

/ Descriptions

Silicon NPN transistor in a TO-220 Plastic Package.

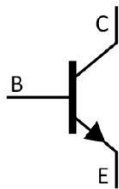
/ Features

Large Current Capability.

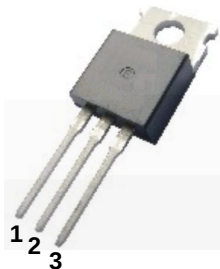
/ Applications

Versatile, can be used in the humidifier.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Collector PIN 3 Emitter

/ h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	Y	GR
h_{FE} Range	100 200	160 240

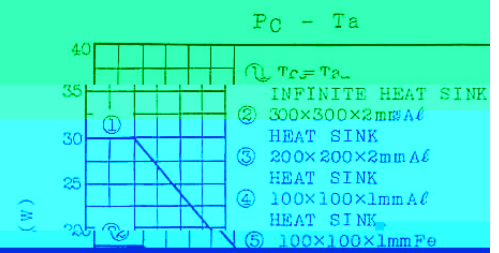
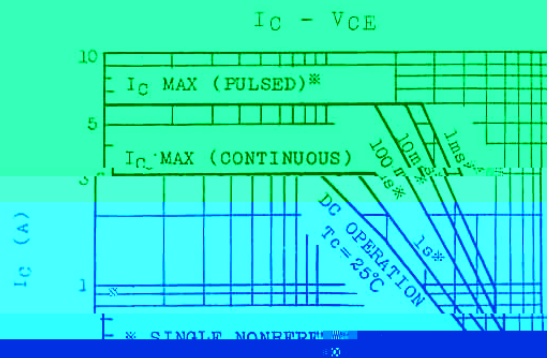
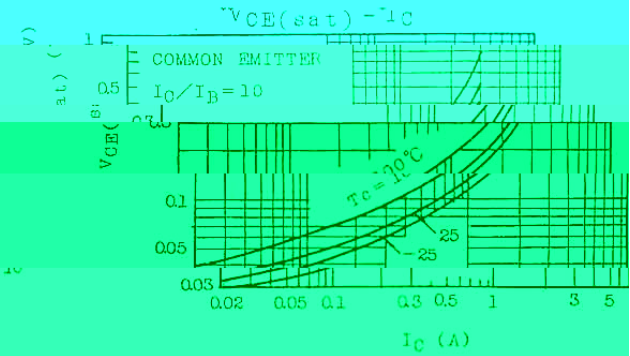
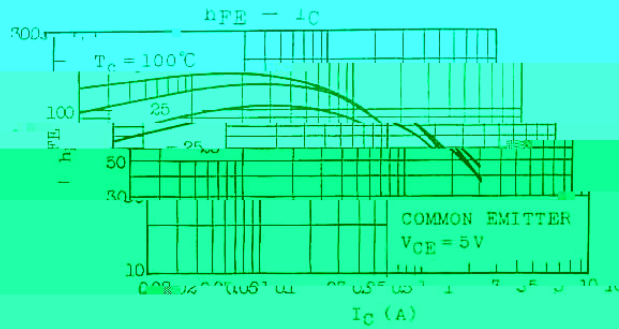
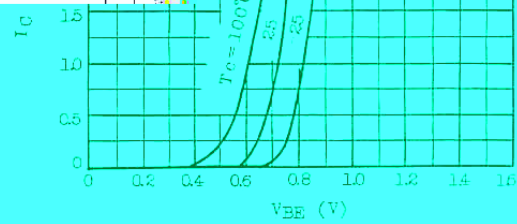
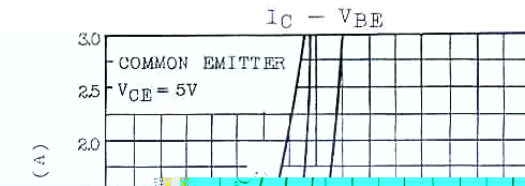
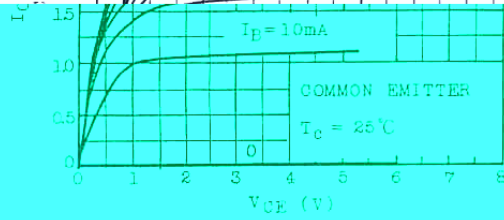
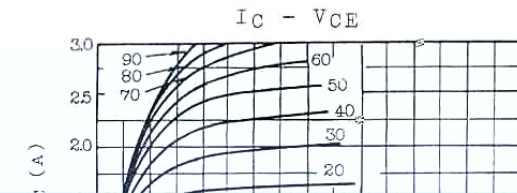
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	160	V
Collector to Emitter Voltage	V_{CEO}	80	V
Emitter to Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous	I_C	4.0	A
Collector Current(Pulse)	I_{CP}	7	A
Base Current – Continuous	I_B	1	A
Collector Power Dissipation	$P_C(T_C=25)$	28	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55 150	°C

