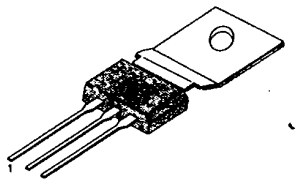
# KSC1520 NPN EPITAXIAL SILICON TRANSISTOR

T-33-07

## COLOR TV CHROMA OUTPUT

- High Collector-Emitter Voltage $V_{CEO}$=250V
- Current Gain-Bandwidth Product $f_T$=80MHz (Typ)

TO-202



1. Base 2. Collector 3. Emitter

## ABSOLUTE MAXIMUM RATINGS ($T_a$=25°C)

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 250 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 250 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 7 | V |
| Collector Current | $I_C$ | 200 | mA |
| Collector Dissipation ($T_C$=25°C) | $P_C$ | 10 | W |
| Junction Temperature | Tj | 150 | °C |
| Storage Temperature | Tstg | −55~+150 | °C |

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## ELECTRICAL CHARACTERISTICS ($T_a$=25°C)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=100μA, $I_E$=0 | 250 | | | V |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=10mA, $I_B$=0 | 250 | | | V |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | $I_E$=−100μA, $I_C$=0 | 7 | | | V |
| Collector Cut-off Current | $I_{CBO}$ | $V_{CB}$=150V, $I_E$=0 | | | 1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=10V, $I_C$=10mA | 40 | | 240 | |
| Collector-Emitter Saturation Voltage | $V_{CE}$ (sat) | $I_C$=50mA, $I_B$=5mA | | | 2.0 | V |
| Current Gain-Bandwidth Product | $f_T$ | $V_{CE}$=30V, $I_C$=10mA | 40 | 80 | | MHz |
| Output Capacitance | Cob | $V_{CB}$=50V, $I_E$=0 f=1MHz | | 4 | | pF |

## $h_{FE}$ CLASSIFICATION

| Classification | R | O | Y |
|---|---|---|---|
| $h_{FE}$ | 40-80 | 70-140 | 120-240 |

# KSC1520 NPN EPITAXIAL SILICON TRANSISTOR

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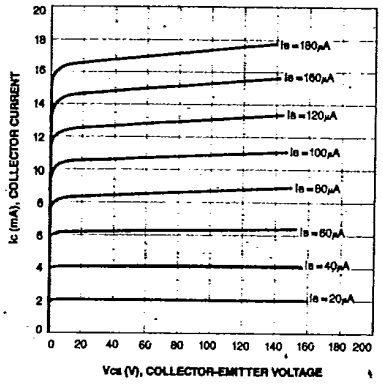
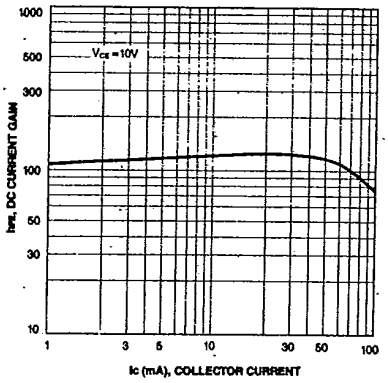
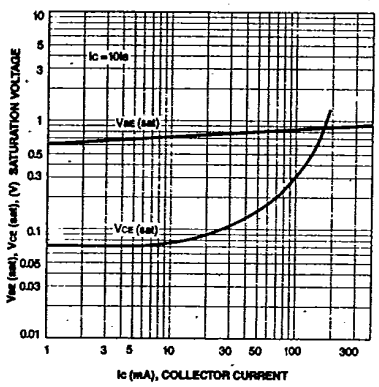
STATIC CHARACTERISTIC



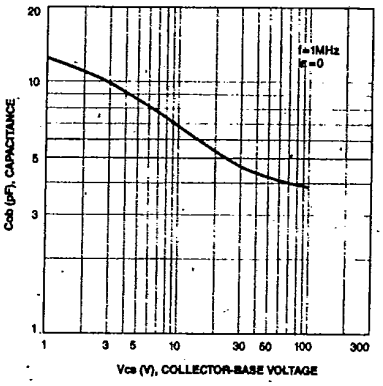

DC CURRENT GAIN



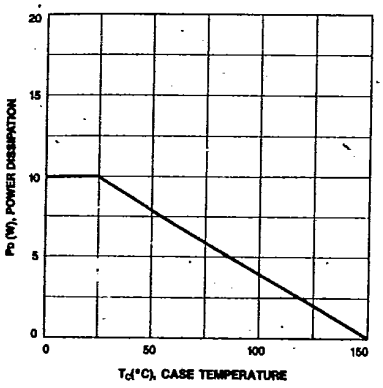

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE




COLLECTOR OUTPUT CAPACITANCE




POWER DERATING



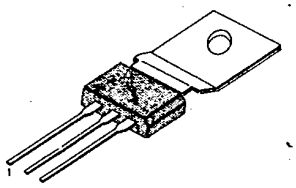
# KSC1520A NPN EPITAXIAL SILICON TRANSISTOR

