

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

TIP33, A, B, C NPN
TIP34, A, B, C PNP

COMPLEMENTARY SILICON POWER
TRANSISTORS

10 AMPS

JEDEC TO-218 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR TIP33, TIP34 Series Types are complementary silicon high power transistors manufactured by the epitaxial base process and designed for general purpose amplifier and switching applications.

MAXIMUM RATINGS ($T_C=25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | TIP33 | TIP33A | TIP33B | TIP33C | UNIT | |
|--|----------------|--------|--------|--------|-----------------|---------------------------|
| | TIP34 | TIP34A | TIP34B | TIP34C | | |
| Collector - Base Voltage | 40 | 60 | 80 | 100 | V | |
| Collector - Emitter Voltage | 40 | 60 | 80 | 100 | V | |
| Emitter - Base Voltage | 5.0 | 5.0 | 5.0 | 5.0 | V | |
| Collector Current | 10 | 10 | 10 | 10 | A | |
| Collector Current (Peak) | 15 | 15 | 15 | 15 | A | |
| Base Current | 3.0 | 3.0 | 3.0 | 3.0 | A | |
| Power Dissipation ($T_A=25^\circ\text{C}$) | 3.5 | 3.5 | 3.5 | 3.5 | W | |
| Power Dissipation | 80 | 80 | 80 | 80 | W | |
| Operating and Storage | | | | | | |
| Junction Temperature | T_J, T_{STG} | | | | -65 TO $+150$ | $^\circ\text{C}$ |
| Thermal Resistance | θ_{JA} | | | | 35.7 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance | θ_{JC} | | | | 1.56 | $^\circ\text{C}/\text{W}$ |

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | TEST CONDITIONS | TIP33 | | TIP33A | | TIP33B | | TIP33C | | UNIT |
|----------------------|---|-------|-----|--------|-----|--------|-----|--------|-----|------|
| | | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | |
| I_{CEO} | $V_{CE}=30\text{V}$ | | 0.7 | | 0.7 | | - | | - | mA |
| I_{CEO} | $V_{CE}=60\text{V}$ | | - | | - | | 0.7 | | 0.7 | mA |
| I_{CES} | $V_{CE}=\text{RATED } V_{CES}$ | | 0.4 | | 0.4 | | 0.4 | | 0.4 | mA |
| I_{EBO} | $V_{EB}=5.0\text{V}$ | | 1.0 | | 1.0 | | 1.0 | | 1.0 | mA |
| BV_{CEO} | $I_C=30\text{mA}$ | 40 | | 60 | | 80 | | 100 | | V |
| $V_{CE}(\text{SAT})$ | $I_C=3.0\text{A}, I_B=0.3\text{A}$ | | 1.0 | | 1.0 | | 1.0 | | 1.0 | V |
| $V_{CE}(\text{SAT})$ | $I_C=10\text{A}, I_B=2.5\text{A}$ | | 4.0 | | 4.0 | | 4.0 | | 4.0 | V |
| $V_{BE}(\text{ON})$ | $V_{CE}=4.0\text{V}, I_C=3.0\text{A}$ | | 1.6 | | 1.6 | | 1.6 | | 1.6 | V |
| $V_{BE}(\text{ON})$ | $V_{CE}=4.0\text{V}, I_C=10\text{A}$ | | 3.0 | | 3.0 | | 3.0 | | 3.0 | V |
| h_{FE} | $V_{CE}=4.0\text{V}, I_C=1.0\text{A}$ | 40 | | 40 | | 40 | | 40 | | |
| h_{FE} | $V_{CE}=4.0\text{V}, I_C=3.0\text{A}$ | 20 | 100 | 20 | 100 | 20 | 100 | 20 | 100 | |
| h_{fe} | $V_{CE}=10\text{V}, I_C=0.5\text{A}, f=1.0\text{kHz}$ | | 20 | | 20 | | 20 | | 20 | |
| f_T | $V_{CE}=10\text{V}, I_C=0.5\text{A}, f=1.0\text{MHz}$ | | 3.0 | | 3.0 | | 3.0 | | 3.0 | MHz |