

/ Descriptions

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

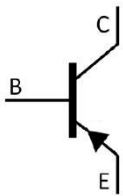
/ Features

hFE 2SD999
Low $V_{CE(sat)}$, excellent h_{FE} linearity, complements the 2SD999.

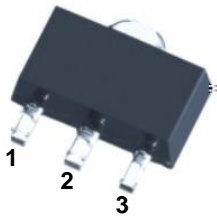
/ Applications

Audio frequency power amplifier applications.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Collector PIN 3 Emitter

/ Marking

h_{FE} Classifications Symbol	M	L	K
h_{FE} Range	90 180	135 270	200 400
Marking	HDM	HDL	HDK

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-30	V
Collector to Emitter Voltage	V_{CEO}	-25	V
Emitter to Base Voltage	V_{EBO}	-5.0	V
Collector Current-Continuous	I_C	-1.0	A
Collector Current-Continuous(Pluse)	I_{CP}	-1.5	A
Collector Power Dissipation	P_C	500	mW
Collector Power Dissipation*	* P_C	2.0	W
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

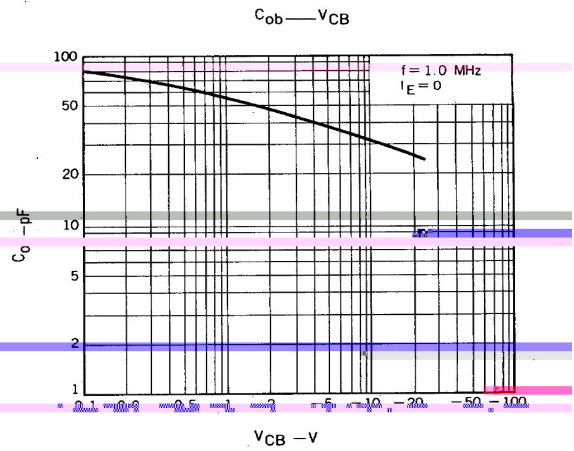
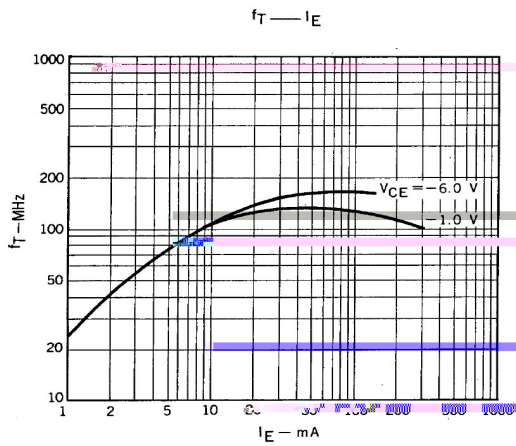
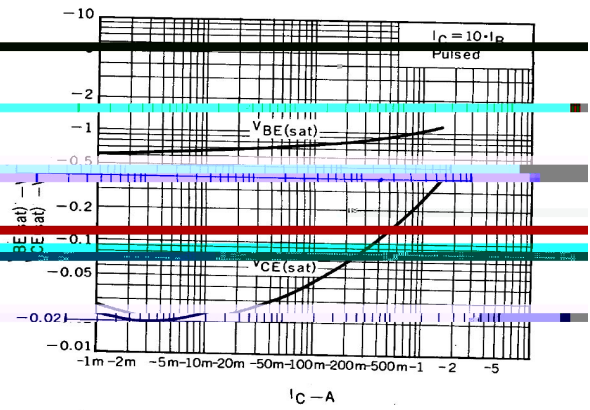
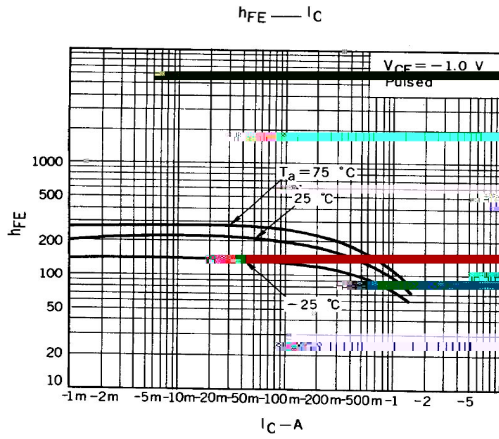
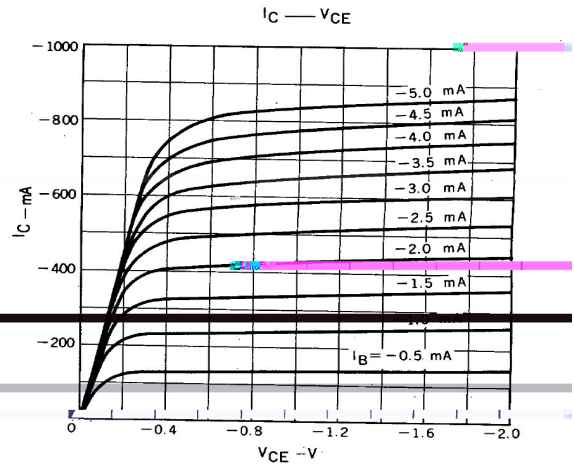
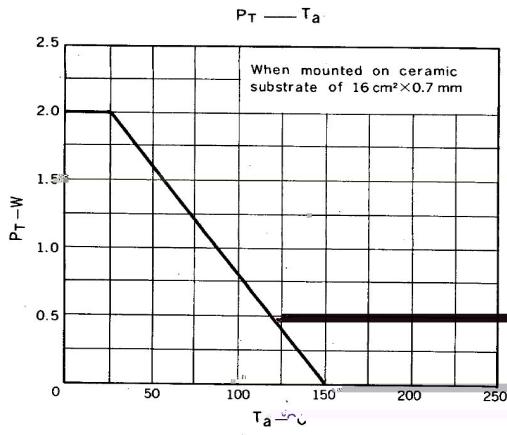
*mounted on ceramic substrate(16cmm²×0.7mm)

