



HSC3953

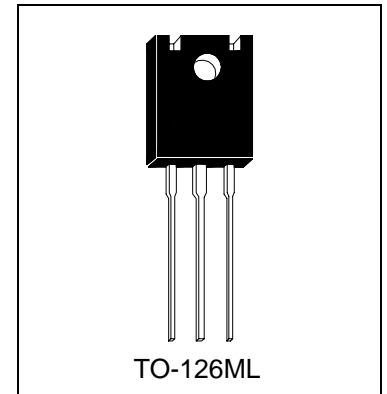
NPN EPITAXIAL PLANAR TRANSISTOR

Description

High definition CRT display video output, wide-band amplifier.

Features

- High f_T : 500MHz
- High Breakdown Voltage: $BV_{CEO}=120V_{min}$
- Small Reverse Transfer Capacitance & Excellent HF Response: $C_{re}=1.7pF$



Absolute Maximum Ratings ($T_A=25^\circ C$)

- Maximum Temperatures
 Storage Temperature -55 ~ +150 °C
 Junction Temperature +150 °C Maximum
- Maximum Power Dissipation
 Total Power Dissipation ($T_A=25^\circ C$) 1.3 W
 Total Power Dissipation ($T_C=25^\circ C$) 8 W
- Maximum Voltages and Currents
 BV_{CBO} Collector to Base Voltage 120 V
 BV_{CEO} Collector to Emitter Voltage 120 V
 BV_{EBO} Emitter to Base Voltage 3 V
 I_C Collector Current 200 mA
 I_{CP} Peak Collector Current 400 mA

Electrical Characteristics ($T_A=25^\circ C$)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	120	-	-	V	$I_C=100\mu A, I_E=0$
BV_{CEO}	120	-	-	V	$I_C=1mA, I_B=0$
BV_{EBO}	3	-	-	V	$I_E=100\mu A, I_C=0$
I_{CBO}	-	-	0.1	μA	$V_{CB}=120V, I_E=0$
I_{EBO}	-	-	0.1	μA	$V_{EB}=2V$
* $V_{CE(sat)}$	-	-	1	V	$I_C=30mA, I_B=3mA$
* $V_{BE(sat)}$	-	-	1	V	$I_C=30mA, I_B=3mA$
* h_{FE1}	60	-	320		$I_C=10mA, V_{CE}=10V$
* h_{FE2}	40	-	-		$I_C=100mA, V_{CE}=10V$
f_T	-	400	-	MHz	$I_C=50mA, V_{CE}=10V$

