/ Descriptions

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

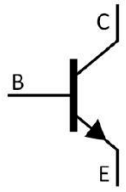
/ Features

High breakdown voltage, low collector output capacitance, wide SOA.

/ Applications

Ideal for Color TV chroma output and amplification of video signals.

/ Equivalent Circuit



/ Pinning

PIN1 Base PIN 2 Collector PIN 3 Emitter

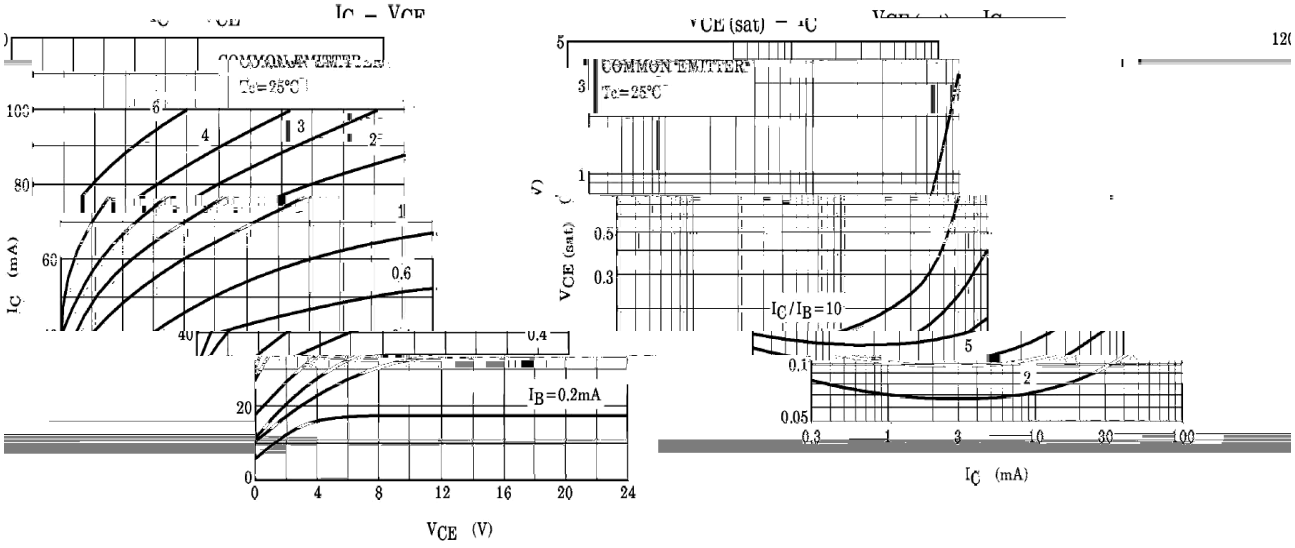
/ h_{FE} Classifications & Marking

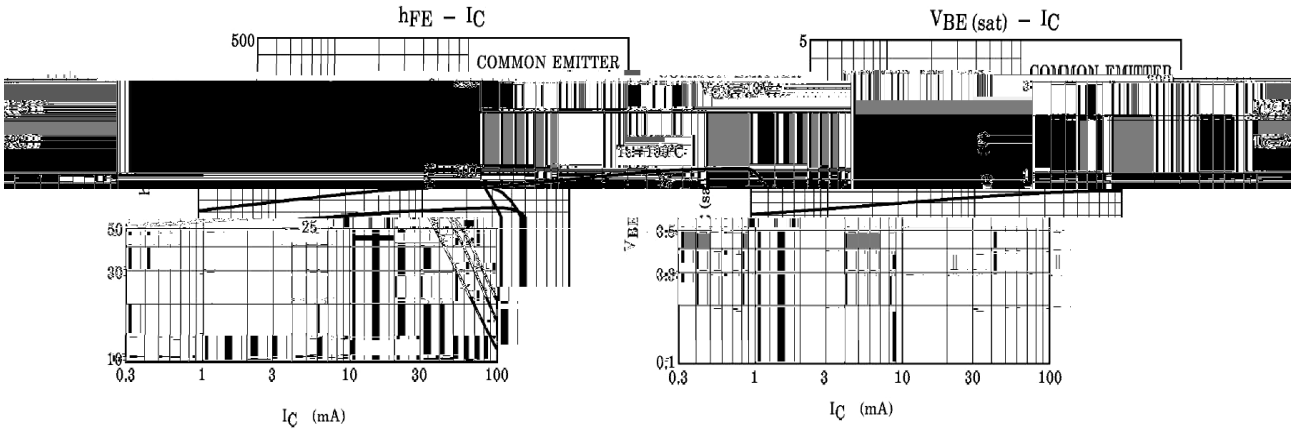
h_{FE} Classifications Symbol	D	E
h_{FE} Range	60～120	100～200

