

/ Descriptions

TO-220F NPN Silicon NPN transistor in a TO-220F Plastic Package.

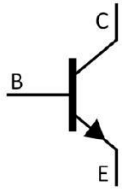
/ Features

h_{FE} , , , , 2SA1964
Flat DC current gain characteristics, High breakdown voltage, high f_T , wide SOA complements the 2SA1964.

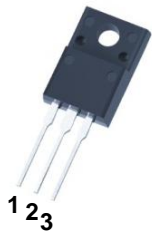
/ Applications

(,)
High-voltage Switching(Audio output amplifier transistor, stabilized power supply transistor).

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Collector PIN 3 Emitter

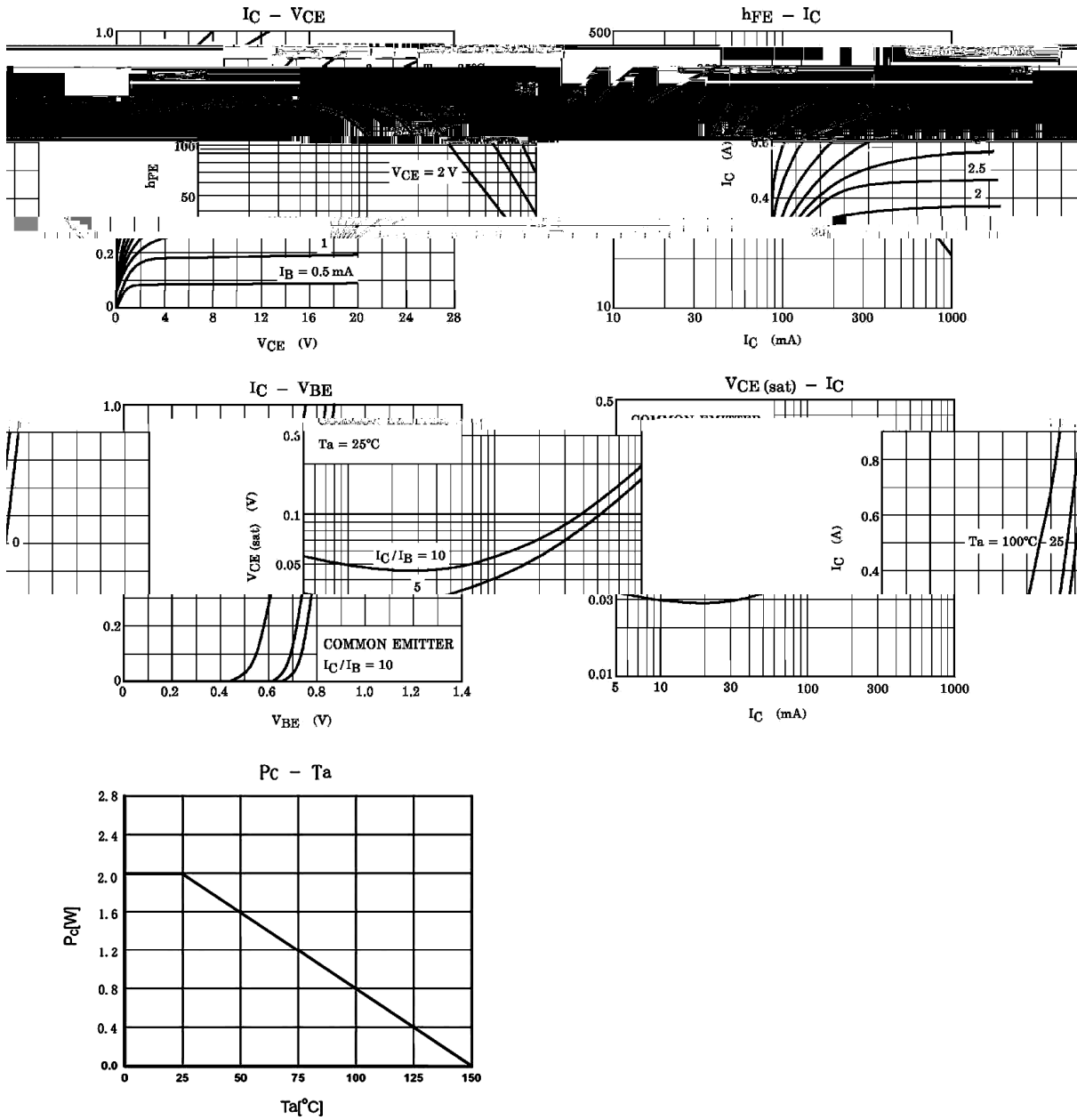
/ h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	D	E
h_{FE} Range	60 120	100 200