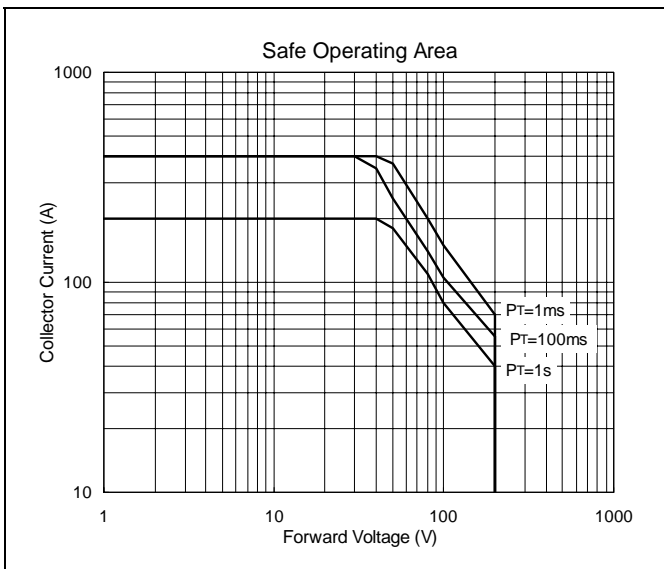
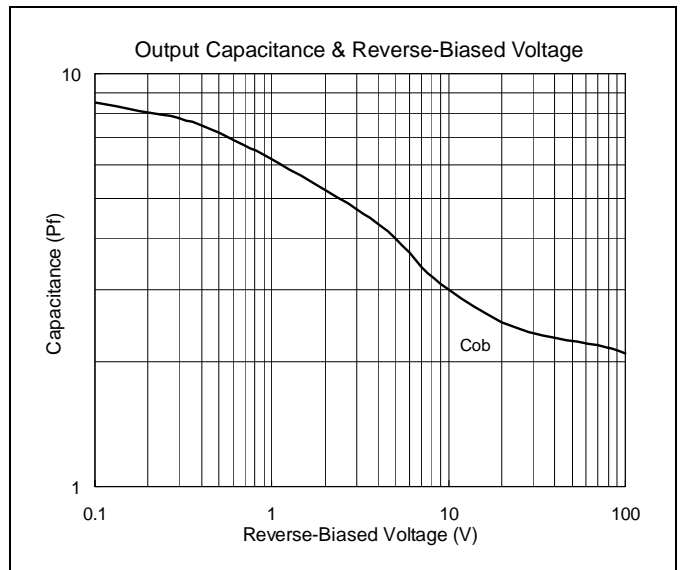
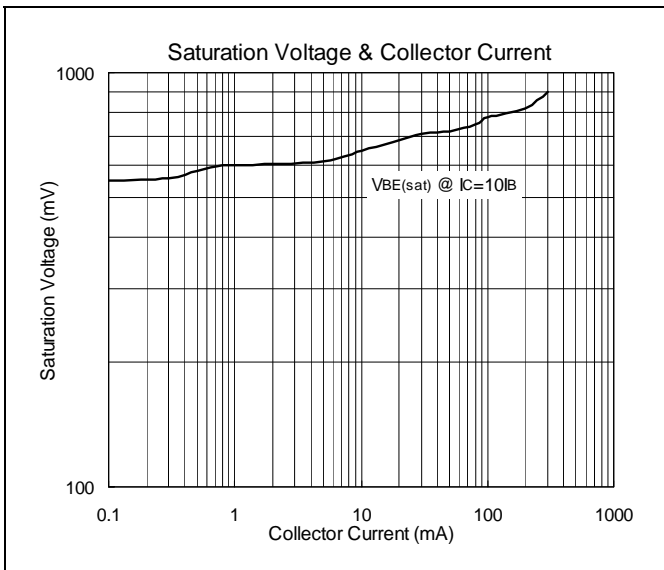
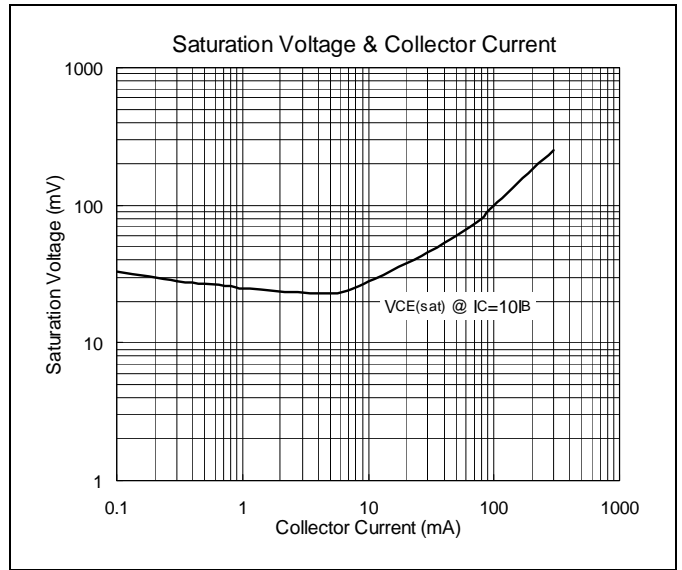
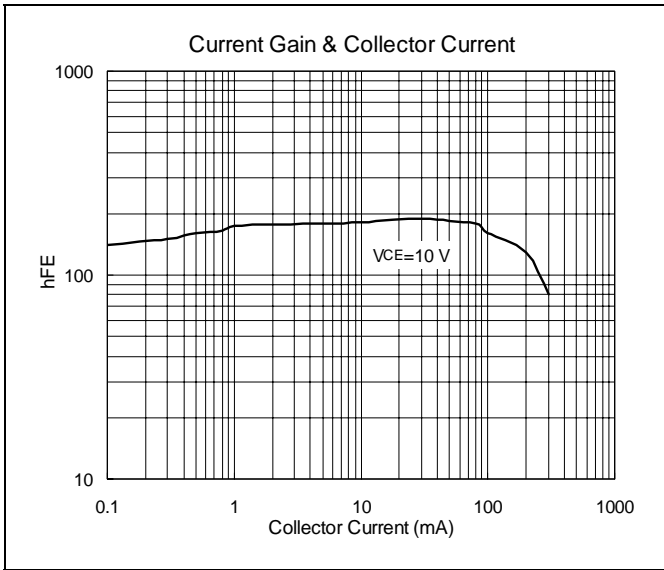
*Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$

Classification Of h_{FE1}

Rank	D	E	F
Range	60-120	100-200	160-320



Characteristics Curve





TO-126ML Dimension

Marking:

Pb Free Mark
 Pb-Free: "●" (Note)
 Normal: None

Date Code → Control Code

Note: Green label is used for pb-free packing

Pin Style: 1.Emitter 2.Collector 3.Base

Material:

- Lead solder plating: Sn60/Pb40 (Normal), Sn/3.0Ag/0.5Cu or Pure-Tin (Pb-free)
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

DIM	Min.	Max.
A	7.74	8.24
B	10.87	11.37
C	0.88	1.12
D	1.28	1.52
E	3.50	3.75
F	2.61	3.37
G	13	-
H	1.18	1.42
I	2.88	3.12
J	0.68	0.84
K	-	2.30
L	3.44	3.70
M	1.88	2.14
N	0.50	0.51

*: Typical, Unit: mm

3-Lead TO-126ML
 Plastic Package
 HSMC Package Code: D

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Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%
2. Reflow soldering of surface-mount devices



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	<3°C/sec	<3°C/sec
Preheat		
- Temperature Min (T_{Smin})	100°C	150°C
- Temperature Max (T_{Smax})	150°C	200°C
- Time (min to max) (t_s)	60~120 sec	60~180 sec
T_{Smax} to T_L		
- Ramp-up Rate	<3°C/sec	<3°C/sec
Time maintained above:		
- Temperature (T_L)	183°C	217°C
- Time (t_L)	60~150 sec	60~150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_P)	10~30 sec	20~40 sec
Ramp-down Rate	<6°C/sec	<6°C/sec
Time 25°C to Peak Temperature	<6 minutes	<8 minutes

3. Flow (wave) soldering (solder dipping)

Products	Peak temperature	Dipping time
Pb devices.	245°C ±5°C	5sec ±1sec
Pb-Free devices.	260°C +0/-5°C	5sec ±1sec