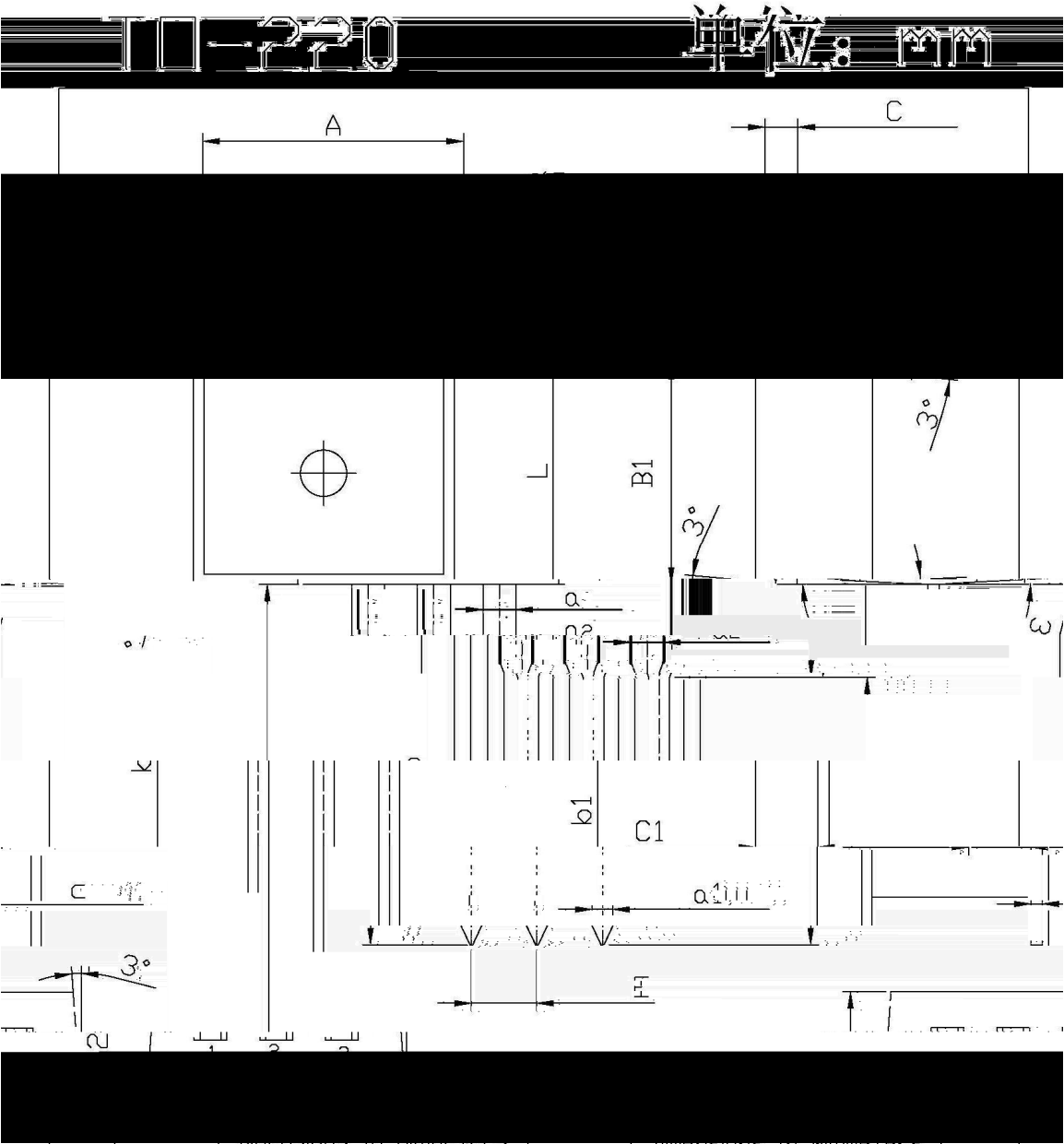
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CBO}	$V_{CB}=160V$ $I_E=0$			1	μA
Collector Cut-Off Current	I_{CEO}	$V_{CE}=80V$ $I_B=0$			10	μA
Emitter Cut-Off Current	I_{EBO}	$V_{BE}=7.0V$ $I_C=0$			1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5.0V$ $I_C=1.0A$	100		240	
	$h_{FE(2)}$	$V_{CE}=5.0V$ $I_C=10mA$	80			
Collector to Emitter Saturation Voltage	$V_{CE(sat) (1)}$	$I_C=4.0A$ $I_B=0.4A$		0.35	0.55	V
	$V_{CE(sat) (2)}$	$I_C=1.0A$ $I_B=0.1A$		0.10	0.20	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.0A$ $I_B=0.1A$		0.90	1.20	V
Base to Emitter Voltage	V_{BE}	$V_{CE}=5.0V$ $I_C=1.0A$		0.80	1.00	V
Transition Frequency	f_T	$V_{CE}=10V$ $I_C=0.5A$	20			MHz
Turn-Off Time	t_{off}	$I_C=2.0A$ $I_B=0.25A$			0.70	S

