

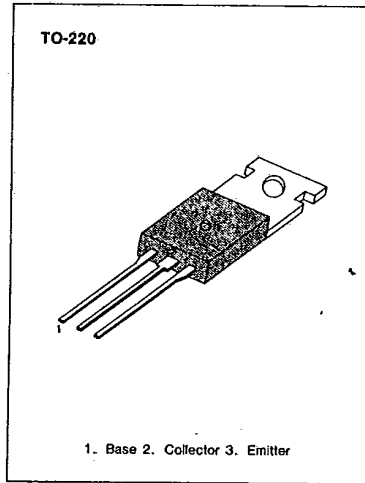
MJE3055T**NPN SILICON TRANSISTOR**

GENERAL PURPOSE AND SWITCHING APPLICATIONS
DC CURRENT GAIN SPECIFIED TO 10 AMPERES

High Current Gain-Bandwidth Product ($f_T = 2\text{MHz (MIN)}$)

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| Characteristic | Symbol | Rating | Unit |
|--|-----------|---------|------------------|
| Collector-Base Voltage | V_{CBO} | 70 | V |
| Collector-Emitter Voltage | V_{CEO} | 60 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 10 | A |
| Base Current | I_B | 6 | A |
| Collector Dissipation ($T_c = 25^\circ\text{C}$) | P_C | 75 | W |
| Collector Dissipation ($T_a = 25^\circ\text{C}$) | P_C | 0.8 | W |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55~150 | $^\circ\text{C}$ |



3

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

| Characteristic | Symbol | Test Condition | Min | Max | Unit |
|---------------------------------------|---------------|--|-----|-----|---------------|
| Collector Emitter Sustaining Voltage | $V_{CE(sus)}$ | $I_C = 200\text{mA}, I_B = 0$ | 60 | | V |
| Collector Cutoff Current | I_{CEO} | $V_{CE} = 30\text{V}, I_B = 0$ | | 700 | μA |
| Collector Cutoff Current | I_{CEX} | $V_{CE} = 70\text{V}, V_{BE(off)} = -1.5\text{V}$ | | 1 | mA |
| | | $V_{CE} = 70\text{V}, V_{BE(off)} = -1.5\text{V}$ | | 5 | mA |
| | | $T_c = 150^\circ\text{C}$ | | | |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 5\text{V}, I_C = 0$ | | 5 | mA |
| *DC Current Gain | h_{FE} | $V_{CE} = 4\text{V}, I_C = 4\text{A}$ | 20 | 100 | |
| | | $V_{CE} = 4\text{V}, I_C = 10\text{A}$ | 5 | | |
| *Collector Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 4\text{A}, I_B = 0.4\text{A}$ | | 1.1 | V |
| | | $I_C = 10\text{A}, I_B = 3.3\text{A}$ | | 8 | V |
| *Base Emitter On Voltage | $V_{BE(on)}$ | $V_{CE} = 4\text{V}, I_C = 4\text{A}$ | | 1.8 | V |
| Current Gain Bandwidth Product | f_T | $V_{CE} = 10\text{V}, I_C = 500\text{mA}, f = 500\text{KHz}$ | 2 | | MHz |

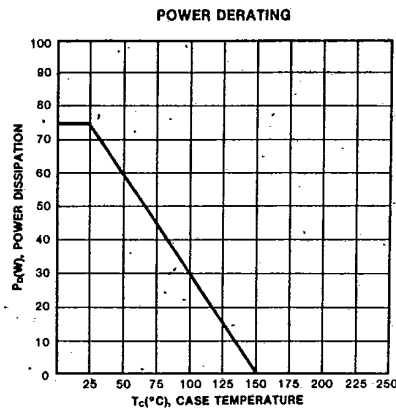
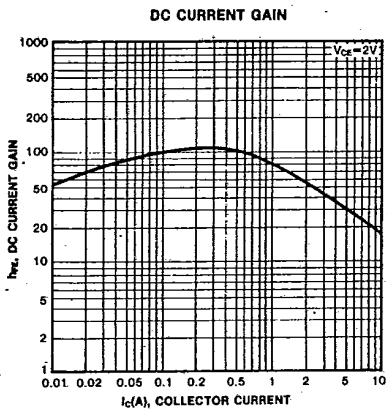
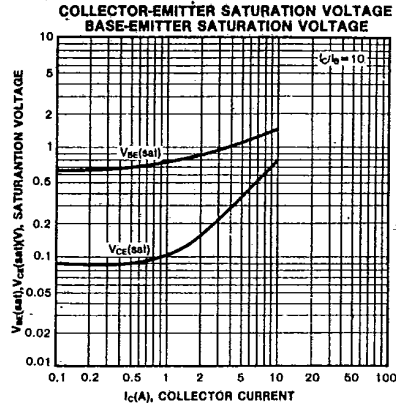
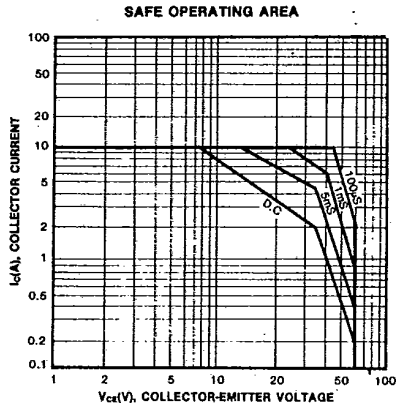
* Pulse test: $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$ Pulse