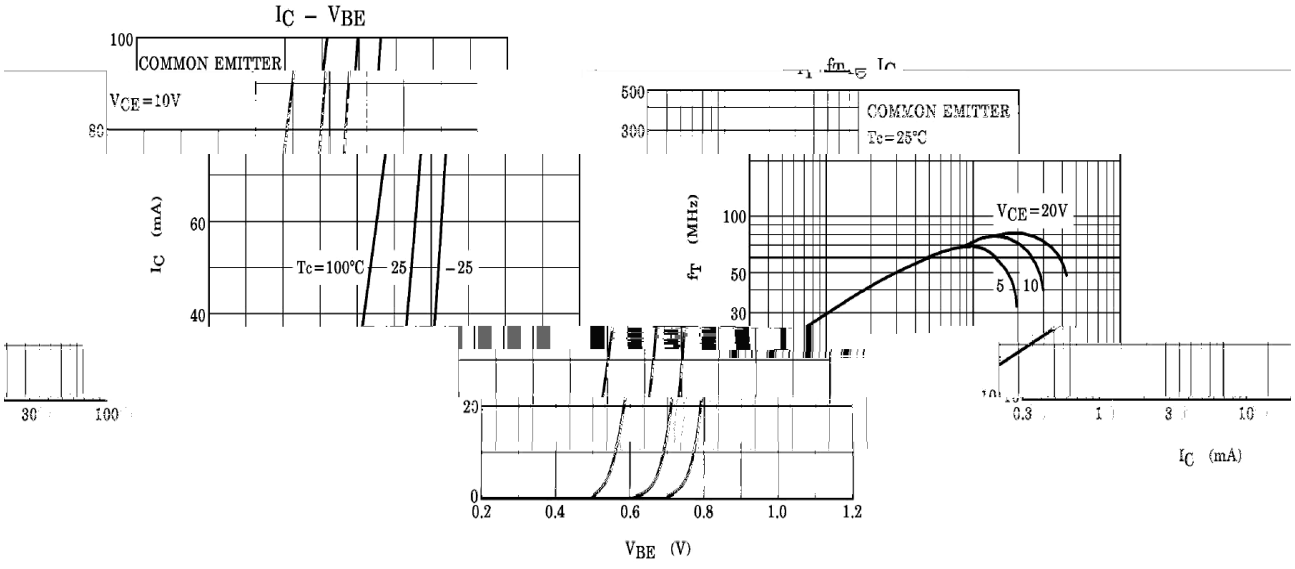
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	300	V
Collector to Emitter Voltage	V_{CEO}	300	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous	I_C	100	mA
Collector Power Dissipation	P_C	2.0	W
Collector Power Dissipation	P_C(Tc=25)	10	W
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55～150	

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	I_C=50μA	I_E=0	300			V
Collector to Emitter Breakdown Voltage	V_{CEO}	I_C=100μA	I_B=0	300			V
Emitter to Base Breakdown Voltage	V_{EBO}	I_E=50μA	I_C=0	5.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=200V	I_B=0			0.5	μA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=4.0V	I_B=0			0.5	μA
DC Current Gain	h_{FE}	V_{CE}=10V	I_C=10mA	60		200	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=50mA	I_B=5.0mA		0.2	1.0	V

