

**/ Descriptions**

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

**/ Features**

High voltage.

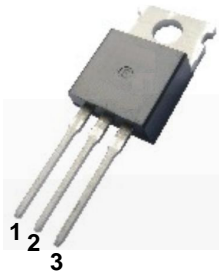
**/ Applications**

High voltage switching and humidifier.

**/ Equivalent Circuit**



**/ Pinning**



PIN1 Base                      PIN 2 Collector                      PIN 3 Emitter

**/  $h_{FE}$  Classifications & Marking**

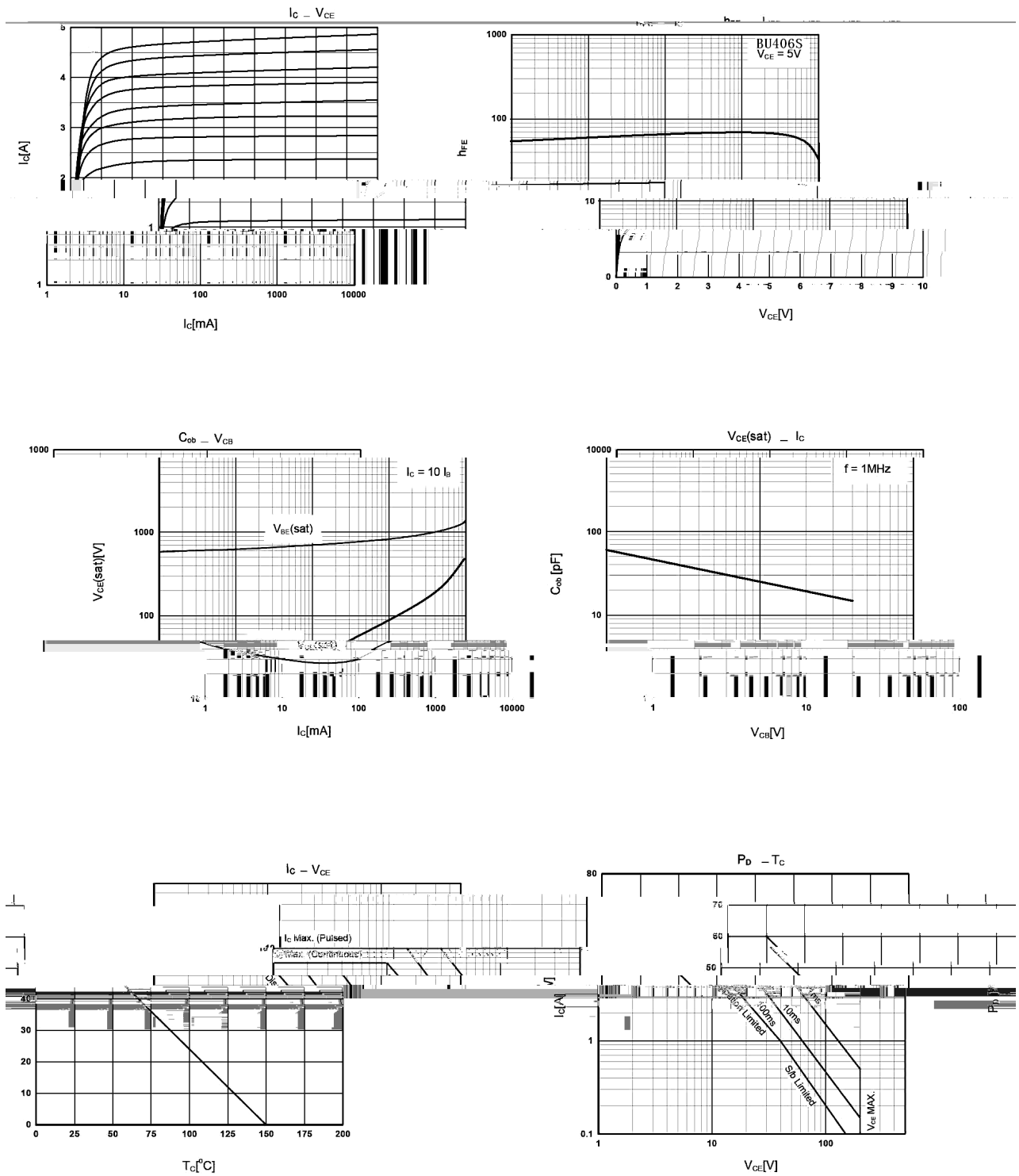
See Marking Instructions.