MJE3055T

NPN SILICON TRANSISTOR

T-33-13



TIP29 SERIES
(TIP29/29A/29B/29C) NPN EXITAXIAL SILICON TRANSISTOR

SAMSUNG SEMICONDUCTOR INC

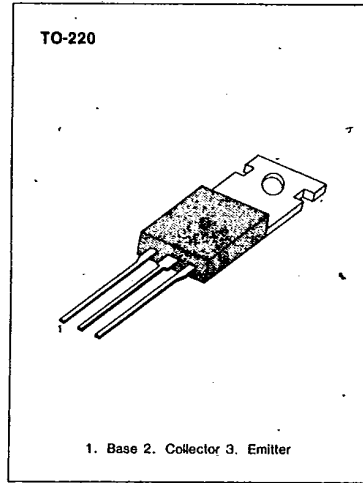
T-33-09

MEDIUM POWER LINEAR
SWITCHING APPLICATIONS

• Complementary to TIP30/30A/30B/30C

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

| Characteristic | Symbol | Rating | Unit |
|--|------------------|---------|------|
| Collector-Base Voltage : TIP29 | V _{CB0} | 40 | V |
| : TIP29A | | 60 | V |
| : TIP29B | | 80 | V |
| : TIP29C | | 100 | V |
| Collector-Emitter Voltage : TIP29 | V _{CE0} | 40 | V |
| : TIP29A | | 60 | V |
| : TIP29B | | 80 | V |
| : TIP29C | | 100 | V |
| Emitter-Base Voltage | V _{EB0} | 5 | V |
| Collector Current (DC) | I _C | 1 | A |
| Collector Current (Pulse) | I _C | 3 | A |
| Base Current | I _B | 0.4 | A |
| Collector Dissipation (T _c =25°C) | P _C | 30 | W |
| Collector Dissipation (T _a =25°C) | P _C | 2 | W |
| Junction Temperature | T _J | 150 | °C |
| Storage Temperature | T _{stg} | -65~150 | °C |



3

ELECTRICAL CHARACTERISTICS (T_c=25°C)

| Characteristic | Symbol | Test Condition | Min | Max | Unit |
|---|-------------------------|---|-----|-----|------|
| *Collector Emitter Sustaining Voltage : TIP29 | BV _{CEO} (sus) | I _C =30mA, I _B =0 | 40 | | V |
| : TIP29A | | | 60 | | V |
| : TIP29B | | | 80 | | V |
| : TIP29C | | | 100 | | V |
| Collector Cutoff Current : TIP29/29A | I _{CEO} | V _{CE} =30V, I _B =0 | | 0.3 | mA |
| : TIP29B/29C | | V _{CE} =60V, I _B =0 | | 0.3 | mA |
| Collector Cutoff Current : TIP29 | I _{CES} | V _{CE} =40V, V _{EB} =0 | | 200 | μA |
| : TIP29A | | V _{CE} =60V, V _{EB} =0 | | 200 | μA |
| : TIP29B | | V _{CE} =80V, V _{EB} =0 | | 200 | μA |
| : TIP29C | | V _{CE} =100V, V _{EB} =0 | | 200 | μA |
| Emitter Cutoff Current | I _{EBO} | V _{BE} =5V, I _C =0 | | 1.0 | mA |
| *DC Current Gain | h _{FE} | V _{CE} =4V, I _C =0.2A | 40 | | |
| | | V _{CE} =4V, I _C =1A | 15 | 75 | |
| *Collector-Emitter Saturation Voltage | V _{CE} (sat) | I _C =1A, I _B =125mA | | 0.7 | V |
| *Base-Emitter On Voltage | V _{BE} (on) | V _{CE} =4V, I _C =1A | | 1.3 | V |
| Current Gain Bandwidth Product | f _T | V _{CE} =10V, I _C =200mA f=1MHz | 3.0 | | MHz |

