

|  |          |  |
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|  | No.2438A | <h1 style="margin: 0;">2SA1539/2SC3954</h1> <p style="margin: 0;">PNP/NPN Epitaxial Planar Silicon Transistors</p> <p style="margin: 0;">High-Definition CRT Display<br/>Video Output Applications</p> |
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**Applications**

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

**Features**

- . High  $f_T$ :  $f_T=500\text{MHz}$
- . High breakdown voltage:  $V_{CE0}=120\text{Vmin}$
- . Small reverse transfer capacitance and excellent HF response:  $c_{re}=2.7\text{pF/NPN}$ ,  $4.0\text{pF/PNP}$
- . Complementary PNP and NPN types
- . Adoption of FBET process
- . Micaless type: T0126 plastic package

( ):PNP

**Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$**

|                              |           |                        |             |                  |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CB0}$ | (-)120                 | V           | unit             |
| Collector-to-Emitter Voltage | $V_{CE0}$ | (-)120                 | V           |                  |
| Emitter-to-Base Voltage      | $V_{EB0}$ | (-)3                   | V           |                  |
| Collector Current            | $I_C$     | (-)300                 | mA          |                  |
| Peak Collector Current       | $i_{cp}$  | (-)600                 | mA          |                  |
| Collector Dissipation        | $P_C$     | 1.3                    | W           |                  |
|                              |           | $T_c=25^\circ\text{C}$ | 8           | W                |
| Junction Temperature         | $T_j$     |                        | 150         | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ |                        | -55 to +150 | $^\circ\text{C}$ |

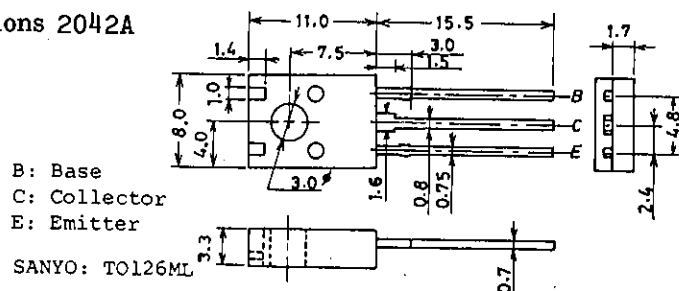
**Electrical Characteristics at  $T_a=25^\circ\text{C}$**

|                              |               |   | min | typ   | max    |               |
|------------------------------|---------------|---|-----|-------|--------|---------------|
| Collector Cutoff Current     | $I_{CBO}$     | $V_{CB}=(-)80\text{V}, I_E=0$               |     |       | (-)0.1 | $\mu\text{A}$ |
| Emitter Cutoff Current       | $I_{EBO}$     | $V_{EB}=(-)2\text{V}, I_C=0$                |     |       | (-)0.1 | $\mu\text{A}$ |
| DC Current Gain              | $h_{FE1}$     | $V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$  | 40* |       | 320*   |               |
|                              | $h_{FE2}$     | $V_{CE}=(-)10\text{V}, I_C=(-)200\text{mA}$ | 20  |       |        |               |
| Gain Bandwidth Product       | $f_T$         | $V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$  |     | 400   |        | MHz           |
| Output Capacitance           | $c_{ob}$      | $V_{CB}=(-)30\text{V}, f=1\text{MHz}$       |     | 3.1   |        | pF            |
|                              |               |   |     | (4.4) |        | pF            |
| Reverse Transfer Capacitance | $c_{re}$      | $V_{CB}=(-)30\text{V}, f=1\text{MHz}$       |     | 2.7   |        | pF            |
|                              |               |   |     | (4.0) |        | pF            |
| C-E Saturation Voltage       | $V_{CE(sat)}$ | $I_C=(-)50\text{mA}, I_B=(-)5\text{mA}$     |     |       | (-)1.0 | V             |
| E-B Saturation Voltage       | $V_{BE(sat)}$ | $I_C=(-)50\text{mA}, I_B=(-)5\text{mA}$     |     |       | (-)1.0 | V             |

