/ Revised record

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

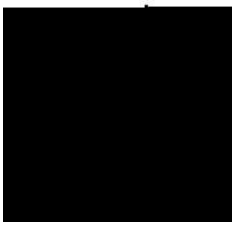
/ Features

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.

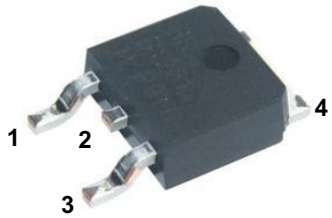
/ Applications

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

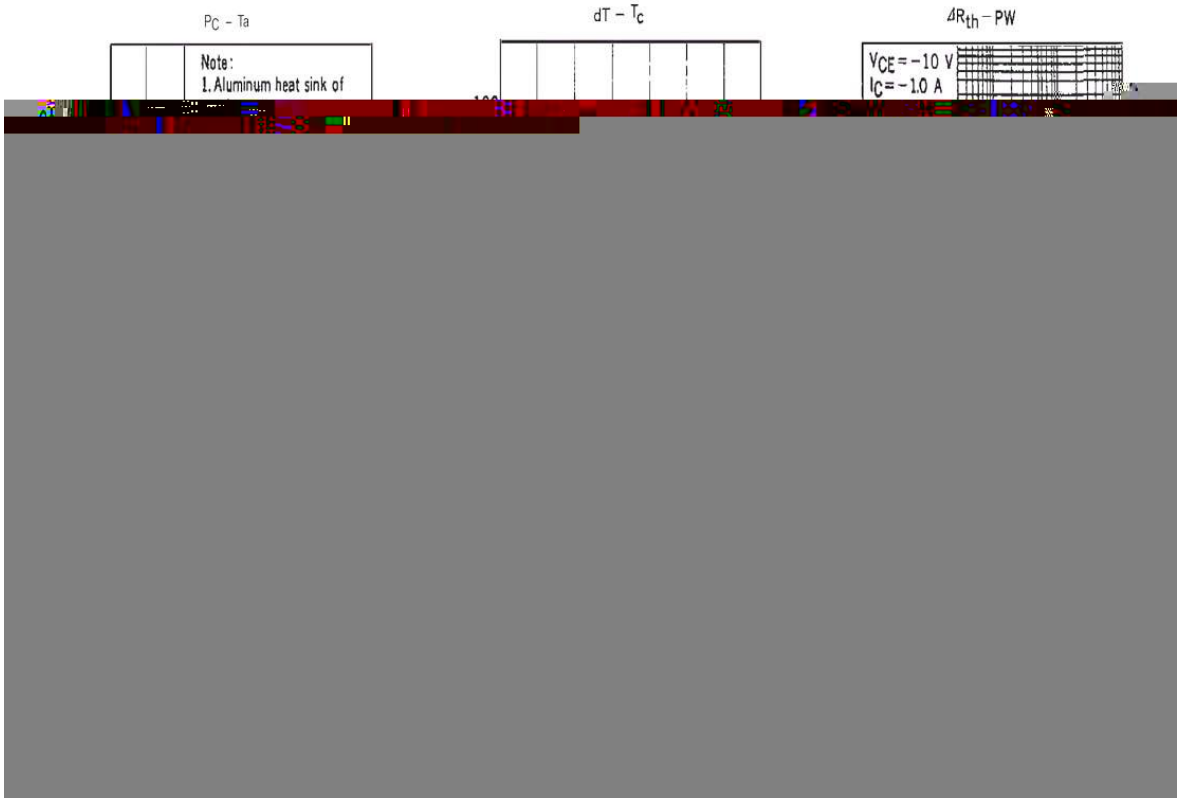
/ Absolute Maximum Ratings(Ta=25)

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
	$P_C(T_C=25℃)$	10	W
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃