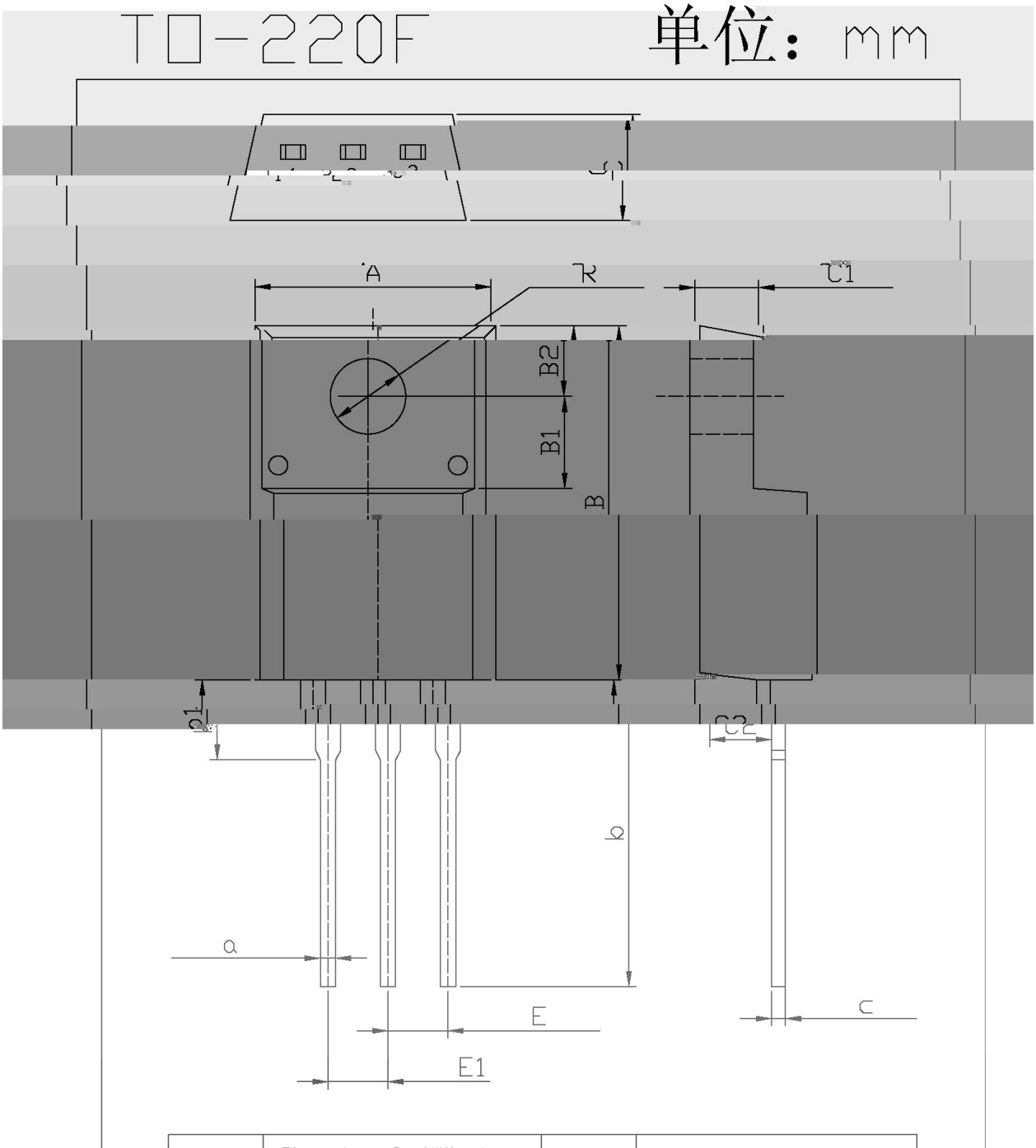
/ Electrical Characteristic Curve





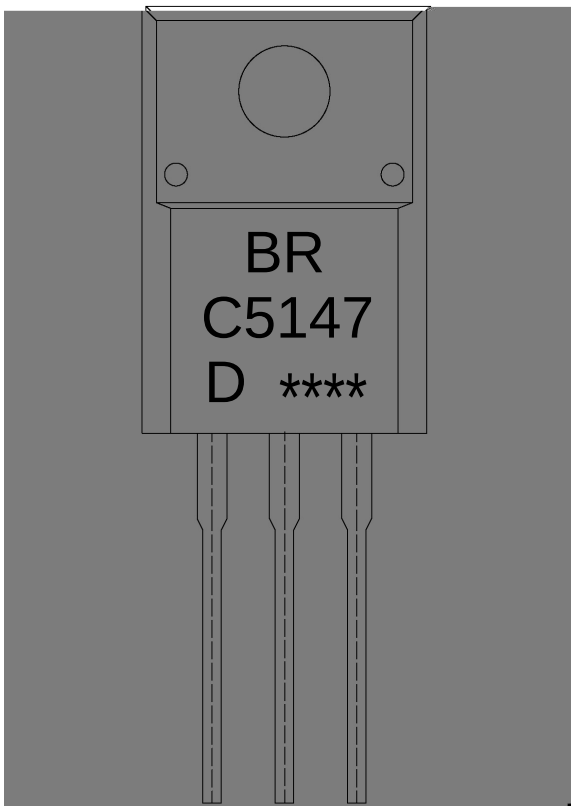


/ Package Dimensions



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	3.8	4.0	E1	2.29	2.79
B2	2.9	3.1	C1	2.5	2.9
R	3.0	3.4	C2	2.5	2.7
b	12.5	13.5	c	0.5	0.7

/ Marking Instructions



BR

C5147

D: h_{FE}

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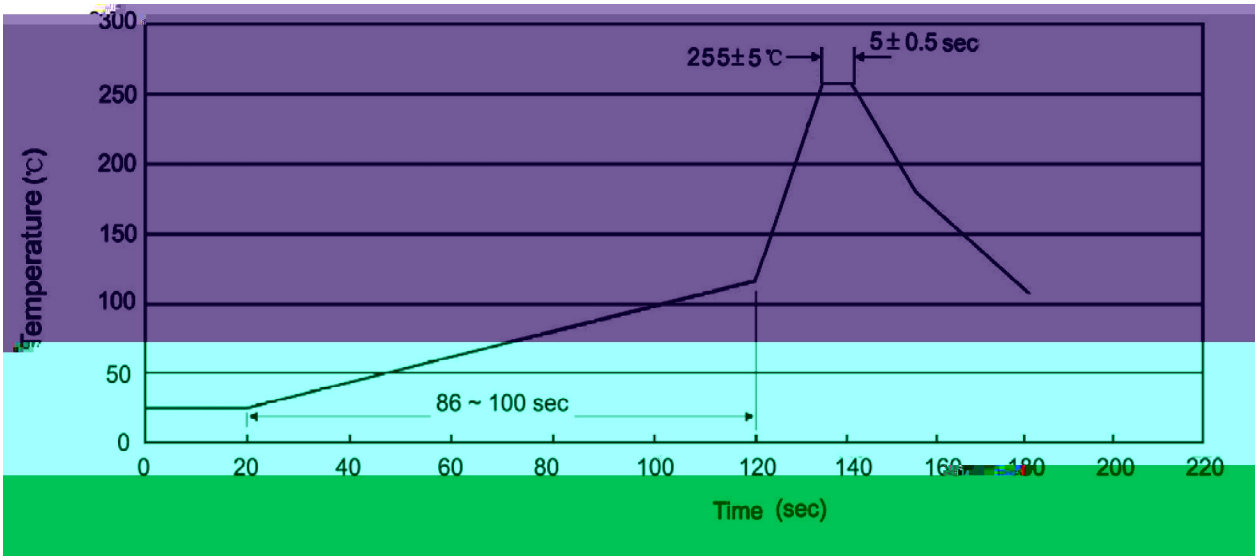
Note:

BR:	Company Code.
C5147:	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;

2 255±5 5±0.5sec;

3 2 10 /sec.

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

2.Peak Temp.:255±5 , Duration:5±0.5sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

/ BULK

Package Type	Units					Dimension		(unit mm³)
	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 mm³)
	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