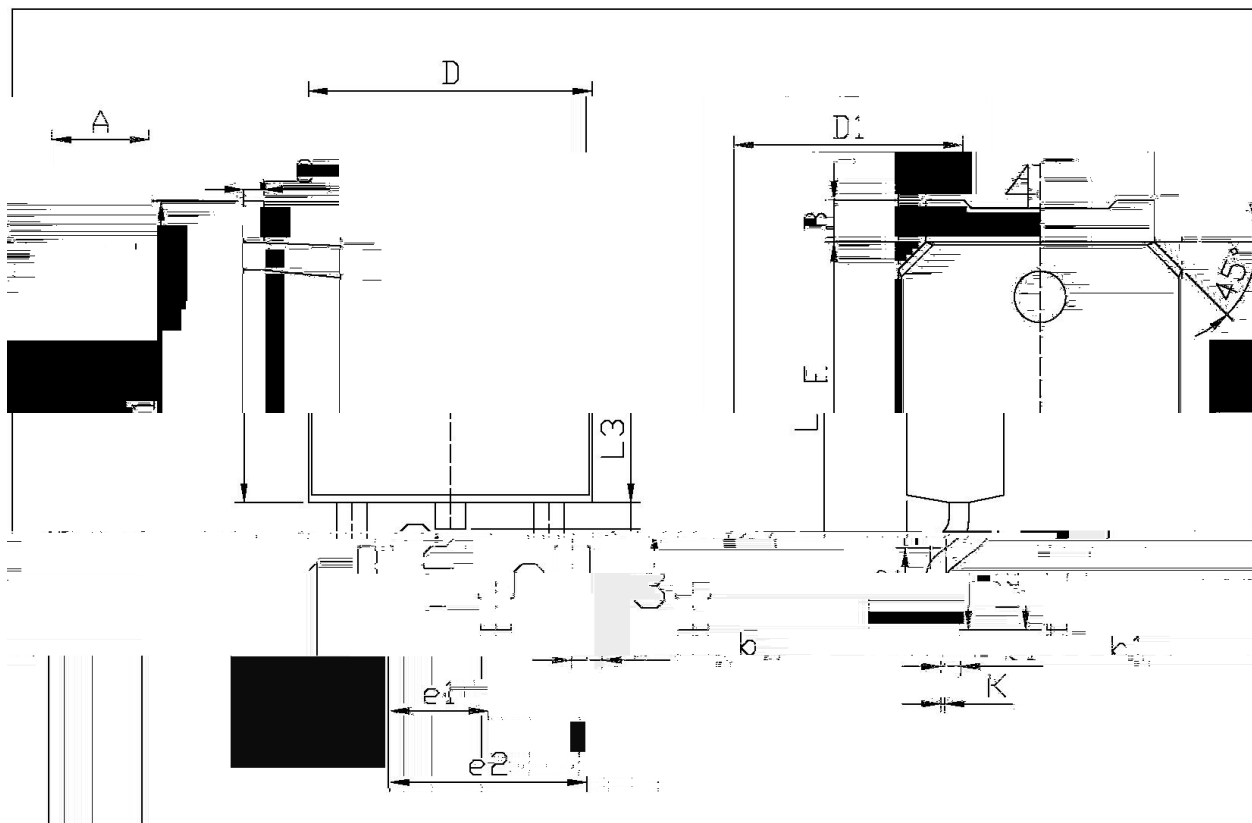
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值 测

/ Electrical Characteristic Curve



/ Package Dimensions

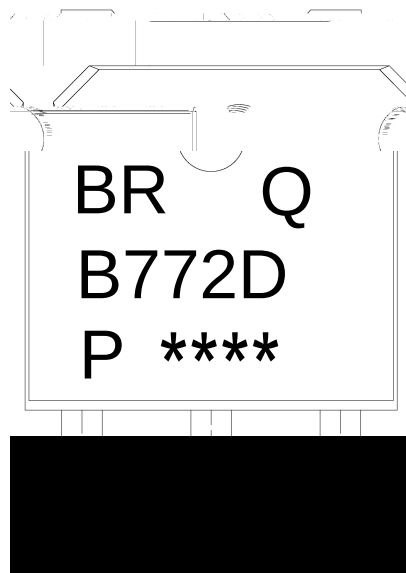


单位: mm

Dimensions in Millimeters				Dimensions in Millimeters				
Symbol	Min	Max	Symbol	Min	Max	Symbol	Min	Max
A	2.20	2.40	B	5.05	6.35	a1	2.24	2.40
D	0.95	1.25	e1	4.43	4.68	e2	4.43	4.68
D1	0.70	0.90	L1	9.85	10.16	L3	0	0
E	0.45	0.55	L	6.75	7.14	K	0	0
L	6.75	7.14	L3	0	0	K	0	0
L3	0	0						
K	0	0						

T0-252

/ Marking Instructions



BR

Q

B772D

P: h

Note:

BR: Company Code

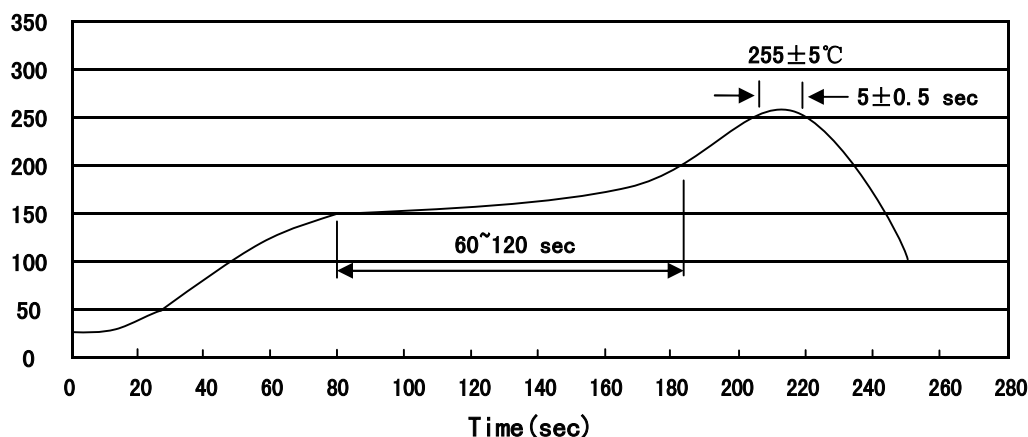
Q: Automobile halogen-free product Code

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