

/ Descriptions

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

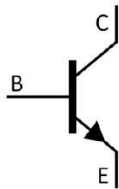
/ Features

Low saturation voltage, excellent current dependence of h_{FE} , short switching time.

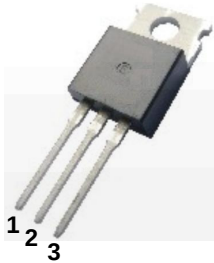
/ Applications

Various inductance lamp drivers for electrical equipment, inverters converters, power amp, high-speed switching.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Collector PIN 3 Emitter

/ h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	Q	R	S
h_{FE} Range	70~140	100~200	140~280

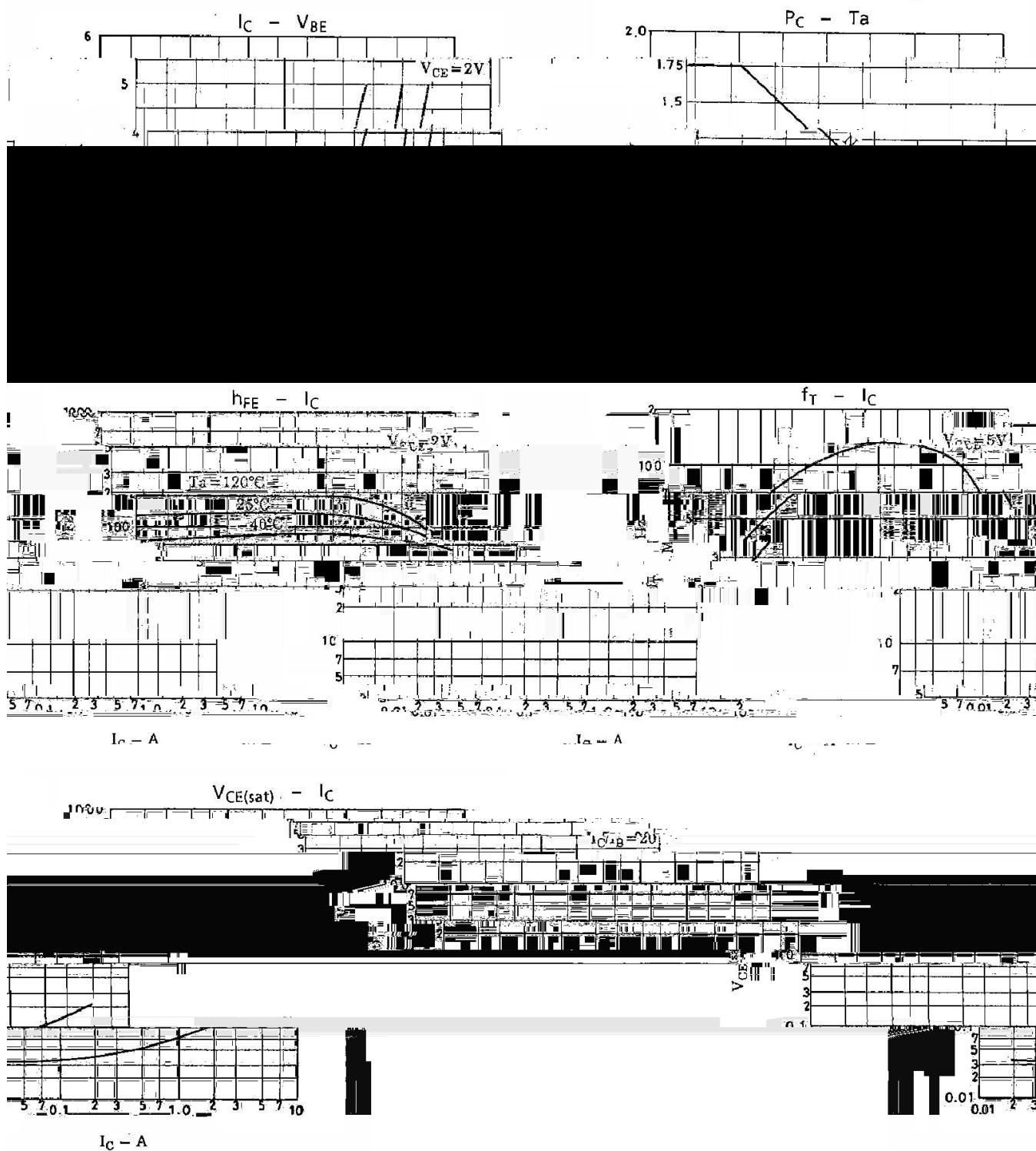
/ Absolute Maximum Ratings(Ta=25 –)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	80	V
Collector to Emitter Voltage	V_{CEO}	60	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous	I_C	5.0	A
Collector Current - Continuous	I_{CP}	7.0	A
Collector Power Dissipation	$P_C (T_C=25^\circ C)$	30	W
Junction Temperature	T_J	150	
Storage Temperature Range	T_{stg}	-55~150	

