

/ Descriptions

SOT-89 NPN Silicon NPN transistor in a SOT-89 Plastic Package.

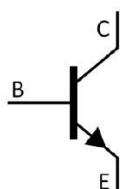
/ Features

High current, Low saturation voltage.

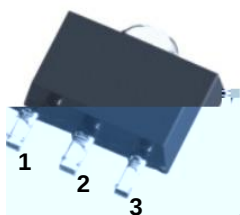
/ Applications

Driver stages of audio and video amplifiers.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Collector PIN 3 Emitter

/ Marking

$h_{FE(1)}$ Classifications	10	16
$h_{FE(1)}$ Range	63~160	100~250
Marking	HBC *	HBD *

/ Absolute Maximum Ratings(Ta=25 –)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	45	V
Collector to Emitter Voltage	V_{CEO}	45	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current-Continuous	I_C	1.0	A
Peak Collector Current	I_{CM}	1.5	A
Peak Base Current	I_{BM}	0.2	A
Collector Power Dissipation	P_C	0.5	W
	$*P_C$	1.3	W
Storage Temperature Range	T_{stg}	-55~150	

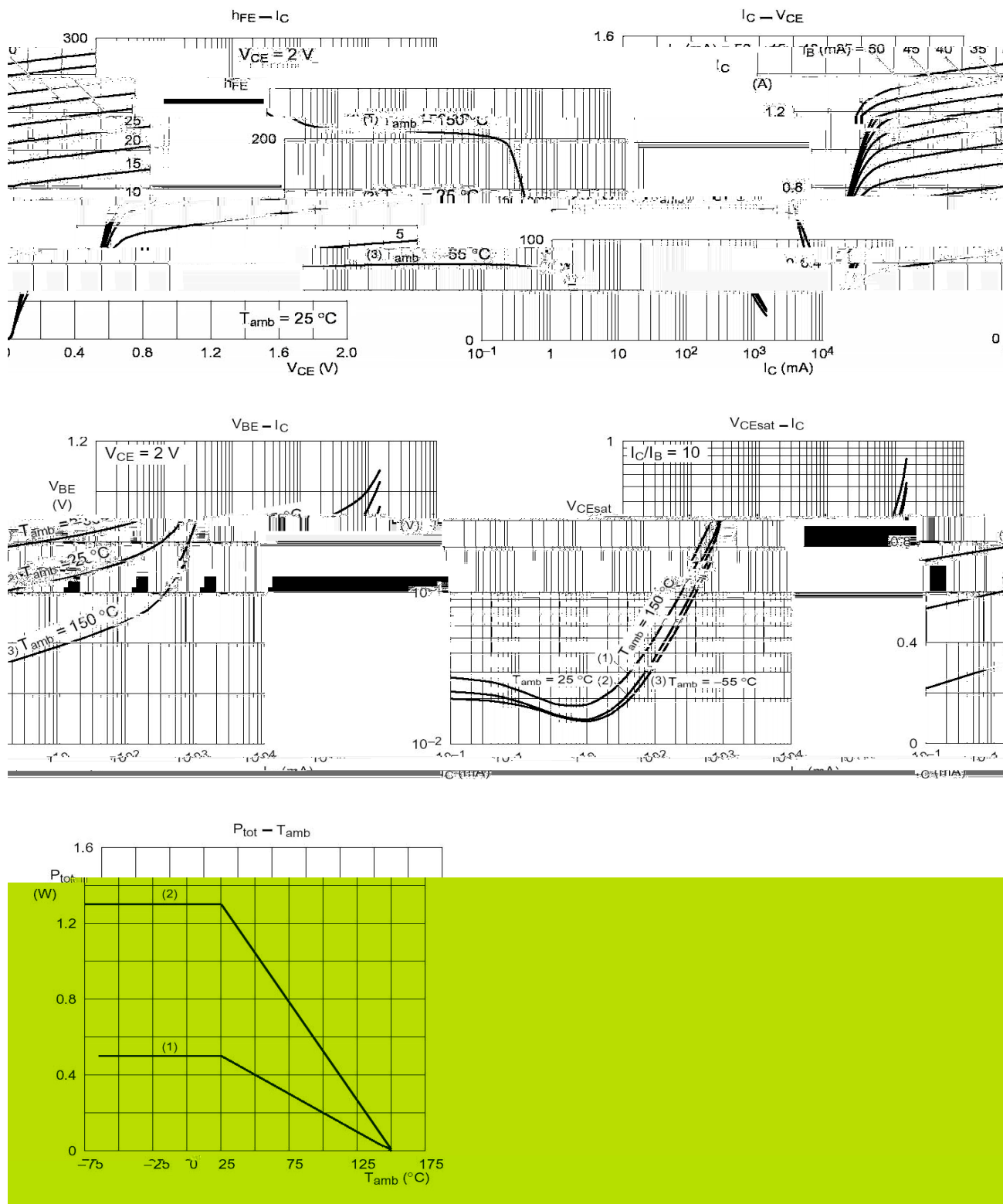
*:Device mounted on a printed-circuit board, single side copper, mounting pad for collector 6cm².