**/ Absolute Maximum Ratings(Ta=25 )**

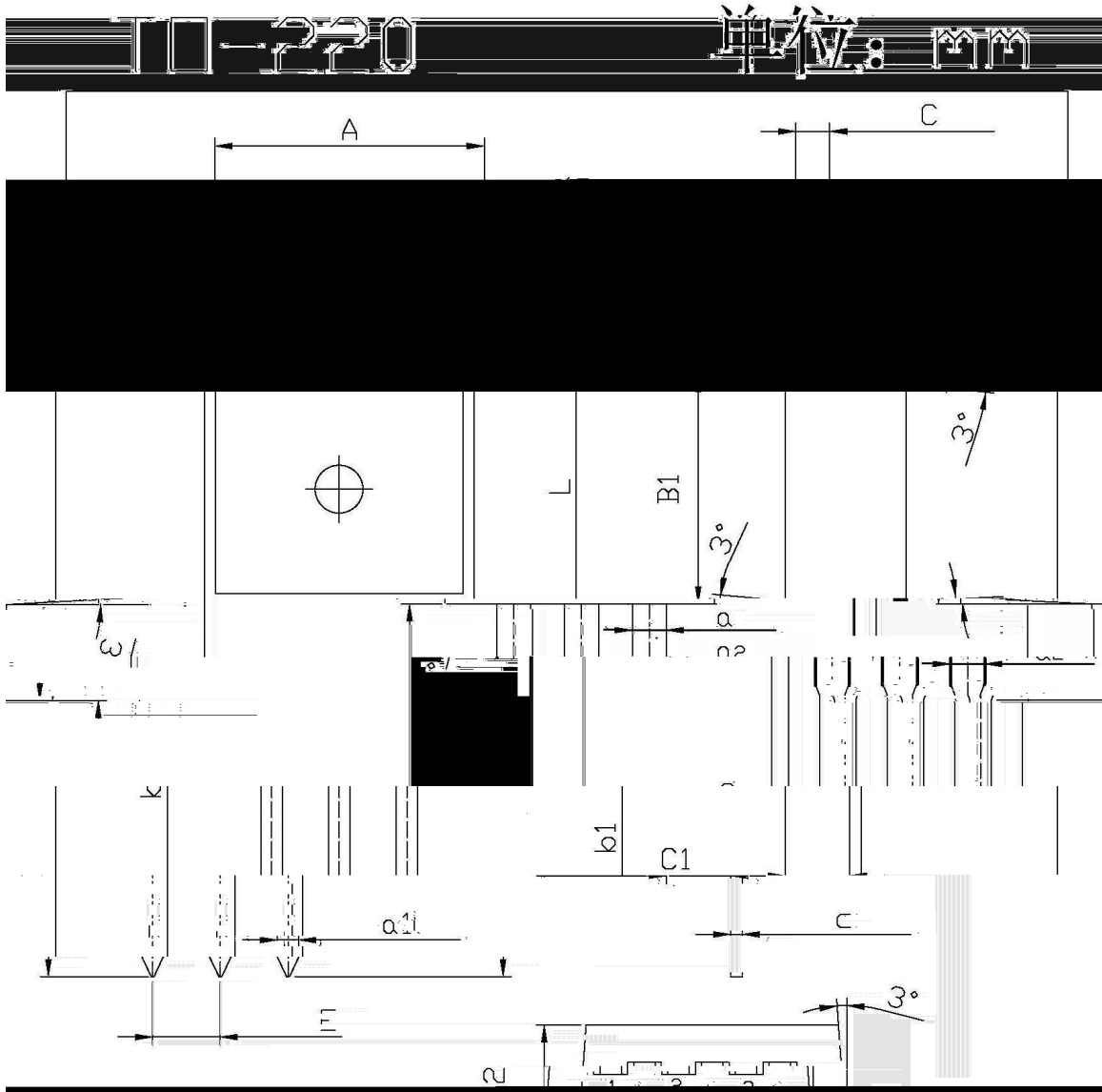
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	200	V
Collector to Emitter Voltage	$V_{CEO}$	120	V
Emitter to Base Voltage	$V_{EBO}$	6	V
Collector Current - Continuous	$I_C$	7	A
Collector Current(Pulse)	$I_{CP}$	10	A
Base Current – Continuous	$I_B$	2	A
Collector Power Dissipation	$P_C$	60	W
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55 150	°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	$I_{CES(1)}$	$V_{CE}=200V$ $V_{BE}=0$			100	A
	$I_{CES(2)}$	$V_{CE}=150V$ $V_{BE}=0$			50	A
	$I_{CES(3)}$	$V_{CE}=150V$ $V_{BE}=0$ $T_C=150$			500	A
Collector Cut-Off Current	$I_{CEO}$	$V_{CE}=120V$ $V_{BE}=0$			100	A
Emitter Cut-Off Current	$I_{EBO}$	$V_{BE}=6.0V$ $I_C=0$			1.0	mA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5.0V$ $I_C=2.0A$	60		120	
	$h_{FE(2)}$	$V_{CE}=5.0V$ $I_C=5.0A$	40			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=5.0A$ $I_B=0.5A$		0.22	0.5	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=5.0A$ $I_B=0.5A$		1.05	1.25	V
Transition Frequency	$f_T$	$V_{CE}=10V$ $I_C=0.5A$	10			MHz
Turn-Off Time	$t_{off}$	$I_C=5.0A$ $I_B=0.5A$			0.7	S

