

(TIP31/31A/31B/31C) NPN EXITAXIAL SILICON TRANSISTOR

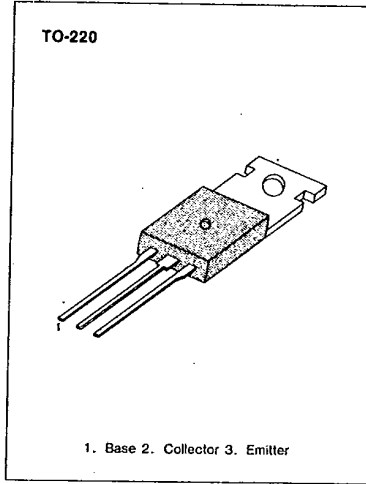
T-33-11

MEDIUM POWER LINEAR SWITCHING APPLICATIONS

• Complement to TIP32/32A/32B/32C

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

| Characteristic | Symbol | Rating | Unit |
|--|------------------|------------|-------|
| Collector-Base Voltage | V _{CEO} | TIP31 | 40 V |
| | | TIP31A | 60 V |
| | | TIP31B | 80 V |
| | | TIP31C | 100 V |
| Collector-Emitter Voltage | V _{CEO} | TIP31 | 40 V |
| | | TIP31A | 60 V |
| | | TIP31B | 80 V |
| | | TIP31C | 100 V |
| Emitter-Base Voltage | V _{EB0} | 5 V | V |
| Collector Current (DC) | I _C | 3 A | A |
| Collector Current (Pulse) | I _C | 5 A | A |
| Base Current | I _B | 1 A | A |
| Collector Dissipation (T _c =25°C) | P _C | 40 W | W |
| Collector Dissipation (T _a =25°C) | P _C | 2 W | W |
| Junction Temperature | T _J | 150 °C | °C |
| Storage Temperature | T _{stg} | -65~150 °C | °C |



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ELECTRICAL CHARACTERISTICS (T_c=25°C)

| Characteristic | Symbol | Test Condition | Min | Max | Unit |
|--|-------------------------|---|-----------------------|-----|------------------|
| * Collector Emitter Sustaining Voltage | BV _{CEO} (SUS) | I _C =30mA, I _B =0 | 40 60 80 100 | | V V V V |
| Collector Cutoff Current | I _{CEO} | V _{CE} =30V, I _B =0 | | 0.3 | mA |
| Collector Cutoff Current | I _{CE0} | V _{CE} =60V, I _B =0 | | 0.3 | mA |
| Collector Cutoff Current | I _{CES} * | V _{CE} =40V, V _{EB} =0 | | 200 | μA |
| | | V _{CE} =60V, V _{EB} =0 | | 200 | μA |
| | | V _{CE} =80V, V _{EB} =0 | | 200 | μA |
| | | V _{CE} =100V, V _{EB} =0 | | 200 | μA |
| Emitter Cutoff Current | I _{EB0} | V _{BE} =5V, I _C =0 | | 1 | mA |
| * DC Current Gain | h _{FE} | V _{CE} =4V, I _C =1A | 25 | | |
| | | V _{CE} =4V, I _C =3A | 10 | 50 | |
| * Collector-Emitter Saturation Voltage | V _{CE} (sat) | I _C =3A, I _B =375mA | | 1.2 | V |
| * Base-Emitter On Voltage | V _{BE} (on) | V _{CE} =4V, I _C =3A | | 1.8 | V |
| Current Gain Bandwidth Product | f _T | V _{CE} =10V, I _C =500mA f=1MHz | 3.0 | | MHz |

