

# KSC3502

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## CRT Display, Video Output

- High Voltage :  $V_{CEO}=200V$
- Low Reverse Transfer Capacitance:  $C_{re}=1.2pF @ V_{CB}=30V$



## NPN Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_C=25^\circ C$ unless otherwise noted

| Symbol    | Parameter                                  | Value      | Units      |
|-----------|--|------------|------------|
| $V_{CBO}$ | Collector-Base Voltage                     | 200        | V          |
| $V_{CEO}$ | Collector-Emitter Voltage                  | 200        | V          |
| $V_{EBO}$ | Emitter-Base Voltage                       | 5          | V          |
| $I_C$     | Collector Current (DC)                     | 100        | mA         |
| $I_{CP}$  | Collector Current (Pulse)                  | 200        | mA         |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ C$ ) | 5          | W          |
| $P_C$     | Collector Dissipation ( $T_a=25^\circ C$ ) | 1.2        | W          |
| $T_J$     | Junction Temperature                       | 150        | $^\circ C$ |
| $T_{STG}$ | Storage Temperature                        | - 55 ~ 150 | $^\circ C$ |

### Electrical Characteristics $T_C=25^\circ C$ unless otherwise noted

| Symbol        | Parameter                            | Test Condition             | Min. | Typ. | Max. | Units   |
|---------------|--------------------------------------|----------------------------|------|------|------|---------|
| $BV_{CBO}$    | Collector-Base Breakdown Voltage     | $I_C = 10\mu A, I_E = 0$   | 200  |      |      | V       |
| $BV_{CEO}$    | Collector-Emitter Breakdown Voltage  | $I_C = 1mA, I_B = 0$       | 200  |      |      | V       |
| $BV_{EBO}$    | Emitter-Base Breakdown Voltage       | $I_E = 10\mu A, I_C = 0$   | 5    |      |      | V       |
| $I_{CBO}$     | Collector Cut-off Current            | $V_{CB} = 150V, I_E = 0$   |      |      | 0.1  | $\mu A$ |
| $I_{EBO}$     | Emitter Cut-off Current              | $V_{EB} = 4V, I_C = 0$     |      |      | 0.1  | $\mu A$ |
| $h_{FE}$      | DC Current Gain                      | $V_{CE} = 10V, I_C = 10mA$ | 40   |      | 320  |         |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 20mA, I_B = 2mA$    |      |      | 0.6  | V       |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C = 20mA, I_B = 2mA$    |      |      | 1    | V       |
| $f_T$         | Current Gain Bandwidth Product       | $V_{CE} = 30V, I_C = 10mA$ |      | 150  |      | MHz     |
| $C_{ob}$      | Output Capacitance                   | $V_{CB} = 30V, f = 1MHz$   |      | 1.7  |      | pF      |
| $C_{re}$      | Reverse Transfer Capacitance         | $V_{CB} = 30V, f = 1MHz$   |      | 1.2  |      | pF      |

### $h_{FE}$ Classification

| Classification | C       | D        | E         | F         |
|----------------|---------|----------|-----------|-----------|
| $h_{FE}$       | 40 ~ 80 | 60 ~ 120 | 100 ~ 200 | 160 ~ 320 |