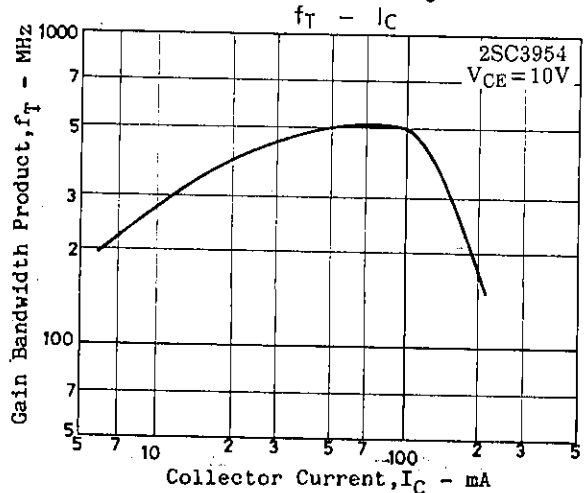
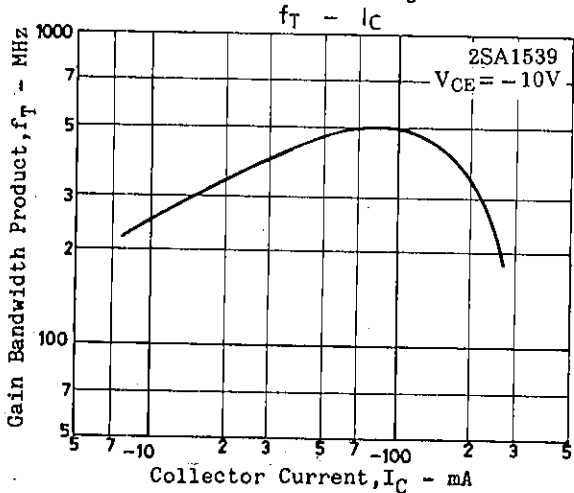
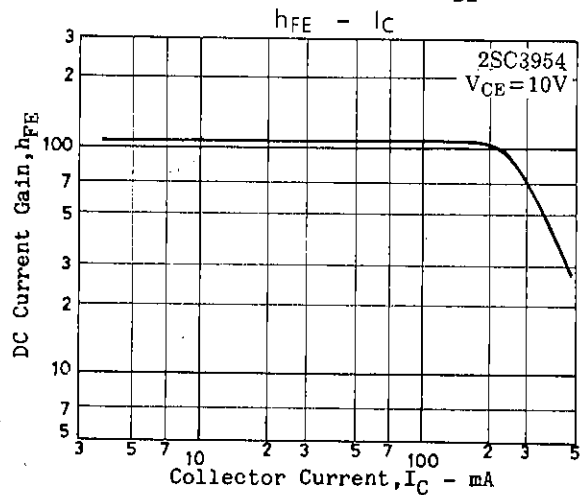
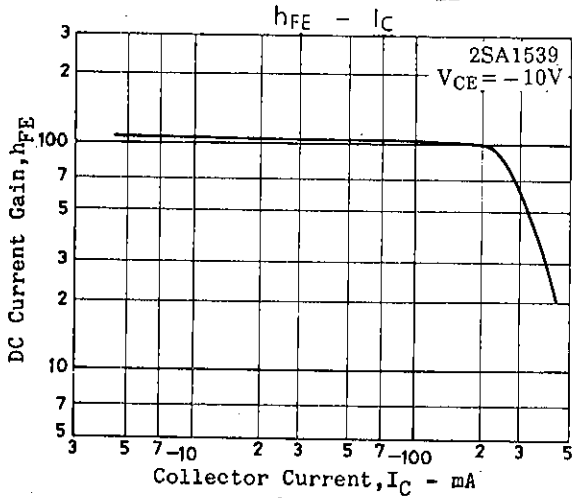
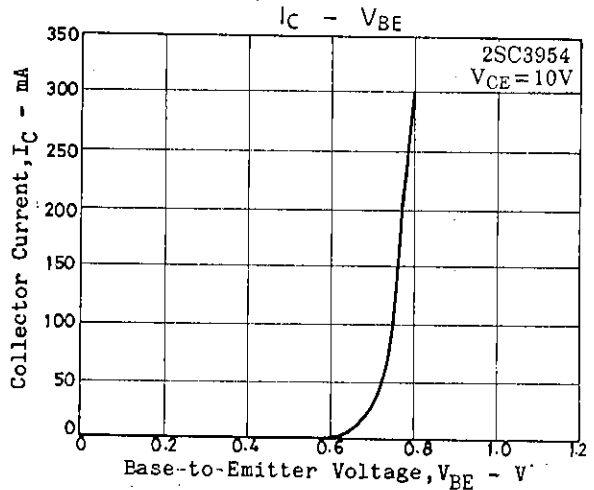