T-33-07

## COLOR TV CHROMA OUTPUT

- High Collector-Emitter Voltage $V_{CEO}$=300V
- Current Gain-Bandwidth Product $f_T$=80MHz (Typ)

TO-202



1. Base 2. Collector 3. Emitter

## ABSOLUTE MAXIMUM RATINGS ($T_a$=25°C)

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 300 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 300 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 7 | V |
| Collector Current | $I_C$ | 200 | mA |
| Collector Dissipation ($T_c$=25°C) | $P_C$ | 10 | W |
| Junction Temperature | Tj | 150 | °C |
| Storage Temperature | Tstg | −55~+150 | °C |

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## ELECTRICAL CHARACTERISTICS ($T_a$=25°C)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=100μA, $I_E$=0 | 300 | | | V |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=10mA, $I_B$=0 | 300 | | | V |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | $I_E$=−100μA, $I_C$=0 | 7 | | | V |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=150V, $I_E$=0 | | | 1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=10V, $I_C$=10mA | 40 | | 240 | |
| Collector-Emitter Saturation Voltage | $V_{CE}$ (sat) | $I_C$=50mA, $I_B$=5mA | | | 2.0 | V |
| Current Gain-Bandwidth Product | $f_T$ | $V_{CE}$=30V, $I_C$=10mA | 40 | 80 | | MHz |
| Output Capacitance | Cob | $V_{CB}$=50V, $I_E$=0 f=1MHz | | 5 | | pF |

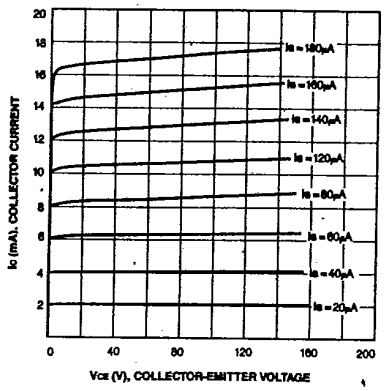
## $h_{FE}$ CLASSIFICATION

| Classification | R | O | Y |
|---|---|---|---|
| $h_{FE}$ | 40-80 | 70-140 | 120-240 |

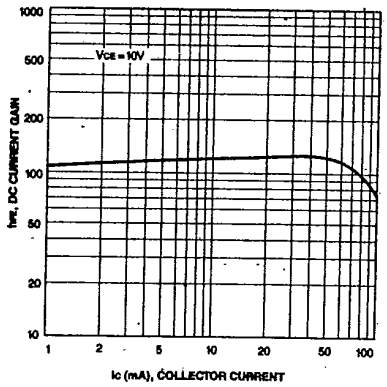
# KSC1520A NPN EPITAXIAL SILICON TRANSISTOR

T-33-07

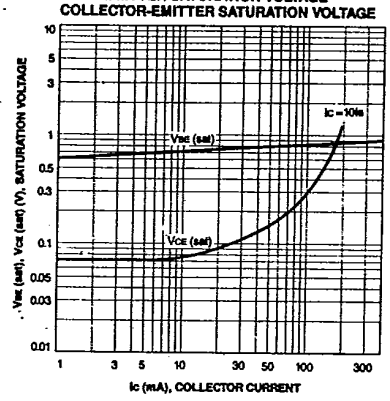
STATIC CHARACTERISTIC



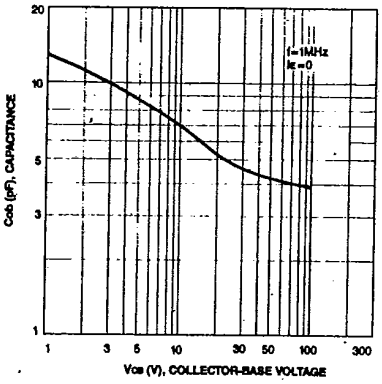

DC CURRENT GAIN



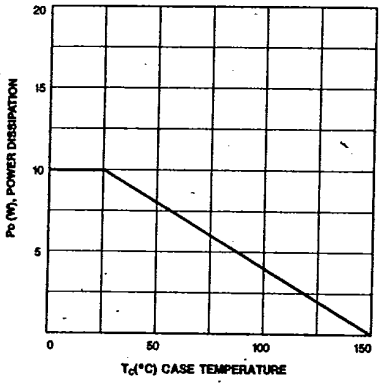

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE




COLLECTOR OUTPUT CAPACITANCE




POWER DERATING

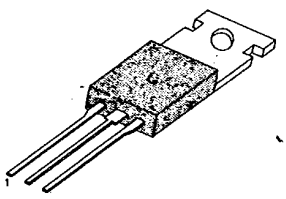


# KSC1983 NPN EPITAXIAL SILICON TRANSISTOR

T-33-09

## HIGH β POWER TRANSISTOR

TO-220



1. Base 2. Collector 3. Emitter

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## ABSOLUTE MAXIMUM RATINGS ($T_a$=25°C)

