



## 2SA1475/2SC3781

### Ultrahigh-Definition CRT Display Video Output Applications

#### Applications

- Video output.
- Color TV chroma output.
- Wide-band amp.

#### Features

- High  $f_T$  ( $f_T$  typ=500MHz).
- High breakdown voltage ( $V_{CEO} \geq 120V$ ).
- Small reverse transfer capacitance and excellent HF response
  - :  $C_{re} = 2.6pF$  (NPN),  $3.9pF$  (PNP).
- Complementary PNP and NPN types.
- Adoption of FBET process.

( ) : 2SA1475

#### Specifications

##### Absolute Maximum Ratings at $T_a = 25^\circ C$

| Parameter                    | Symbol    | Conditions         | Ratings     | Unit       |
|------------------------------|-----------|--------------------|-------------|------------|
| Collector-to-Base Voltage    | $V_{CBO}$ |                    | (-)120      | V          |
| Collector-to-Emitter Voltage | $V_{CEO}$ |                    | (-)120      | V          |
| Emitter-to-Base Voltage      | $V_{EBO}$ |                    | (-)4        | V          |
| Collector Current            | $I_C$     |                    | (-)400      | mA         |
| Peak Collector Current       | $I_{CP}$  |                    | (-)600      | mA         |
| Collector Dissipation        | $P_C$     |                    | 1.5         | W          |
|                              |           | $T_c = 50^\circ C$ | 15          | W          |
| Junction Temperature         | $T_j$     |                    | 150         | $^\circ C$ |
| Storage Temperature          | $T_{stg}$ |                    | -55 to +150 | $^\circ C$ |

##### Electrical Characteristics at $T_a = 25^\circ C$

| Parameter                               | Symbol        | Conditions                        | Ratings |       |        | Unit    |
|---|---------------|-----------------------------------|---------|-------|--------|---------|
|   |               |                                   | min     | typ   | max    |         |
| Collector Cutoff Current                | $I_{CBO}$     | $V_{CB} = (-)80V, I_E = 0$        |         |       | (-)0.1 | $\mu A$ |
| Emitter Cutoff Current                  | $I_{EBO}$     | $V_{EB} = (-)2V, I_C = 0$         |         |       | (-)1.0 | $\mu A$ |
| DC Current Gain                         | $h_{FE1}$     | $V_{CE} = (-)10V, I_C = (-)50mA$  | 40*     |       | 320*   |         |
|   | $h_{FE2}$     | $V_{CE} = (-)10V, I_C = (-)250mA$ | 20      |       |        |         |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE} = (-)10V, I_C = (-)50mA$  |         | 500   |        | MHz     |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = (-)70mA, I_B = (-)7mA$     |         |       | 0.6    | V       |
|   |               |                                   |         |       | (-)0.8 | V       |
| Base-to-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = (-)70mA, I_B = (-)7mA$     |         |       | (-)1.0 | V       |
| Collector-to-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C = (-)10\mu A, I_E = 0$       | (-)120  |       |        | V       |
| Collector-to-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = (-)1mA, R_{BE} = \infty$   | (-)120  |       |        | V       |
| Emitter-to-Base Breakdown Voltage       | $V_{(BR)EBO}$ | $I_E = (-)100\mu A, I_C = 0$      | (-)4    |       |        | V       |
| Output Capacitance                      | $C_{ob}$      | $V_{CB} = (-)30V, f = 1MHz$       |         | 3.0   |        | pF      |
|   |               |                                   |         | (4.4) |        | pF      |
| Reverse Transfer Capacitance            | $C_{re}$      | $V_{CB} = (-)30V, f = 1MHz$       |         | 2.6   |        | pF      |
|   |               |                                   |         | (3.9) |        | pF      |