# Typical Characteristics

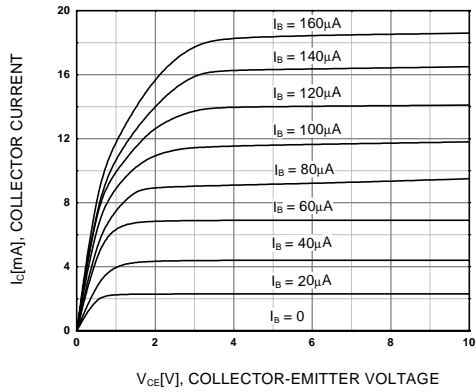


Figure 1. Static Characteristic

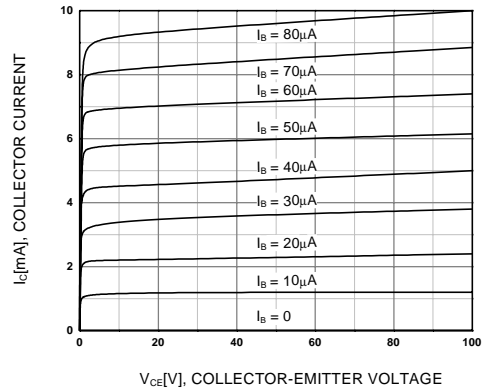


Figure 2. Static Characteristic

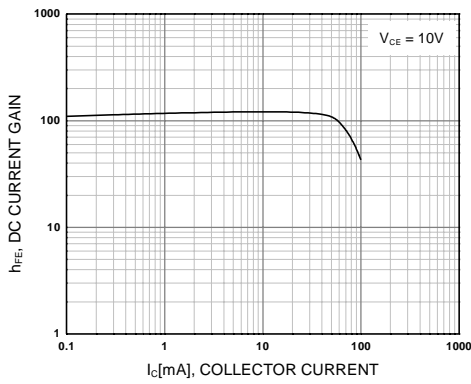


Figure 3. DC current Gain

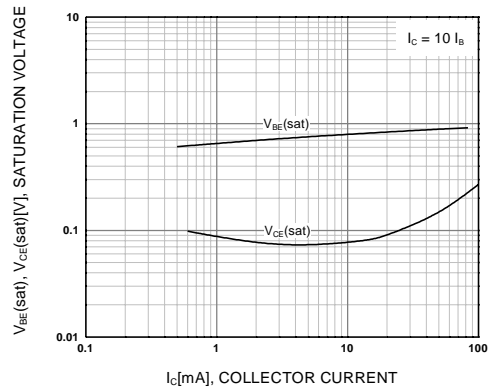


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

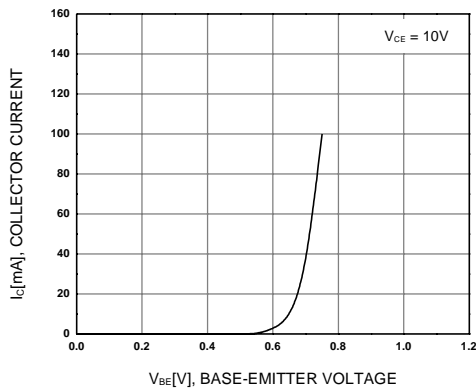


Figure 5. Base-Emitter On Voltage

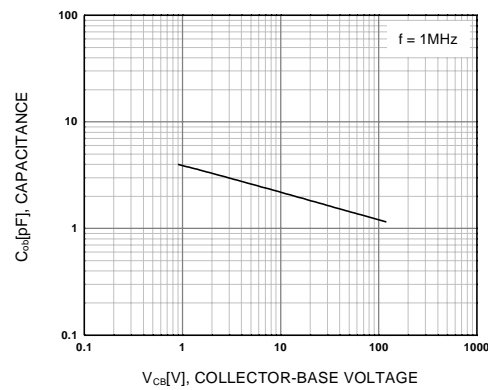


Figure 6. Collector Output Capacitance

Typical Characteristics (Continued)

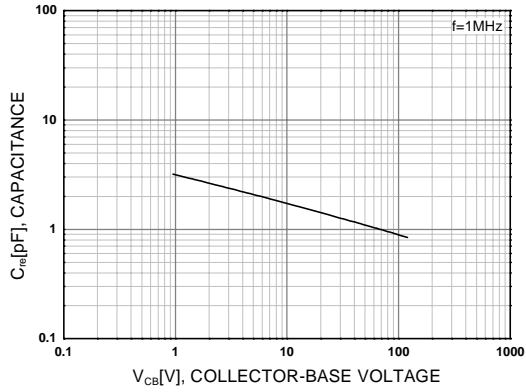


Figure 7. Reverse Transfer Capacitance

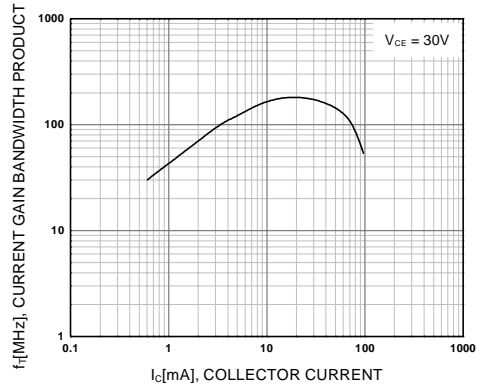


Figure 8. Current Gain Bandwidth Product

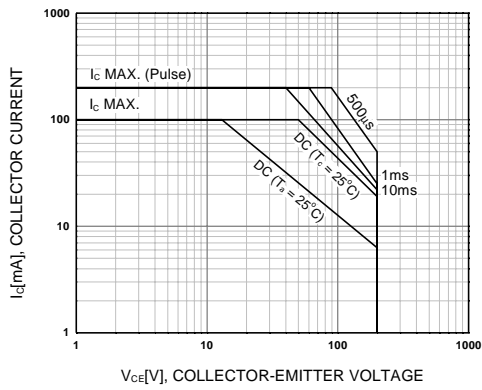


Figure 9. Safe Operating Area

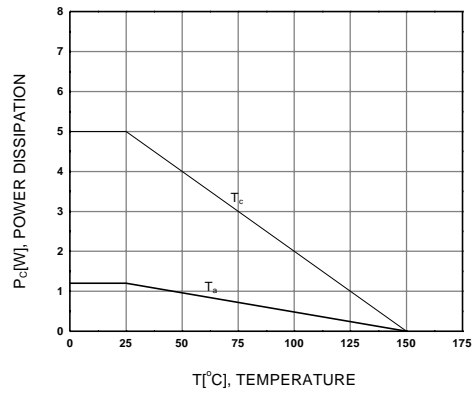


Figure 10. Power Derating

# Package Dimensions

KSC3502

## TO-126



Dimensions in Millimeters

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| CoolFET™             | MICROWIRE™    | TinyLogic™  |
| CROSSVOLT™           | POP™          | UHC™        |
| E <sup>2</sup> CMOS™ | PowerTrench®  | VCX™        |
| FACT™                | QFET™         |             |
| FACT Quiet Series™   | QS™           |             |
| FAST®                | Quiet Series™ |             |
| FASTr™               | SuperSOT™-3   |             |
| GTO™                 | SuperSOT™-6   |             |

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