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 80 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 60 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 6 | V |
| Collector Current | $I_C$ | 3 | A |
| Base Current | $I_B$ | 1 | A |
| Collector Dissipation ($T_c$=25°C) | $P_C$ | 30 | W |
| Junction Temperature | Tj | 150 | °C |
| Storage Temperature | Tstg | −55~150 | °C |

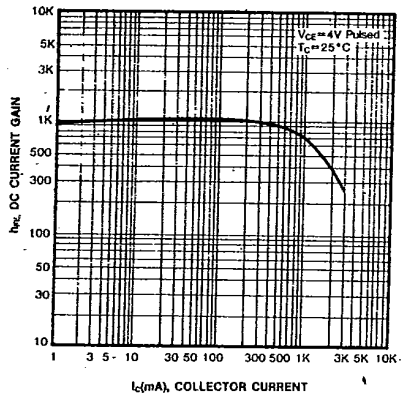
## ELECTRICAL CHARACTERISTICS ($T_a$=25°C)

| Characteristic | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=80V, $I_E$=0 | | | 100 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=6V, $I_C$=0 | | | 100 | μA |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=25mA, $I_B$=0 | 60 | | | V |
| *DC Current Gain | $h_{FE}$ | $V_{CE}$=4V, $I_C$=0.5A | 500 | | | |
| *Collector Emitter Saturation Voltage | $V_{CE}$ (sat) | $I_C$=2A, $I_B$=0.05A | | | 1 | V |
| Current Gain Bandwidth Product | $f_T$ | $V_{CE}$=12V, $I_E$=−0.2A | | 15 | | MHz |

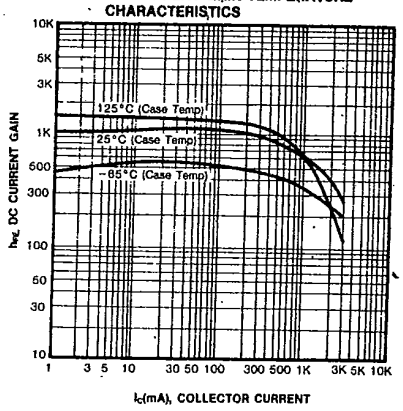
# KSC1983 NPN EPITAXIAL SILICON TRANSISTOR

T-33-09

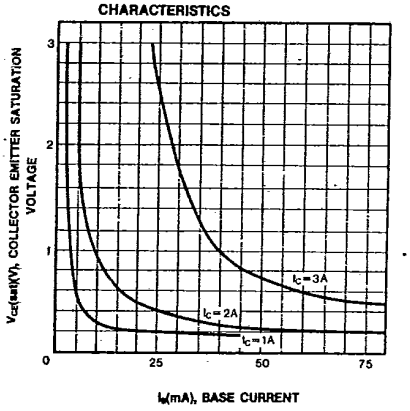
DC CURRENT GAIN



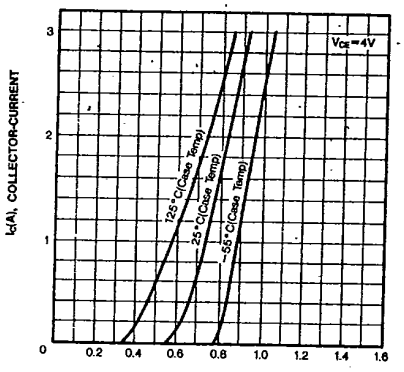

DC CURRENT GAIN TEMPERATURE CHARACTERISTICS



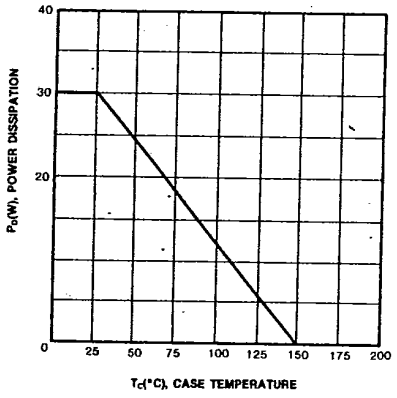

COLLECTOR EMITTER SATURATION CHARACTERISTICS




BASE-EMITTER ON VOLTAGE




POWER DERATING




SAFE OPERATING AREA