* Pulse Test: PW≤300μs, Duty Cycle≤2%

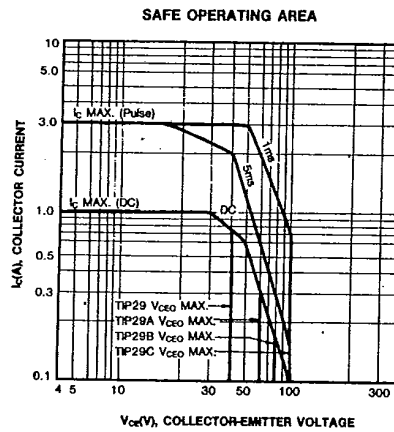
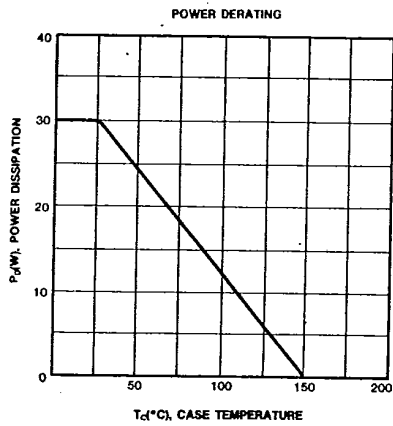
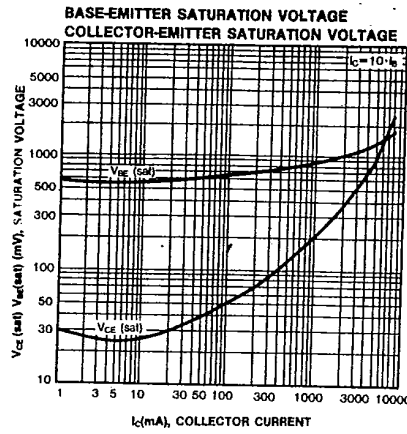
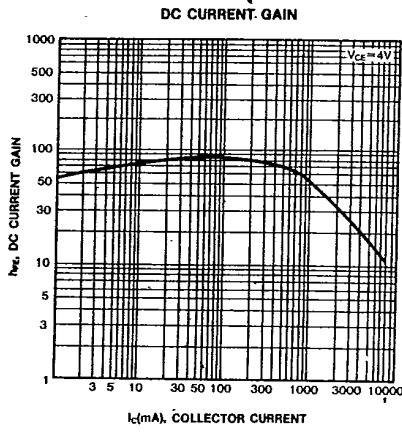
TIP29 SERIES

14E D 7964142 0007713 6

(TIP29/29A/29B/29C) NPN EXITAXIAL SILICON TRANSISTOR

SAMSUNG SEMICONDUCTOR INC

T-33-09



TIP30 SERIES**(TIP30/30A/30B/30C) PNP EXITAXIAL SILICON TRANSISTOR**

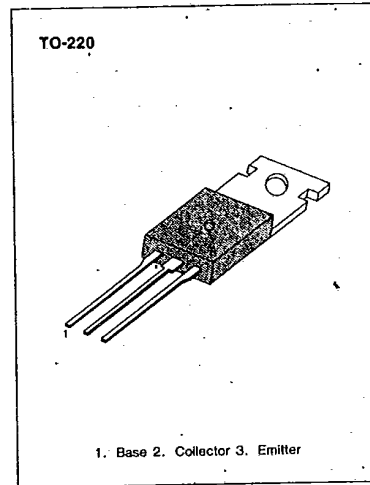
T-33-19

MEDIUM POWER LINEAR SWITCHING APPLICATIONS

- Complement to TIP29/29A/29B/29C

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

| Characteristic | Symbol | Rating | Unit |
|--|------------------|------------|--------|
| Collector-Base Voltage | V _{CB0} | TIP30 | -40 V |
| | | TIP30A | -60 V |
| | | TIP30B | -80 V |
| | | TIP30C | -100 V |
| | | TIP30C | -100 V |
| Collector-Emitter Voltage | V _{CE0} | TIP30 | -40 V |
| | | TIP30A | -60 V |
| | | TIP30B | -80 V |
| | | TIP30C | -100 V |
| | | TIP30C | -100 V |
| Emitter-Base Voltage | V _{EB0} | -5 V | V |
| Collector Current (DC) | I _C | -1 A | A |
| Collector Current (Pulse) | I _C | -3 A | A |
| Base Current | I _B | -0.4 A | A |
| Collector Dissipation (T _c =25°C) | P _C | 30 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 |



3

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 |
| Collector Cutoff Current | I _{CEO} | V _{CE} =-30V, I _B =0 | | -0.3 | mA |
| | | 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 |
| | | V _{BE} =-5V, I _C =0 | | -1.0 | mA |
| Emitter Cutoff Current | I _{EBO} | V _{CE} =-4V, I _C =-0.2A | 40 | | μA |
| * DC Current Gain | h _{FE} | V _{CE} =-4V, I _C =-1A | 15 | 75 | |
| * Collector-Emitter Saturation Voltage | V _{CE} (sat) | I _C =-1A, I _B =-125mA | | -0.7 | V |
| * Base-Emitter On Voltage | V _{BE} (on) | V _{CE} =-4V, I _C =-1A | | -1.3 | V |
| Current Gain Bandwidth Product | f _T | V _{CE} =-10V, I _C =-200mA f=1MHz | 3.0 | | MHz |

* Pulse Test: PW≤300μs, Duty Cycle≤2%

TIP30 SERIES

(TIP30/30A/30B/30C) PNP EXITAXIAL SILICON TRANSISTOR

T-33-19