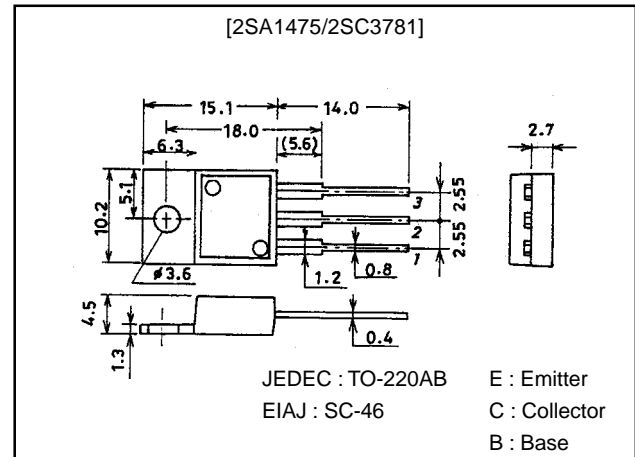
\*: The 2SA1475/2SC3781 are classified by 50mA  $h_{FE}$  as follows :

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

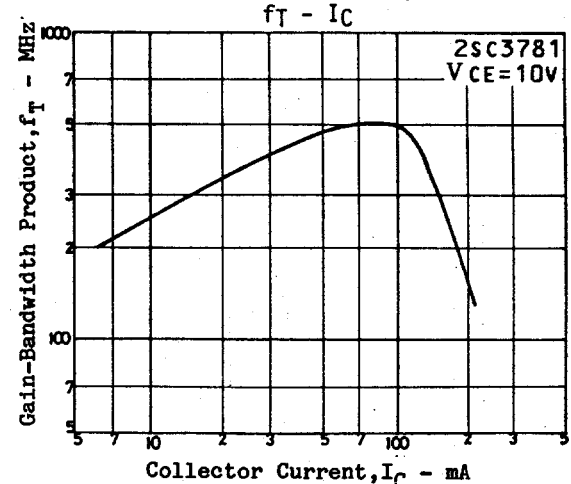
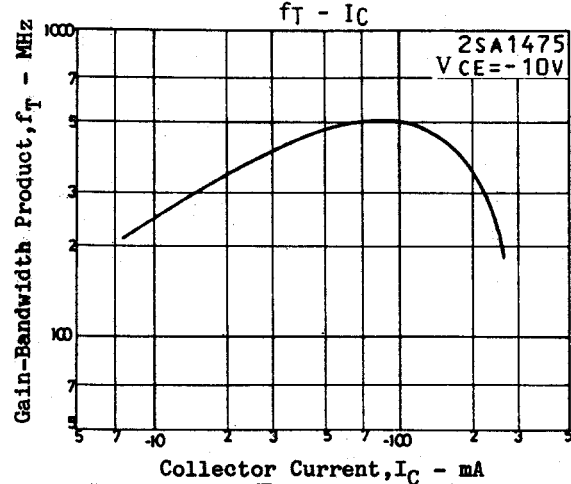