* Pulse Test: PW≤300μs, Duty Cycle≤2%

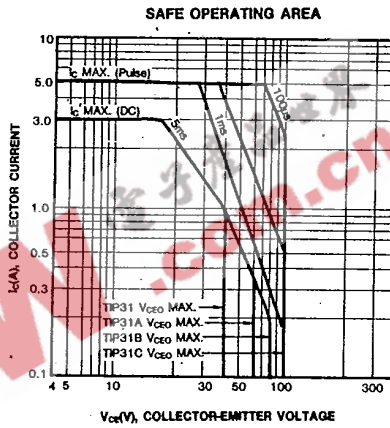
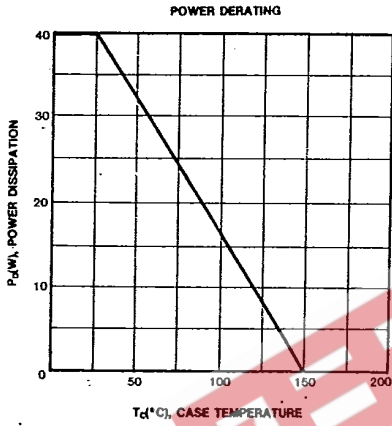
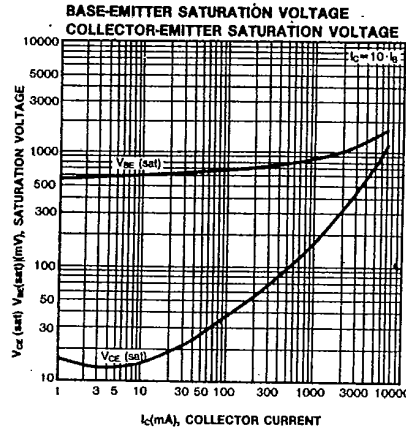
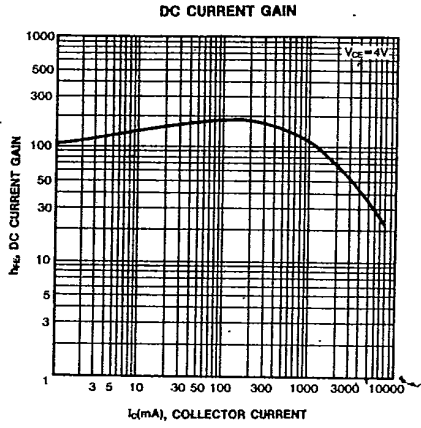
TIP31 SERIES

14E D 7964142 0007717 3

(TIP31/31A/31B/31C) NPN EXITAXIAL SILICON TRANSISTOR

SAMSUNG SEMICONDUCTOR INC

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TIP32 SERIES

14E D 7964142 0007718 5

(TIP32/32A/32B/32C) PNP EXITAXIAL SILICON TRANSISTOR

SAMSUNG SEMICONDUCTOR INC

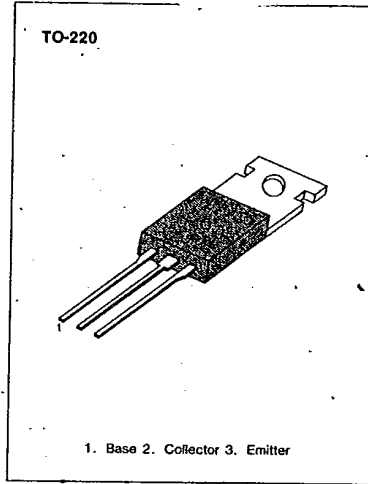
T-33-19

MEDIUM POWER LINEAR SWITCHING APPLICATIONS

• Complement to TIP31/31A/31B/31C

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

| Characteristic | Symbol | Rating | Unit |
|--|------------------|---------|------|
| Collector-Base Voltage | V _{CB0} | -40 | V |
| : TIP32A | | -60 | V |
| : TIP32B | | -80 | V |
| : TIP32C | | -100 | V |
| Collector-Emitter Voltage | V _{CE0} | -40 | V |
| : TIP32A | | -60 | V |
| : TIP32B | | -80 | V |
| : TIP32C | | -100 | V |
| Emitter-Base Voltage | V _{EB0} | -5 | V |
| Collector Current (DC) | I _C | -3 | A |
| Collector Current (Pulse) | I _C | -5 | A |
| Base Current | I _B | -1 | A |
| Collector Dissipation (T _c =25°C) | P _C | 40 | W |
| Collector Dissipation (T _a =25°C) | P _C | 2 | W |
| Junction Temperature | T _J | 150 | °C |
| Storage Temperature | T _{stg} | -65~150 | °C |