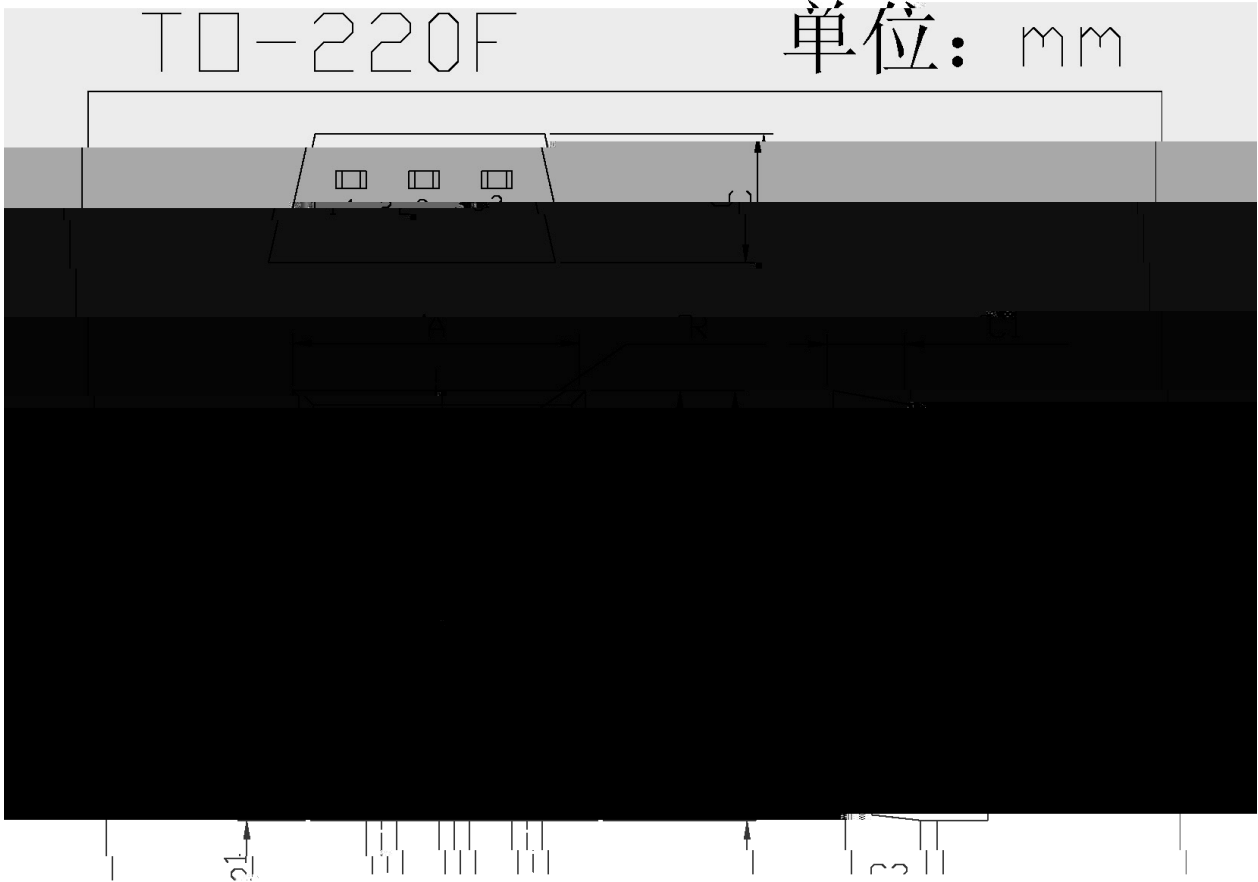
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	160	V
Collector to Emitter Voltage	V_{CEO}	160	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous	I_C	1.5	A
Collector Power Dissipation	P_C	2.0	W
	$P_C(T_C=25^\circ\text{C})$	20	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~150	$^\circ\text{C}$