**/ Electrical Characteristic Curve**

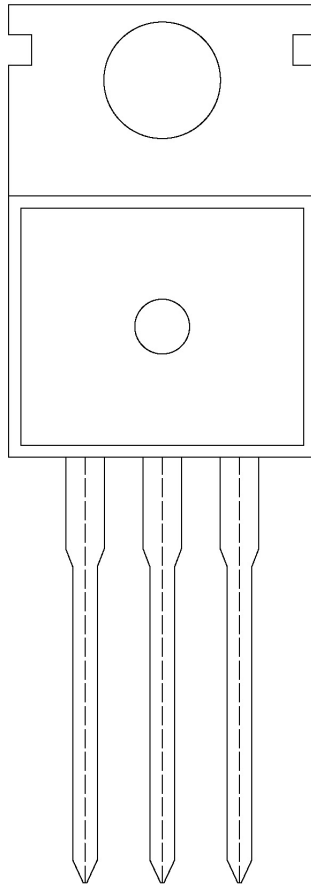


**/ Package Dimensions**



Symbol	Dimensions in milimeters		Symbol	Dimensions in millimeters	
	Min	Max		Min	Max
A	9.8	10.2	C	1.2	1.4
B	3.56	3.64	B	6.3	6.7
B1	9.0	9.4	a	0.7	0.9
b1	0.6	0.6	C1	0.2	0.2
a	1.22	1.32	C	0.4	0.6
C	0.2	0.2	a	1.0	1.7
0.2	1.25	1.45			