* 16cmm²×0.7mm

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CBO}	$V_{CB}=-30V$ $I_E=0$			-0.1	μA
Emitter Base Cut-Off Current	I_{EBO}	$V_{EB}=-5.0V$ $I_C=0$			-0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-1.0V$ $I_C=-100mA$	90	200	400	
	$h_{FE(2)}$	$V_{CE}=-1.0V$ $I_C=-1.0A$	50	100		
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-1.0A$ $I_B=-100mA$		-0.25	-0.4	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-1.0A$ $I_B=-100mA$		-1.0	-1.2	V
Base to Emitter Voltage	V_{BE}	$V_{CE}=-6.0V$ $I_C=-10mA$	-600	-640	-700	mV
Transition Frequency	f_T	$V_{CE}=-6.0V$ $I_C=-10mA$		110		MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=-6.0V$ $I_E=0$ $f=1.0MHz$		36		pF

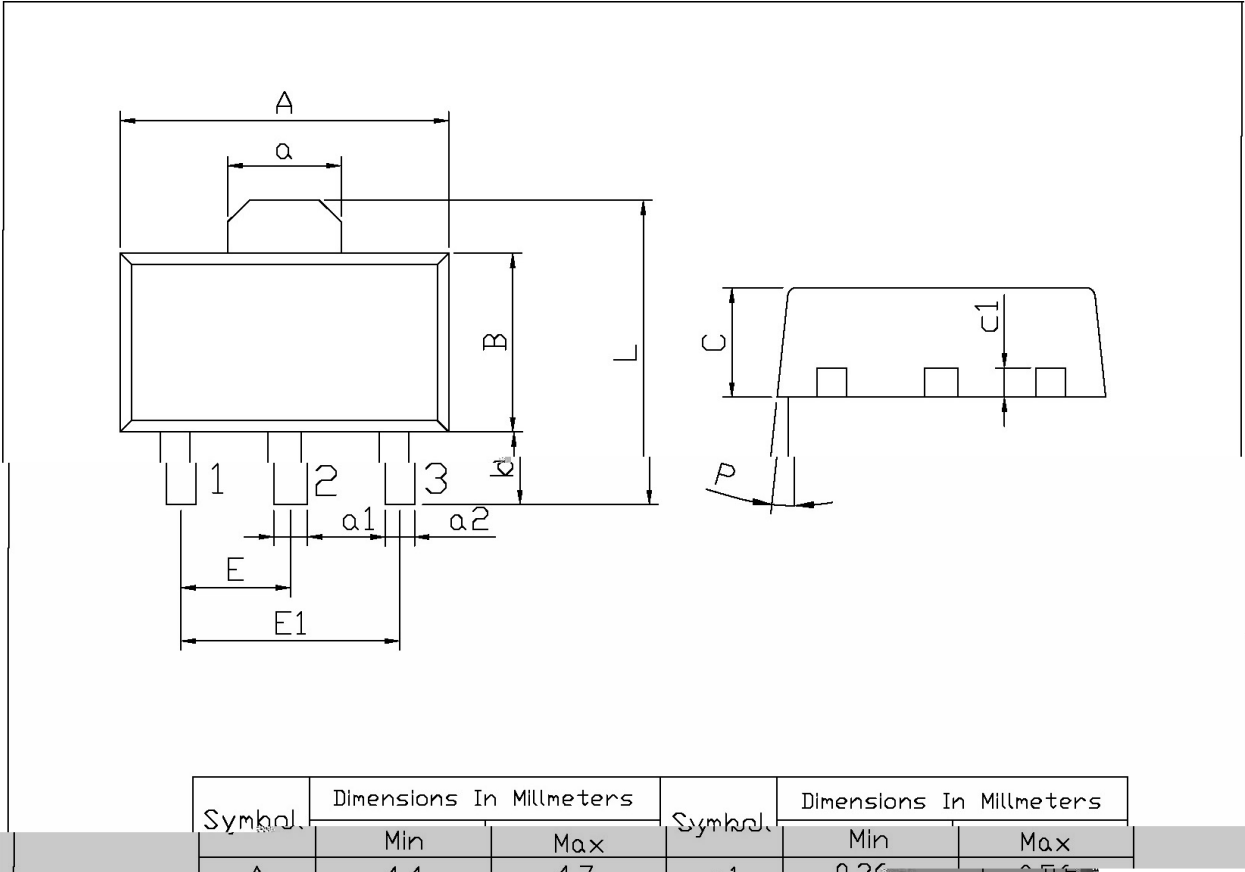
/ Electrical Characteristic Curve



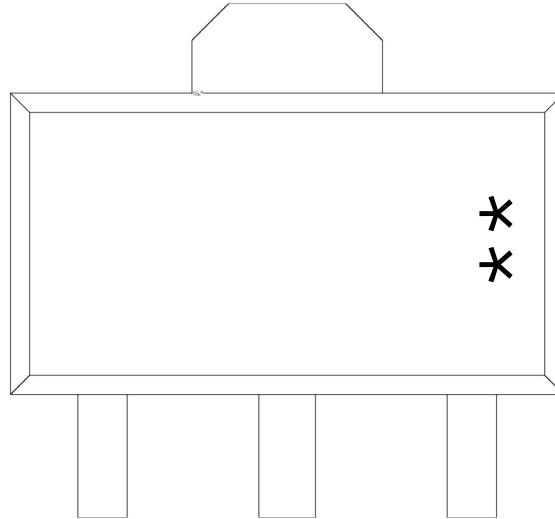
/ Package Dimensions

SOT-89

单位: mm



/ Marking Instructions



H

D

M h_{FE}

**

Note:

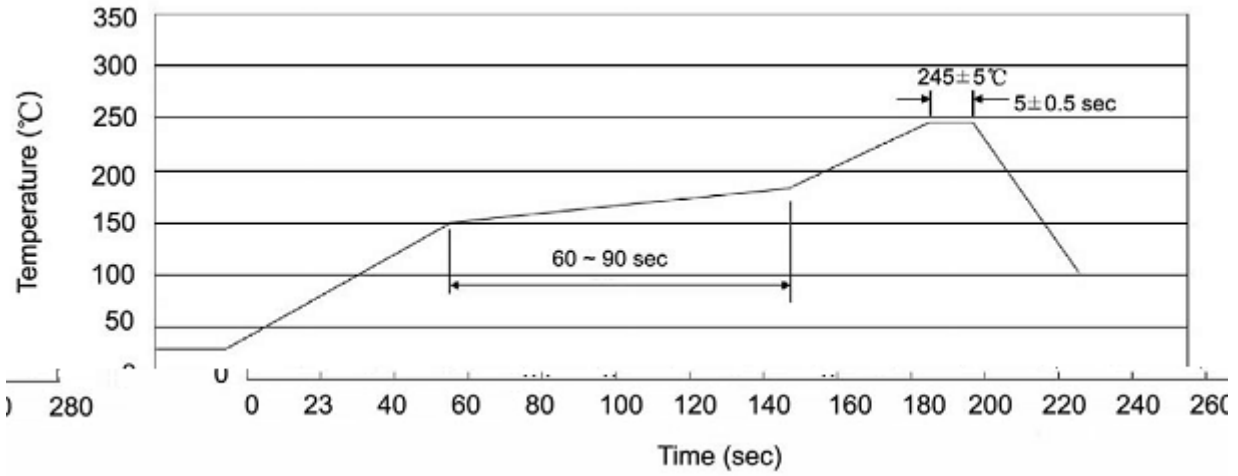
H: Company Code.

D: Product Type.

M h_{FE} Classifications Symbol

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

() / Resistance to Soldering Heat Test Conditions



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)		
	只卷盘	卷盘盒	只盒	盒箱	只箱	盒		箱

/ Notices