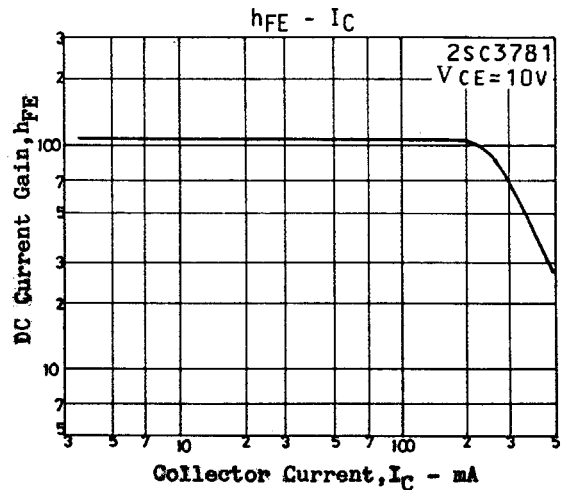
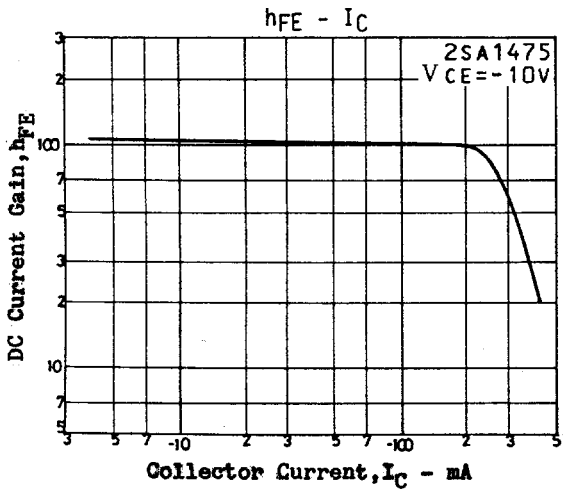
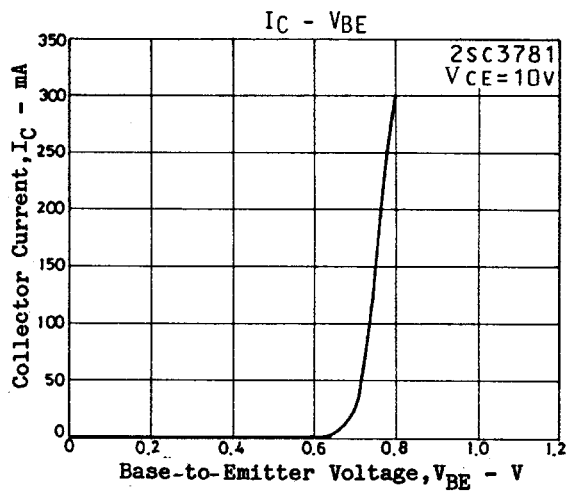
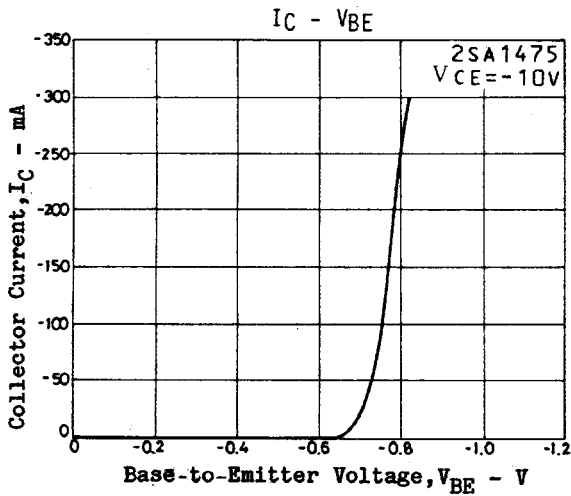
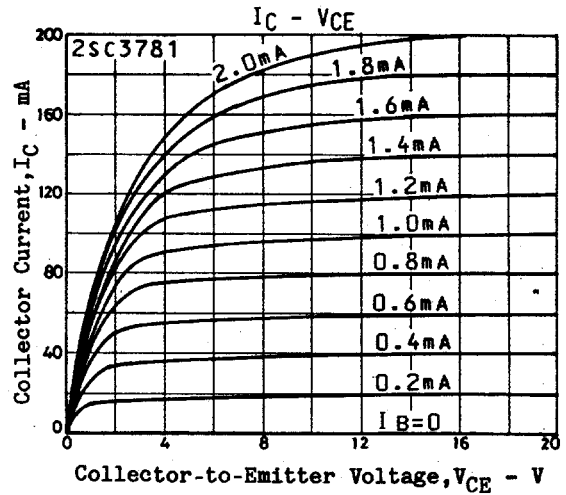
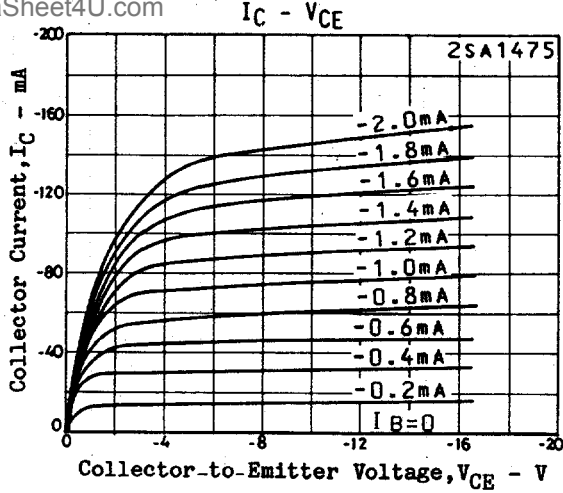
#### Package Dimensions