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ELECTRICAL CHARACTERISTICS (T_c=25°C)

| Characteristic | Symbol | Test Condition | Min | Max | Unit |
|---------------------------------------|-------------------------|---|------|------|------|
| *Collector Emitter Sustaining Voltage | BV _{CEO} (sus) | I _C = -30mA, I _B = 0 | -40 | | V |
| : TIP32A | | | -60 | | V |
| : TIP32B | | | -80 | | V |
| : TIP32C | | | -100 | | V |
| Collector Cutoff Current | I _{CEO} | V _{CE} = -30V, I _B = 0 | | -0.3 | mA |
| : TIP32B/32C | | V _{CE} = -60V, I _B = 0 | | -0.3 | mA |
| Collector Cutoff Current | I _{CES} | V _{CE} = -40V, V _{EB} = 0 | | -200 | μA |
| : TIP32A | | V _{CE} = -60V, V _{EB} = 0 | | -200 | μA |
| : TIP32B | | V _{CE} = -80V, V _{EB} = 0 | | -200 | μA |
| : TIP32C | | V _{CE} = -100V, V _{CE} = 0 | | -200 | μA |
| Emitter Cutoff Current | I _{EB0} | V _{BE} = -5V, I _C = 0 | | -1 | mA |
| *DC Current Gain | h _{FE} | V _{CE} = -4V, I _C = -1A | 25 | | |
| | | V _{CE} = -4V, I _C = -3A | 10 | 50 | |
| *Collector-Emitter Saturation Voltage | V _{CE(sat)} | I _C = -3A, I _B = -375mA | | -1.2 | V |
| *Base-Emitter On Voltage | V _{BE(on)} | V _{CE} = -4V, I _C = -3A | | -1.8 | V |
| Current Gain Bandwidth Product | f _T | V _{CE} = -10V, I _C = -500mA f = 1MHz | 3.0 | | MHz |

* Pulse Test: PW ≤ 300μs, Duty Cycle ≤ 2%

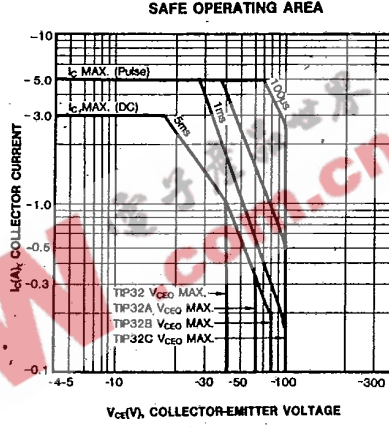
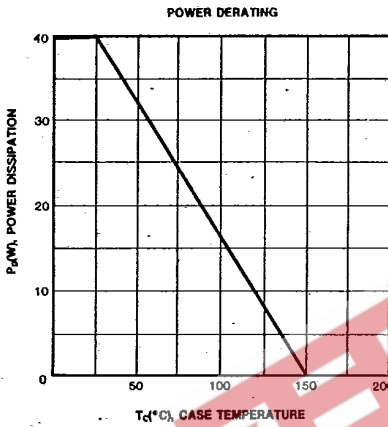
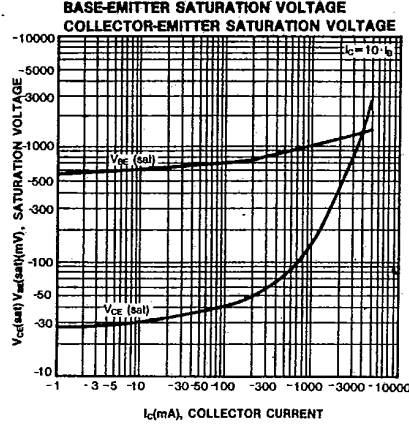
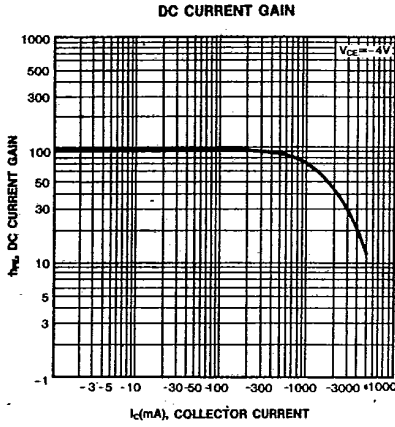
TIP32 SERIES