/ Electrical Characteristic Curve

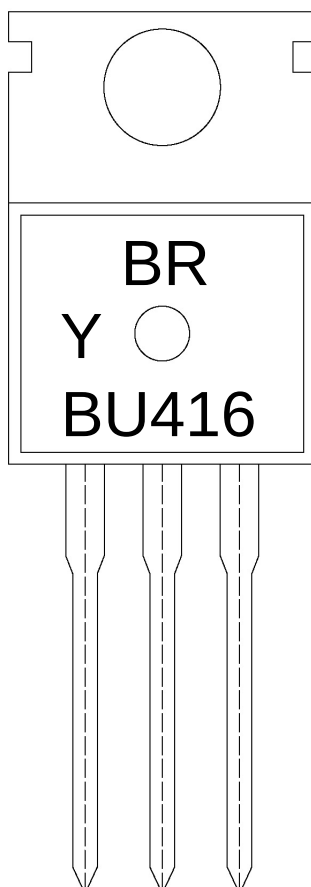


/ Package Dimensions



Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min	Max	Symbol	Min	Max
A	9.8	10.2	C	1.2	1.4
B	3.56	3.64	B1	6.3	6.7
B2	15.7	16.1	B3	9.0	9.4
B4	12.6	13.0	B5	10.6	11.0
B6	10.6	11.0	B7	10.6	11.0
B8	10.6	11.0	B9	10.6	11.0
B10	10.6	11.0	B11	10.6	11.0
B12	10.6	11.0	B13	10.6	11.0
B14	10.6	11.0	B15	10.6	11.0
B16	10.6	11.0	B17	10.6	11.0
B18	10.6	11.0	B19	10.6	11.0
B20	10.6	11.0	B21	10.6	11.0
B22	10.6	11.0	B23	10.6	11.0
B24	10.6	11.0	B25	10.6	11.0
B26	10.6	11.0	B27	10.6	11.0
B28	10.6	11.0	B29	10.6	11.0
B30	10.6	11.0	B31	10.6	11.0
B32	10.6	11.0	B33	10.6	11.0
B34	10.6	11.0	B35	10.6	11.0
B36	10.6	11.0	B37	10.6	11.0
B38	10.6	11.0	B39	10.6	11.0
B40	10.6	11.0	B41	10.6	11.0
B42	10.6	11.0	B43	10.6	11.0
B44	10.6	11.0	B45	10.6	11.0
B46	10.6	11.0	B47	10.6	11.0
B48	10.6	11.0	B49	10.6	11.0
B50	10.6	11.0	B51	10.6	11.0
B52	10.6	11.0	B53	10.6	11.0
B54	10.6	11.0	B55	10.6	11.0
B56	10.6	11.0	B57	10.6	11.0
B58	10.6	11.0	B59	10.6	11.0
B60	10.6	11.0	B61	10.6	11.0
B62	10.6	11.0	B63	10.6	11.0
B64	10.6	11.0	B65	10.6	11.0
B66	10.6	11.0	B67	10.6	11.0
B68	10.6	11.0	B69	10.6	11.0
B70	10.6	11.0	B71	10.6	11.0
B72	10.6	11.0	B73	10.6	11.0
B74	10.6	11.0	B75	10.6	11.0
B76	10.6	11.0	B77	10.6	11.0
B78	10.6	11.0	B79	10.6	11.0
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B82	10.6	11.0	B83	10.6	11.0
B84	10.6	11.0	B85	10.6	11.0
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B90	10.6	11.0	B91	10.6	11.0
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B114	10.6	11.0	B115	10.6	11.0
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B176	10.6	11.0	B177	10.6	11.0
B178	10.6	11.0	B179	10.6	11.0
B180	10.6	11.0	B181	10.6	11.0
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B184	10.6	11.0	B185	10.6	11.0
B186	10.6	11.0	B187	10.6	11.0
B188	10.6	11.0	B189	10.6	11.0
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B192	10.6	11.0	B193	10.6	11.0
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B196	10.6	11.0	B197	10.6	11.0
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B224	10.6	11.0	B225	10.6	11.0
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B336	10.6	11.0	B337	10.6	11.0
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B368	10.6	11.0	B369	10.6	11.0
B370	10.6	11.0	B371	10.6	11.0
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B374	10.6	11.0	B375	10.6	11.0
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B378	10.6	11.0	B379	10.6	11.0
B380	10.6	11.0	B381	10.6	11.0
B382	10.6	11.0	B383	10.6	11.0
B384	10.6	11.0	B385	10.6	11.0
B386	10.6	11.0	B387	10.6	11.0
B388	10.6	11.0	B389	10.6	11.0
B390	10.6	11.0	B391	10.6	11.0
B392	10.6	11.0	B393	10.6	11.0
B394	10.6	11.0	B395	10.6	11.0
B396	10.6	11.0	B397	10.6	11.0
B398	10.6	11.0	B399	10.6	11.0
B400	10.6	11.0	B401	10.6	11.0
B402	10.6	11.0	B403	10.6	11.0
B404	10.6	11.0	B405	10.6	11.0
B406	10.6	11.0	B407	10.6	11.0
B408	10.6	11.0	B409	10.6	11.0
B410	10.6	11.0	B411	10.6	11.0
B412	10.6	11.0	B413	10.6	11.0
B414	10.6	11.0	B415	10.6	11.0
B416	10.6	11.0	B417	10.6	11.0
B418	10.6	11.0	B419	10.6	11.0
B420	10.6	11.0	B421	10.6	11.0
B422	10.6	11.0	B423	10.6	11.0
B424	10.6	11.0	B425	10.6	11.0
B426	10.6	11.0	B427	10.6	11.0
B428	10.6	11.0	B429		