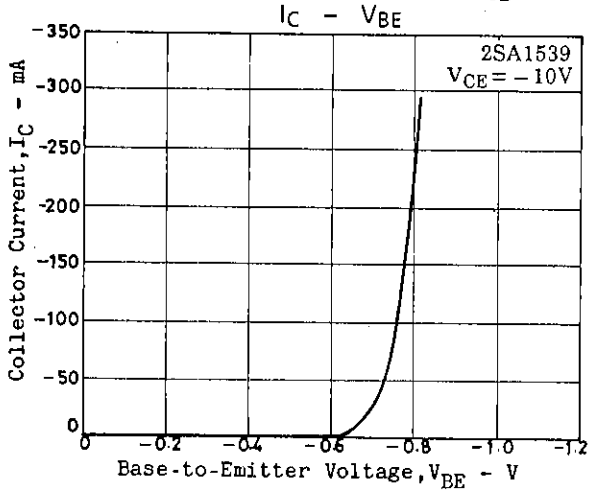
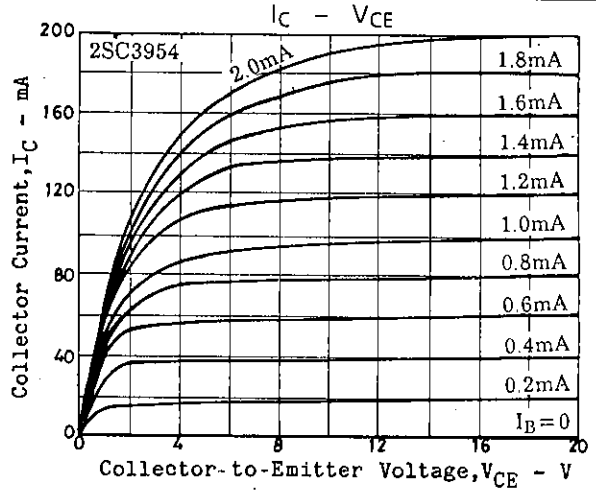
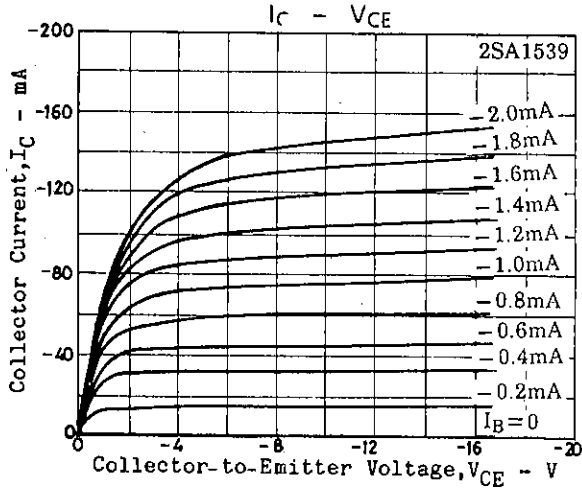
\* $h_{FE1}$ : The 2SA1539/2SC3954 are classified by 50mA  $h_{FE}$  as follows:

|    |   |    |    |   |     |     |   |     |     |   |     |
|----|---|----|----|---|-----|-----|---|-----|-----|---|-----|
| 40 | C | 80 | 60 | D | 120 | 100 | E | 200 | 160 | F | 320 |
|----|---|----|----|---|-----|-----|---|-----|-----|---|-----|

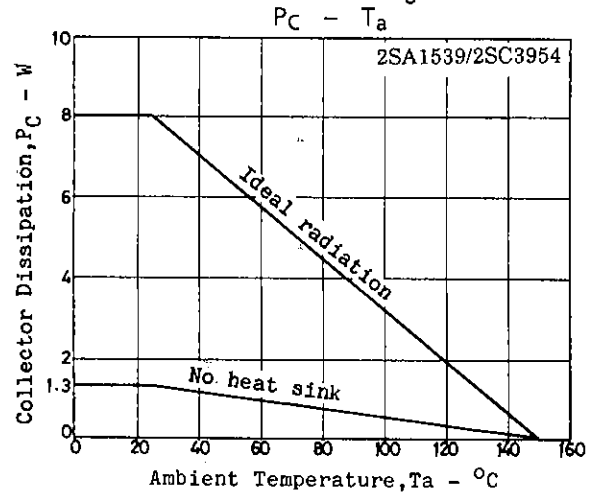
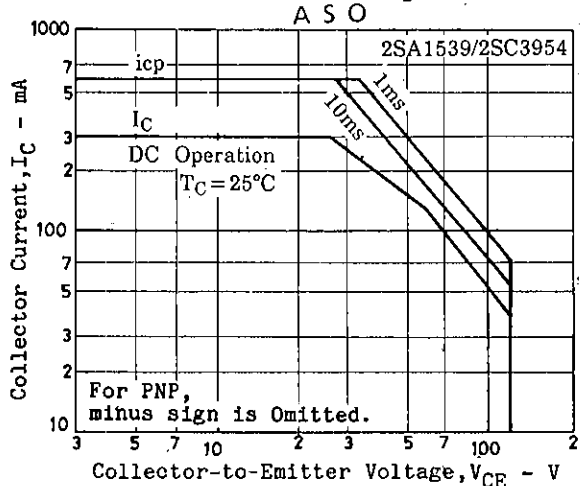
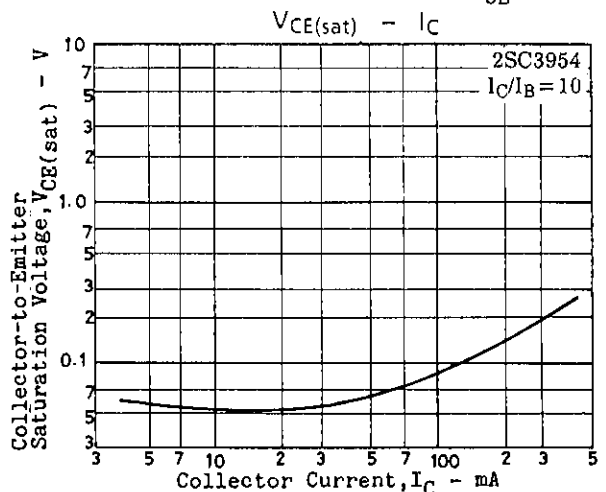