*: C 6cm²

/ Electrical Characteristics(Ta=25 –)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	$I_{CBO(1)}$	$V_{Cb}=30V$ $I_E=0$			0.1	μA
	$I_{CBO(2)}$	$V_{Cb}=30V$ $I_E=0$ $T_J=125$			10	μA
Emitter Base Cut-Off Current	I_{EBO}	$V_{EB}=5V$ $I_C=0$			0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=2V$ $I_C=150mA$	63		250	
	$h_{FE(2)}$	$V_{CE}=2V$ $I_C=5mA$	63			
	$h_{FE(3)}$	$V_{CE}=2V$ $I_C=500mA$	40			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=500mA$ $I_B=50mA$			0.5	V
Base to Emitter Voltage	V_{BE}	$I_C=500mA$ $V_{CE}=2V$			1	V
Transition Frequency	f_T	$I_C=10mA$ $V_{CE}=5V$ $f=100MHz$		130		MHz
DC Current Gain Ratio Of The Complementary Pairs	$\frac{h_{FE1}}{h_{FE2}}$	$ I_C =150mA$ $ V_{CE} =2V$		1.3	1.6	

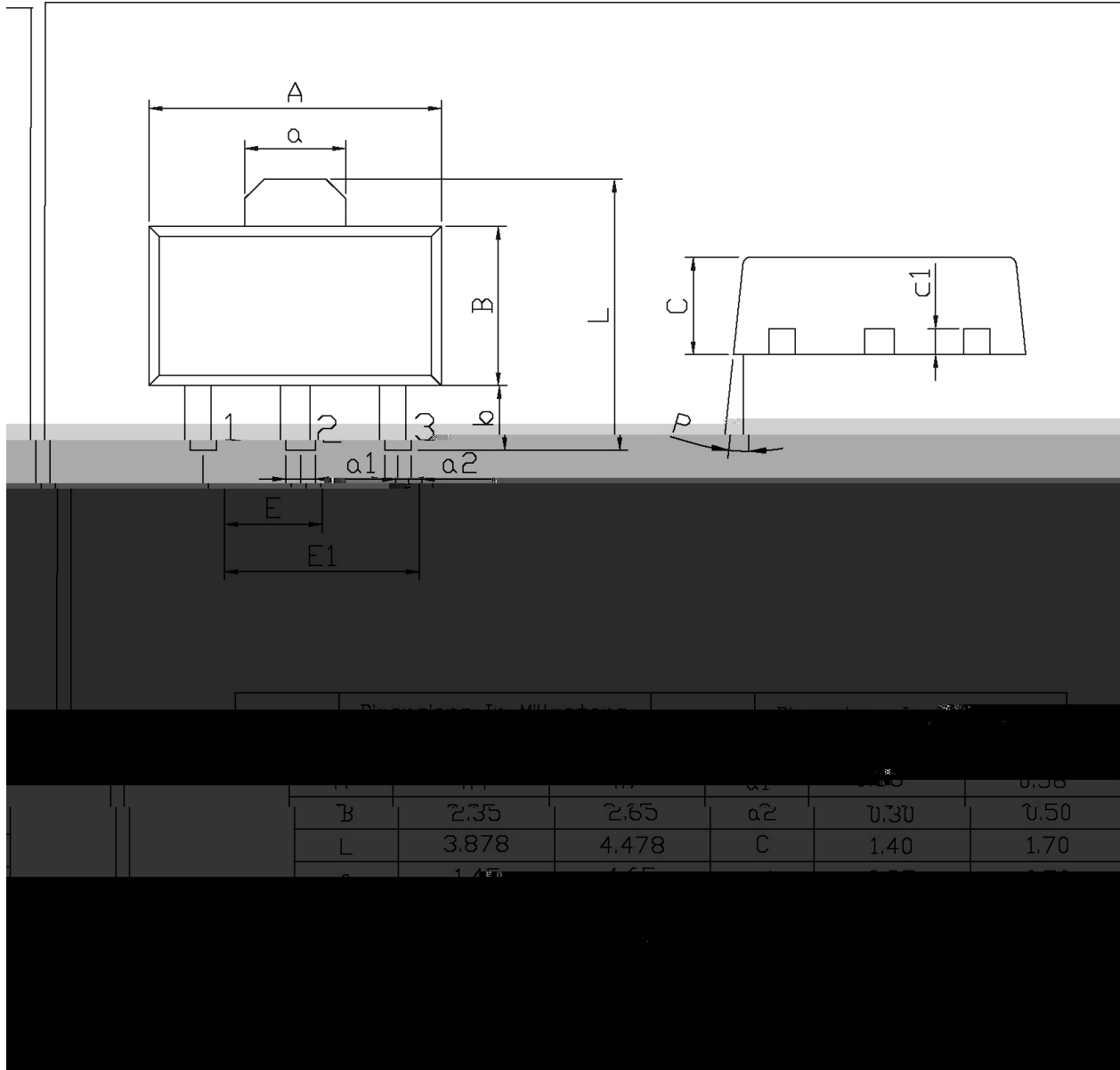
/ Electrical Characteristic Curve



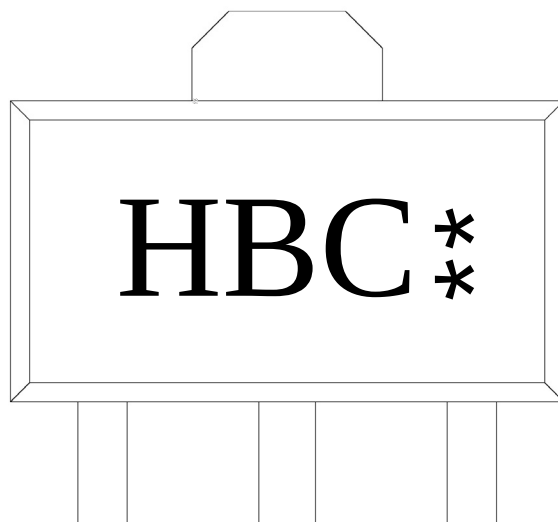
/ Package Dimensions

TSOT-89

单位: mm



/ Marking Instructions



H

BC

**

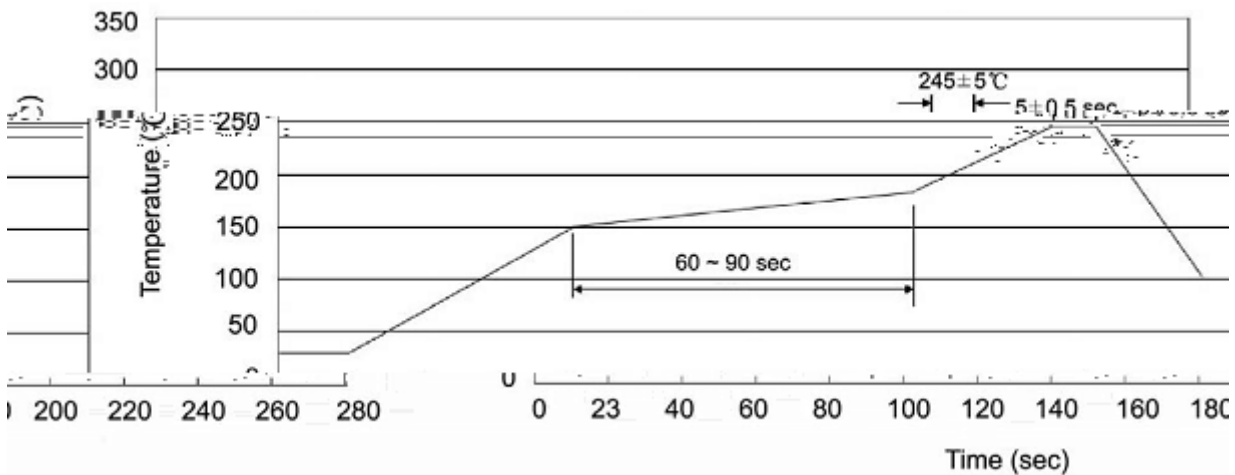
Note:

H: Company Code.

BC: Product Type.

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

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Note:

- | | | | | | |
|---|-------|-----|-----------|--------|---|
| 1 | 25 | 150 | 60 | 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 2 | 245±5 | | 5±0.5sec; | | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

260±5

10±1 sec.

Temp.:260±5

Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-89	1,000	7	7,000	8	56,000	7" x12	180×120×180	385×257×392

/ Notices