**/ Marking Instructions**



BR

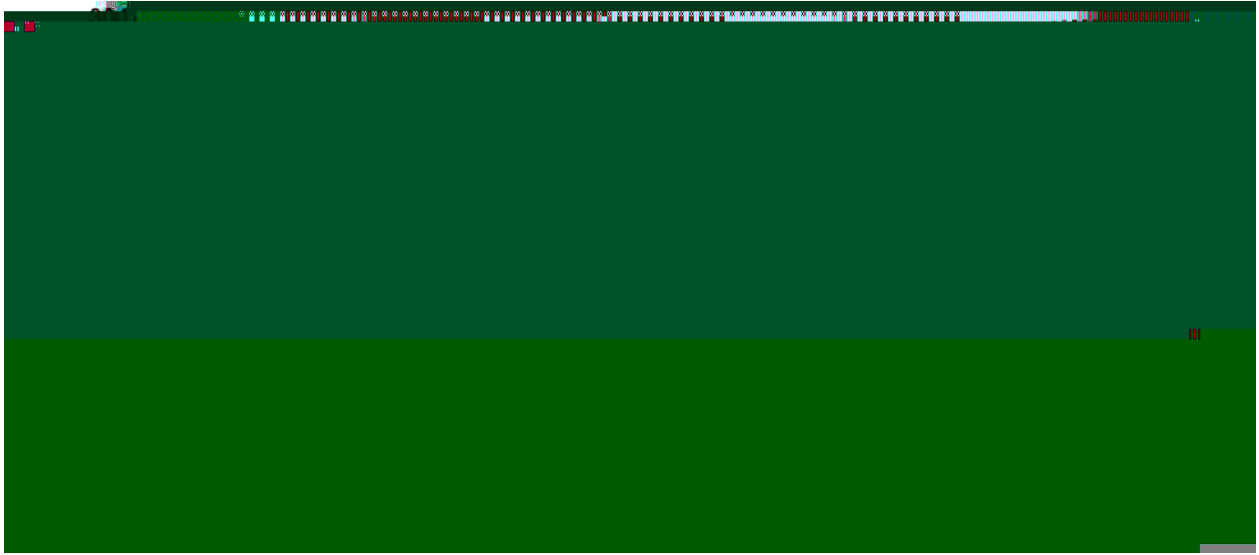
BU406S

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Note:

BR:           Company Code

( ) / 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℃                      Time:10±1 sec

/ Packaging SPEC.

/ BULK

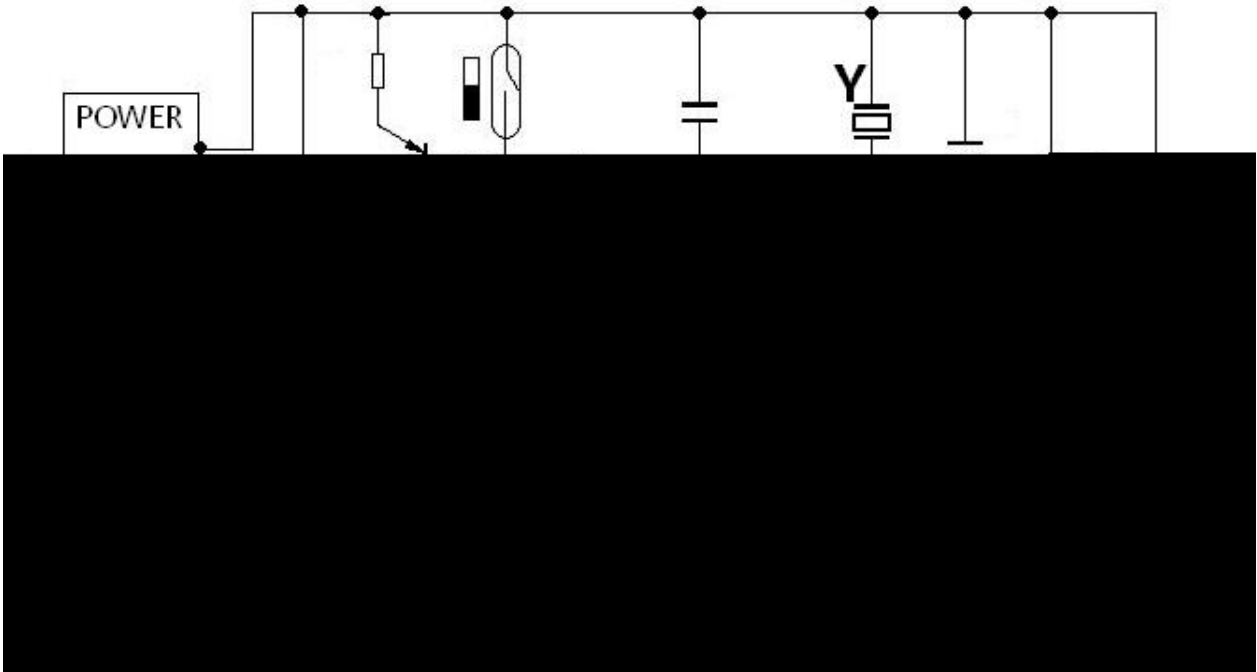
Package Type	Units					Dimension (unit mm <sup>3</sup> )		
	Units/Bag /	Bags/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Bag	Inner Box	Outer Box
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

/ TUBE

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
	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**

3MHZ



- 1 3.0MHZ
- 2 40V
- 3 45W
- 4 HFE 60-70,70-80,80-90

- 1 HFE HFE 60-70 70-80 80-90
- 2 HFE

- 1
- 2

3

- 3.1
- 3.2 5kgf.cm
- 3.3 PCB
- 3.4
- 3.5