/ Marking Instructions



Note:

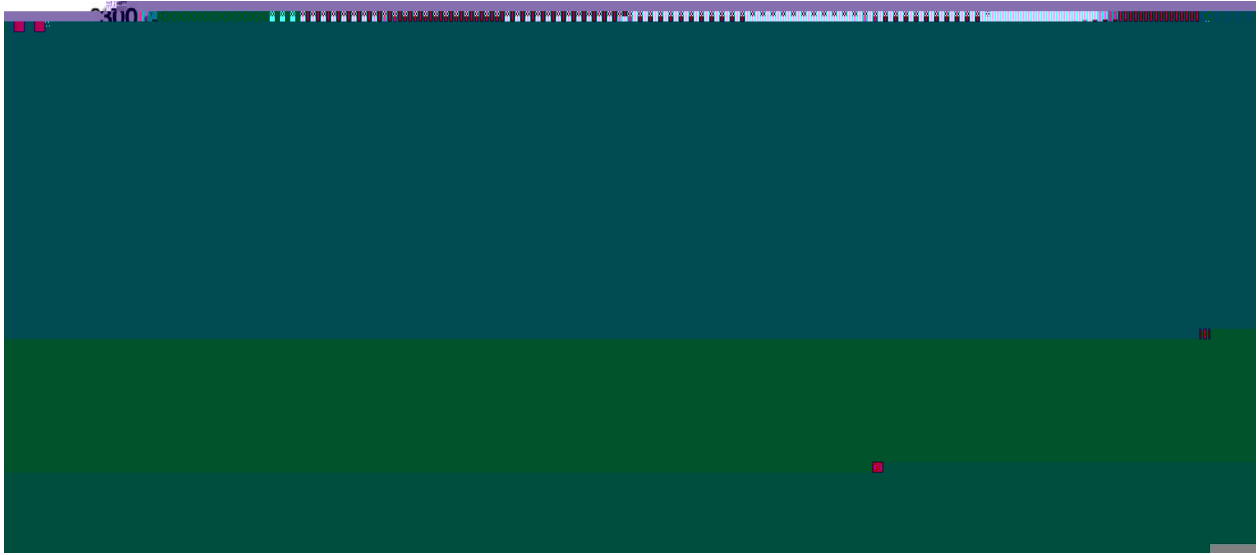
BR: Company Code

BU416: Product Type.

Y: 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 mm ³)		

/ TUBE

Package Type	Units					Dimension (unit mm ³)		

/ Notices