14E D 7964142 0007719 7

(TIP32/32A/32B/32C) PNP EXITAXIAL SILICON TRANSISTOR

SAMSUNG SEMICONDUCTOR, INC

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TIP41 SERIES

(TIP41/41A/41B/41C) NPN EXITAXIAL SILICON TRANSISTOR

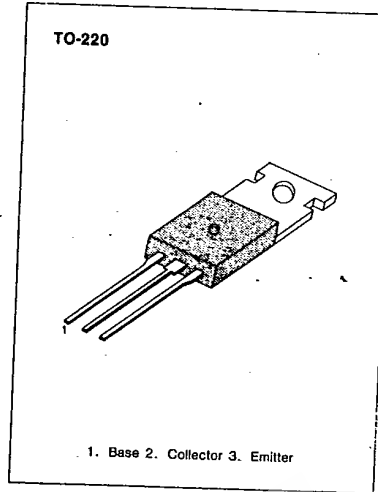
T-33-11

MEDIUM POWER LINEAR SWITCHING APPLICATIONS

• Complement to TIP42/42A/42 B/42C

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

| Characteristic | Symbol | Rating | Unit |
|--|------------------|------------|-------|
| Collector-Base Voltage | V _{CEO} | TIP41 | 40 V |
| | | TIP41A | 60 V |
| | | TIP41B | 80 V |
| | | TIP41C | 100 V |
| Collector-Emitter Voltage | V _{CEO} | TIP41 | 40 V |
| | | TIP41A | 60 V |
| | | TIP41B | 80 V |
| | | TIP41C | 100 V |
| Emitter-Base Voltage | V _{EBO} | 5 V | V |
| Collector Current (DC) | I _C | 6 A | A |
| Collector Current (Pulse) | I _C | 10 A | A |
| Base Current | I _B | 2 A | A |
| Collector Dissipation (T _c =25°C) | P _C | 65 W | W |
| Collector Dissipation (T _a =25°C) | P _C | 2 W | W |
| Junction Temperature | T _J | 150 °C | °C |
| Storage Temperature | T _{stg} | -65~150 °C | °C |



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ELECTRICAL CHARACTERISTICS (T_c=25°C)

| Characteristic | Symbol | Test Condition | Min | Max | Unit | | | |
|--|-------------------------|---|------------------------|------------------|--|--------|---|----|
| * Collector Emitter Sustaining Voltage | BV _{CEO} (sus) | I _C =30mA, I _B =0 | TIP41 | 40 | V | | | |
| | | | TIP41A | 60 | V | | | |
| | | | TIP41B | 80 | V | | | |
| | | | TIP41C | 100 | V | | | |
| Collector Cutoff Current | I _{CEO} | V _{CE} =30V, I _B =0 | TIP41/41A | 0.7 | mA | | | |
| | | | TIP41B/41C | 0.7 | mA | | | |
| Collector Cutoff Current | I _{CES} | V _{CE} =40V, V _{EB} =0 | TIP41 | 400 | μA | | | |
| | | | TIP41A | 400 | μA | | | |
| | | | TIP41B | 400 | μA | | | |
| | | | TIP41C | 400 | μA | | | |
| | | | Emitter Cutoff Current | I _{EBO} | V _{BE} =5V, I _C =0 | TIP41 | 1 | mA |
| | | | | | | TIP41A | 1 | mA |
| * DC Current Gain | h _{FE} | V _{CE} =4V, I _C =0.3A | 30 | | | | | |
| * Collector-Emitter Saturation Voltage | V _{CE} (sat) | I _C =6A, I _B =600mA | TIP41 | 15 | 75 | V | | |
| | | | TIP41A | 15 | 75 | V | | |
| * Base-Emitter On Voltage | V _{BE} (on) | V _{CE} =4V, I _C =6A | | 1.5 | V | | | |
| Current Gain Bandwidth Product | f _T | V _{CE} =10V, I _C =500mA | TIP41 | 3.0 | 2.0 | MHz | | |
| | | | TIP41A | 3.0 | 2.0 | MHz | | |

* Pulse Test: PW≤300μs, Duty Cycle≤2%

TIP41 SERIES

(TIP41/41A/41B/41C) NPN EXITAXIAL SILICON TRANSISTOR

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