unit:mm

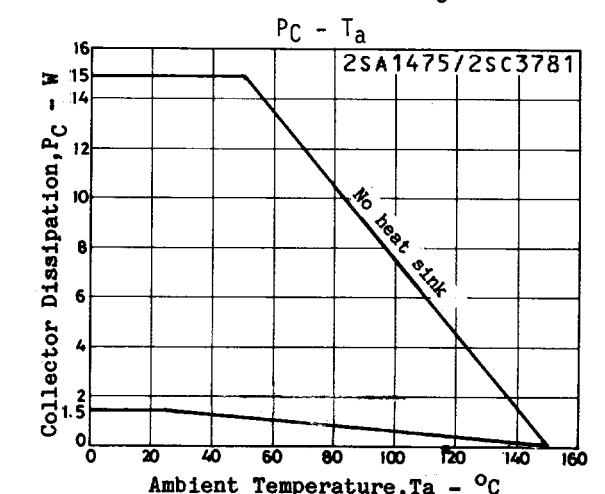
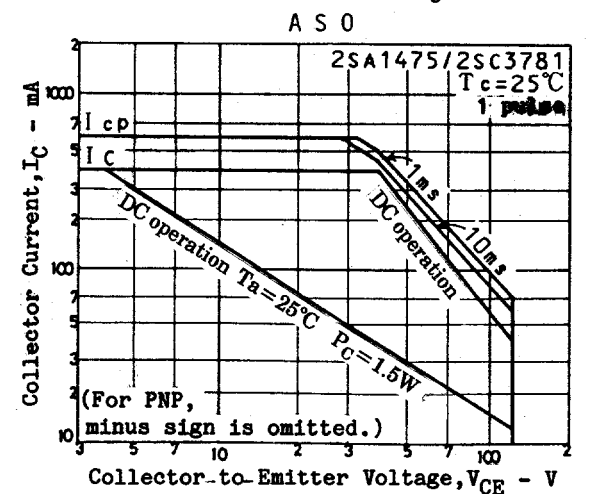
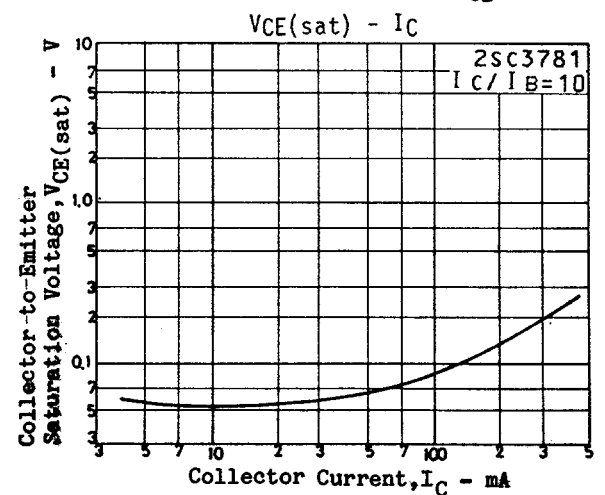
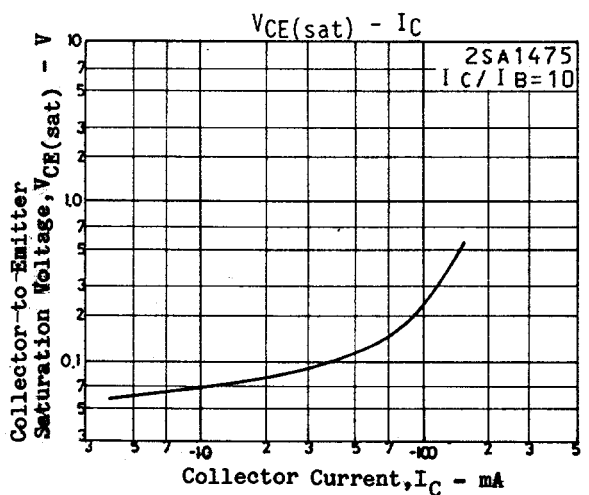
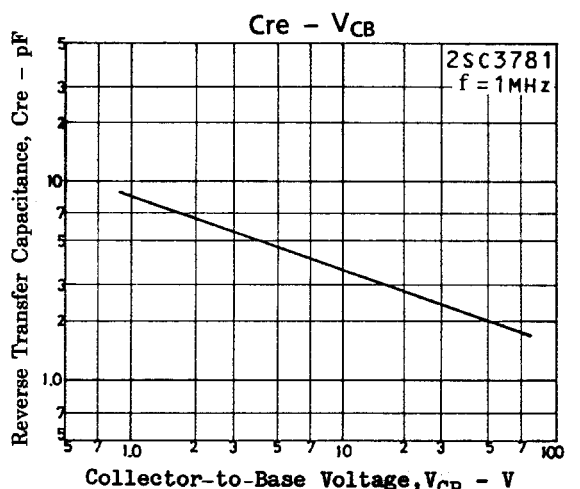