Parameter Symbol Test Conditions Min Max

/ Electrical Characteristic Curve

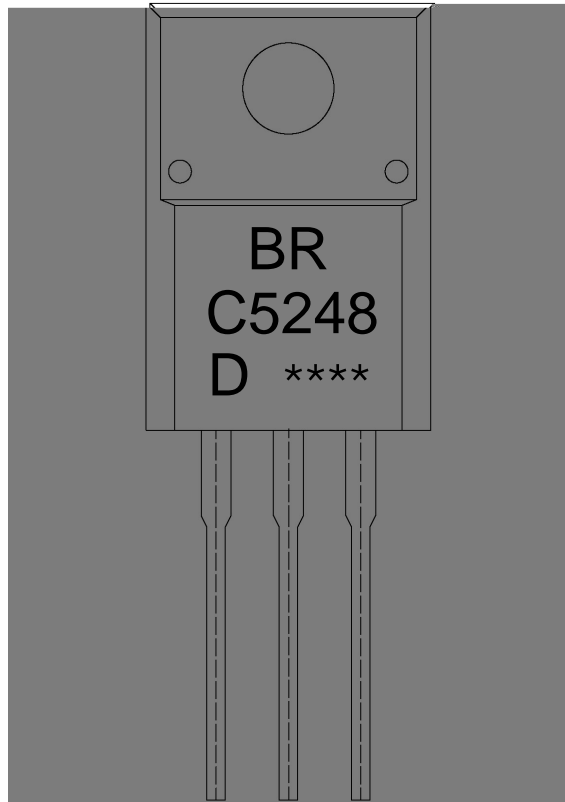


/ Package Dimensions



Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min	Max	Symbol	Min	Max
C	4.3	4.7	b1	2.9	3.9
A	9.7	10.3	a	0.55	0.75
B	14.7	15.3	E	2.29	2.79
b1	2.9	4.0	E1	2.29	2.79
R2	2.9	3.1	C1	2.5	2.8
R	3.0	3.4	C2	2.5	2.7
b	12.5	13.5	c	0.5	0.7

/ Marking Instructions



BR

C5248

D: h_{FE}

Note:

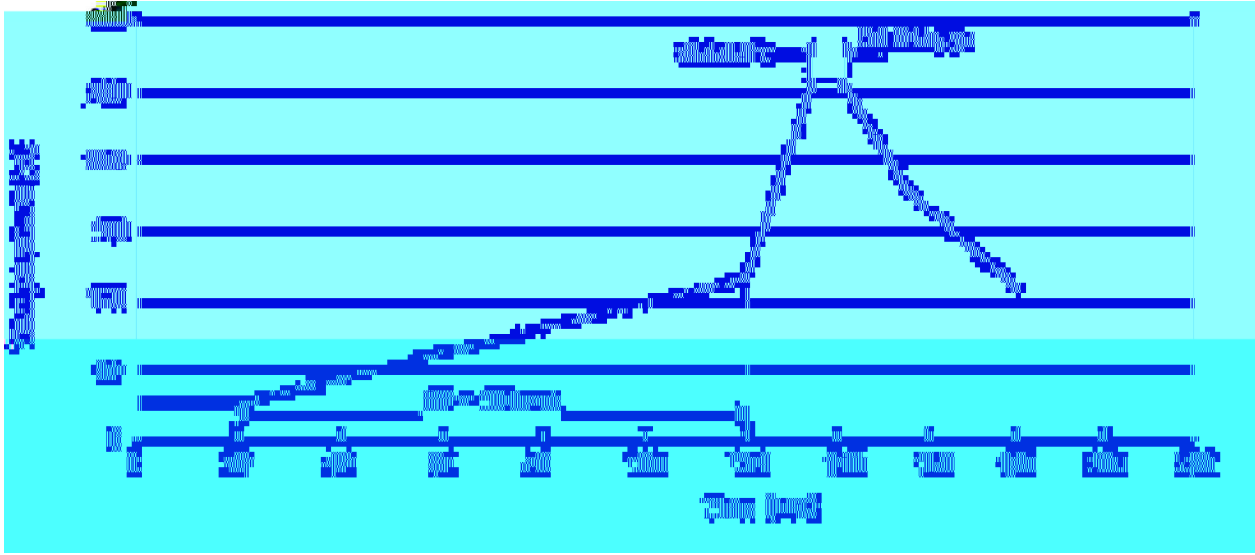
BR: Company Code.

C5248: Product Type.

D: h_{FE} Classifications Symbol.

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

() / Temperature Profile for Dip Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-------|-----|-----------|--------|---|
| 1 | 25 | 150 | 60 | 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 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

270±5 10±1 sec. Temp.:270±5°C Time:10±1 sec

/ Packaging SPEC.

/ BULK

Package Type	Units					Dimension (unit mm ³)		
	Units/Bag /	Bags/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Bag	Inner Box	Outer Box
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

/ Notices