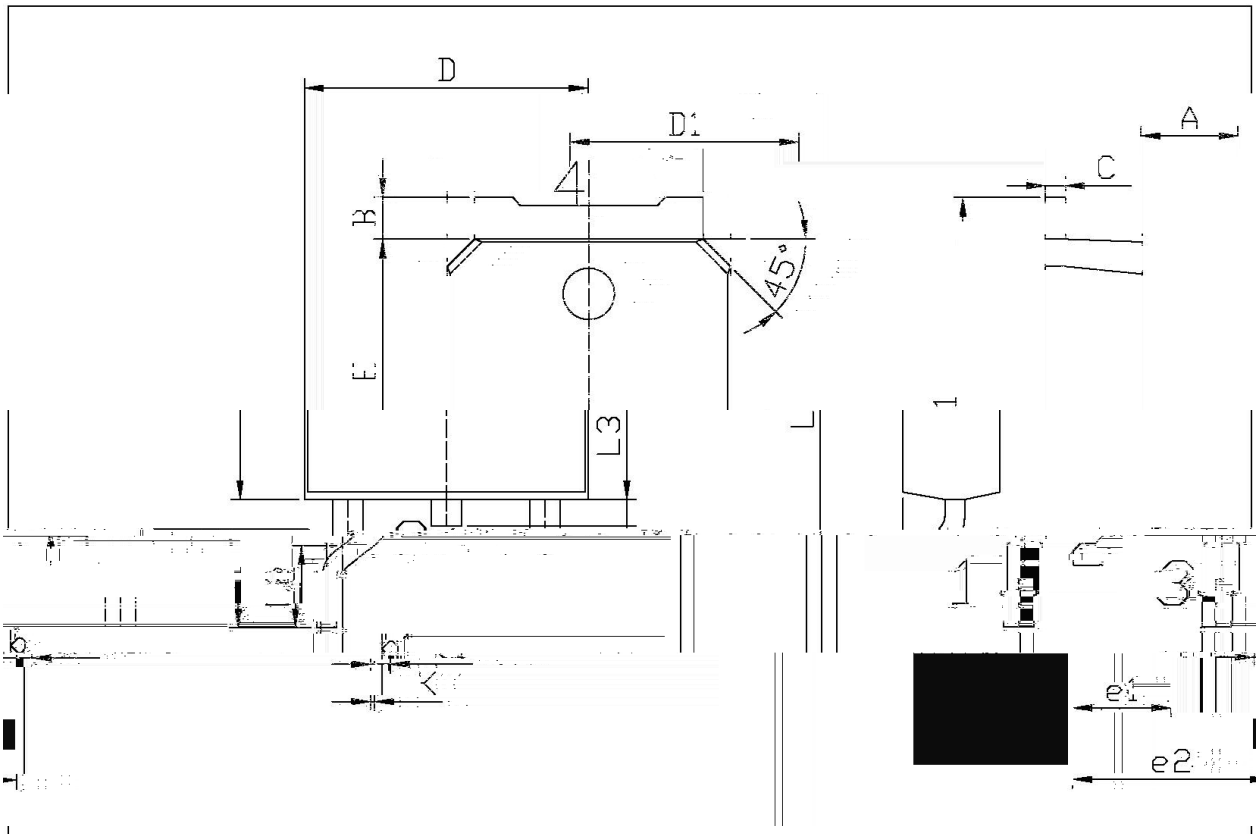
/ Electrical Characteristics(Ta=25)

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

/ Electrical Characteristic Curve



/ Package Dimensions

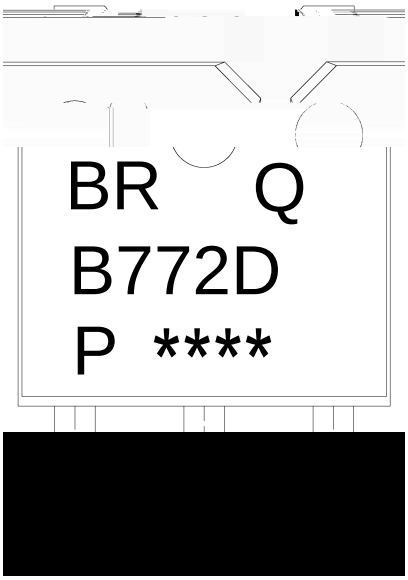


单位：mm

Dimensions In Millimeters				Dimensions In Millimeters	
Symbol	Min	Max	Symbol	Min	Max
A	2.20	2.40	e	2.24	2.34
b	0.70	0.90	e1	4.49	4.73
b1	0.45	0.55	e2	9.80	10.35
c	0.45	0.60	L1	2.70	2.90
c1	0.40	0.55	L2	0.90	1.25
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

TO-252

/ Marking Instructions



BR

Q

B772D

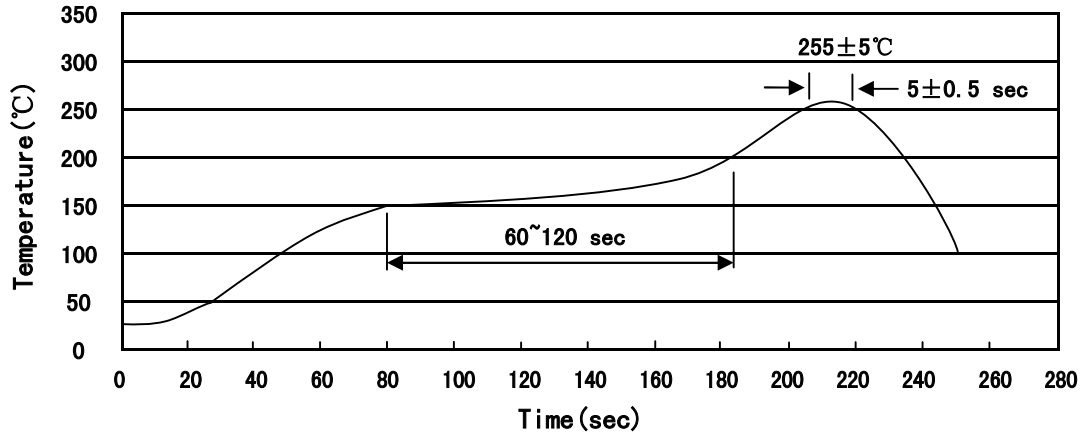
P: h

****

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℃, Time:60~120sec.
2	255±5			5±0.5sec;	2.Peak Temp.:255±5℃, Duration:5±0.5sec.
3		2	10℃/sec.		3. Cooling Speed: 2~10℃/sec.

/ Resistance to Soldering Heat Test Conditions

260±5℃ 10±1 sec. Temp.:260±5℃ 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