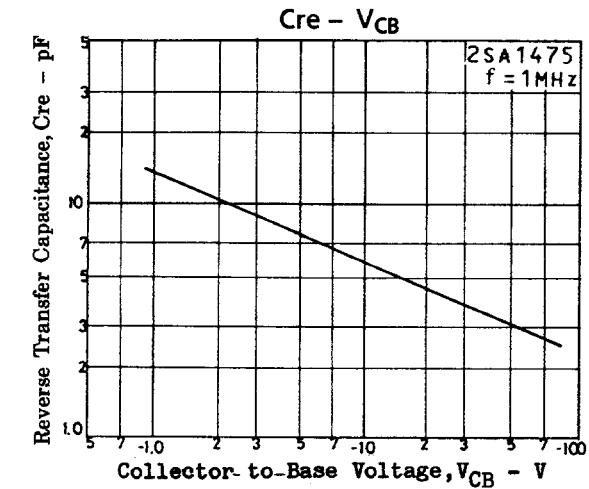
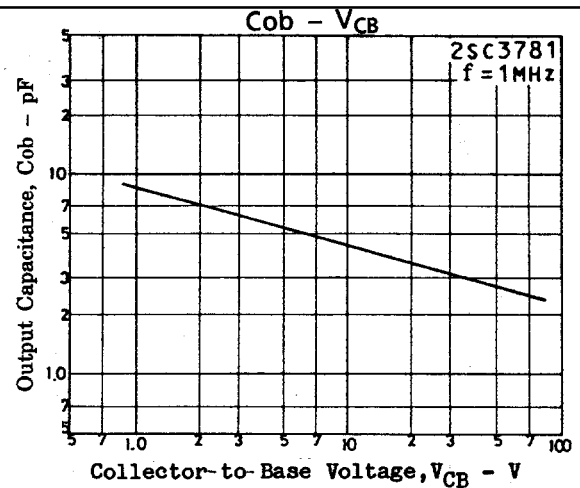
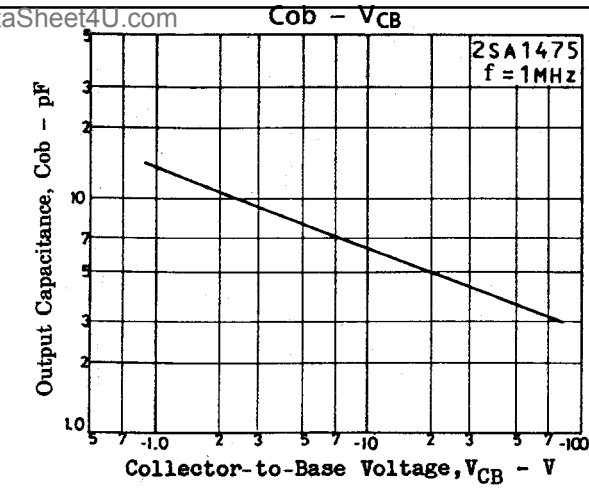
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