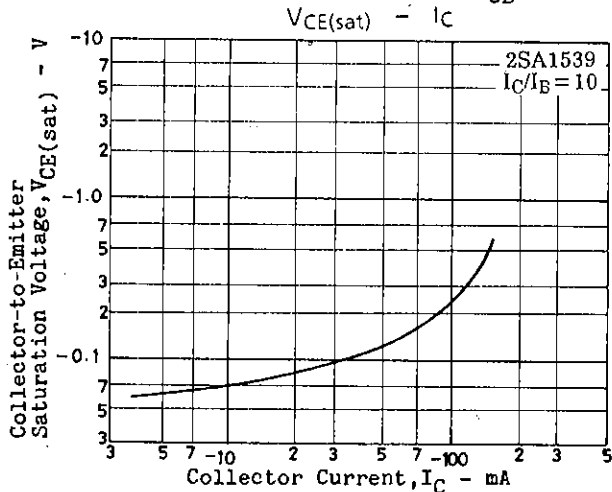
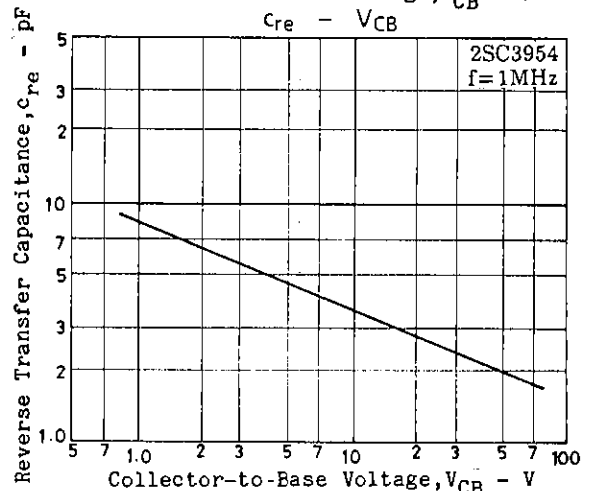
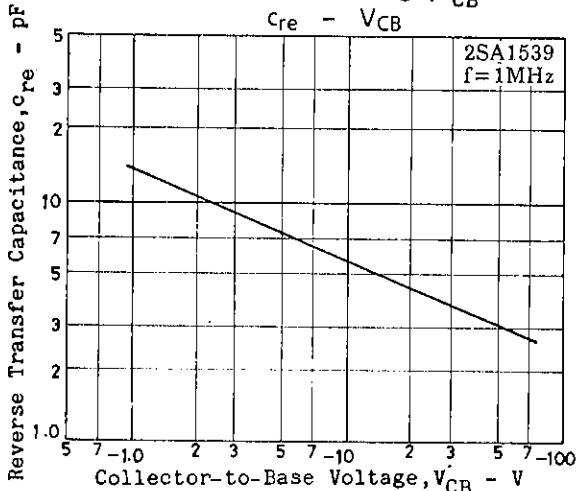
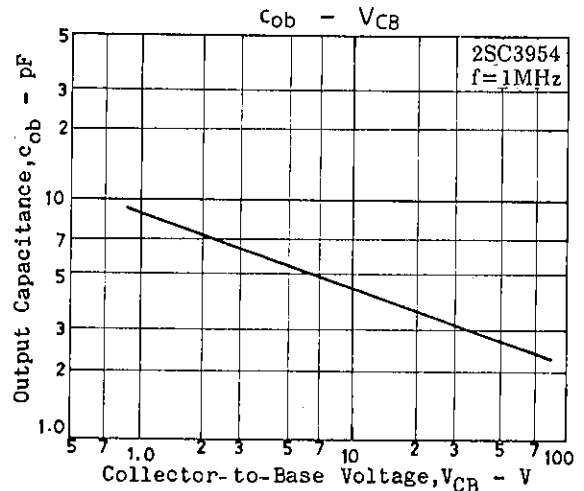
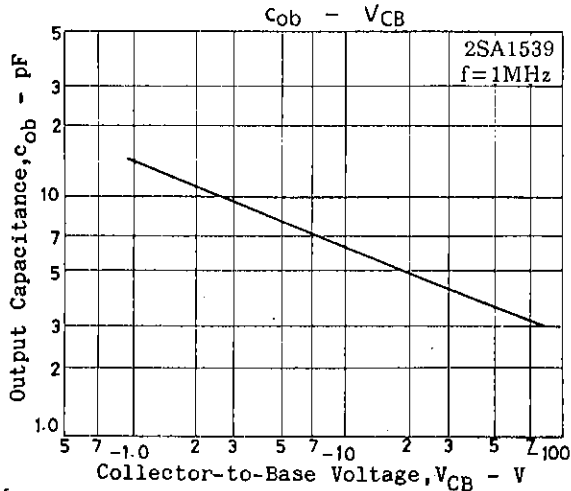
Package Dimensions 2042A  
(unit: mm)



2SA1539/2SC3954



2SA1539/2SC3954



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