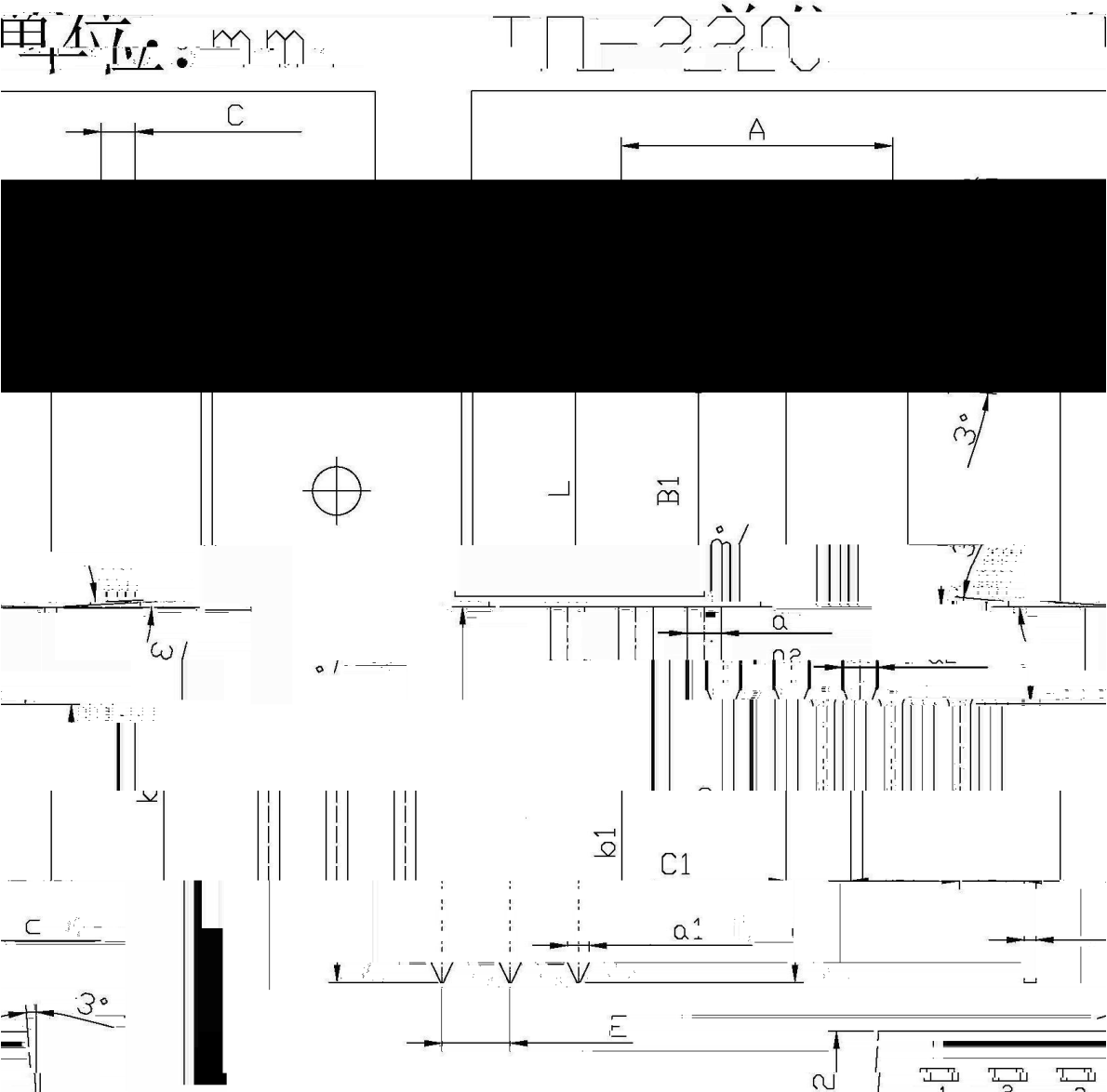
/ Electrical Characteristics(Ta=25 –)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1mA$ $R_{BE}=\infty$	60			V
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=1mA$ $I_E=0$	80			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_C=1mA$ $I_C=0$	5			V
Emitter Cut-Off Current	I_{CBO}	$V_{CB}=40V$ $I_E=0$			100	μA
Collector Cut-Off Current	I_{EBO}	$V_{EB}=4V$ $I_C=0$			100	μA
DC Current Gain	h_{FE}	$V_{CE}=2V$ $I_C=1A$	70		280	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2.5A$ $I_B=0.125A$			0.4	V
Transition Frequency	f_T	$V_{CE}=5V$ $I_E=1A$		100		MHz
Turn-On Time	t_{on}	See specified Test Circuit		0.1		μs
Storage Time	t_{stg}			0.5		μs
Fall Time	t_f			0.1		μs

/ Electrical Characteristic Curve

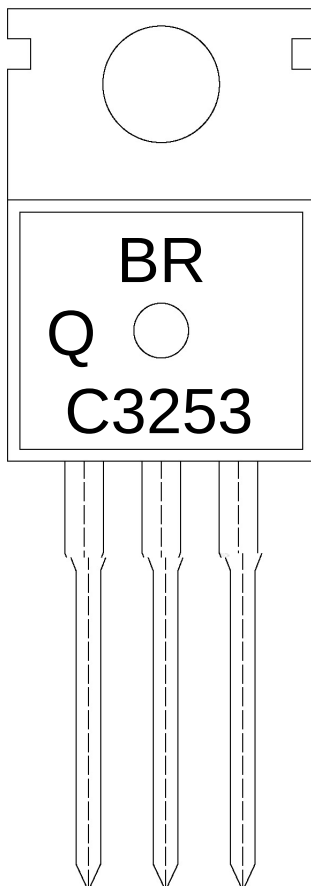


/ Package Dimensions



Symbol	Dimensions in milimeters		Symbol	Dimensions in millimeters	
	Min	Max		Min	Max
A	9.8	10.2	C	1.2	1.4
B1	15.7	16.1	a	0.3	0.4
C1	0.3	0.4	a1	0.3	0.4
k	0.3	0.4	b1	0.3	0.4

/ Marking Instructions



BR

C3253

Q: h_{FE}

Note:

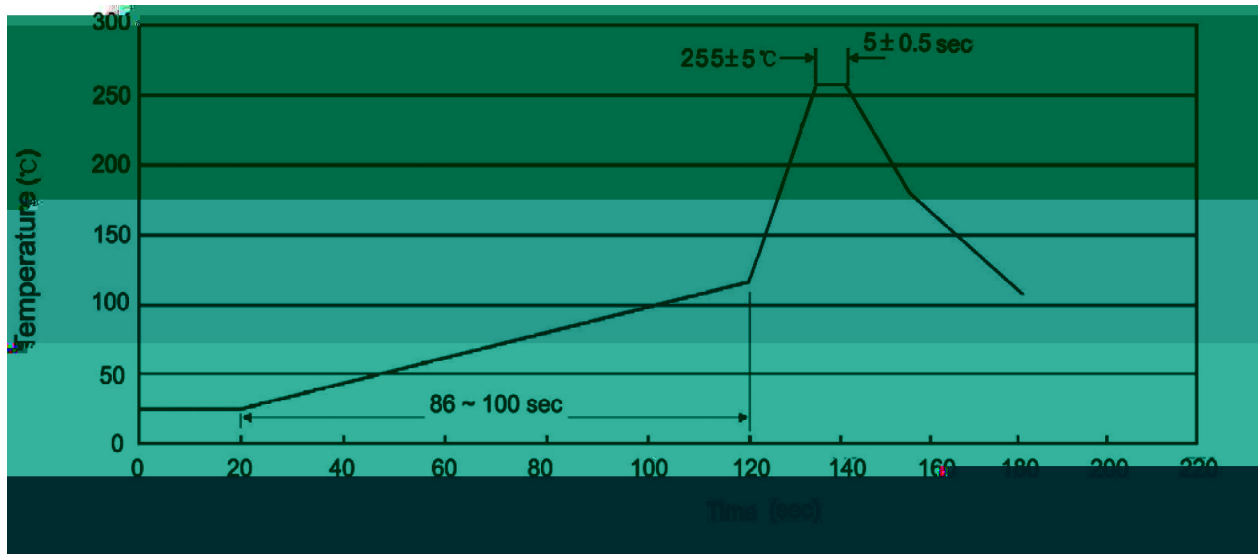
BR: Company Code

C3253: Product Type.

Q: 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 Time:10±1 sec

/ Packaging SPEC.

/ BULK

Package Type	Units					Dimension			(unit mm ³)

/ TUBE

Package Type	Units					Dimension			(unit mm ³)