

CentralTM Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

BC546, A, B
BC547, A, B, C
BC548, A, B, C

NPN SILICON TRANSISTOR

JEDEC TO-92-18R CASE (CBE)

DESCRIPTION

The CENTRAL SEMICONDUCTOR BC546, BC547, BC548 series types are silicon NPN small signal transistors manufactured by the epitaxial planar process designed for general purpose amplifier applications.

MAXIMUM RATINGS (T_A=25°C)

| | SYMBOL | BC546 | BC547 | BC548 | UNIT |
|---------------------------|-----------------------------------|-------|-------------|-------|------|
| Collector-Base Voltage | V _{CB0} | 80 | 50 | 30 | V |
| Collector-Emitter Voltage | V _{CES} | 80 | 50 | 30 | V |
| Collector-Emitter Voltage | V _{CEO} | 65 | 45 | 30 | V |
| Emitter-Base Voltage | V _{EBO} | 6.0 | 6.0 | 5.0 | V |
| Collector Current | I _C | | 100 | | mA |
| Collector Current (PEAK) | I _{CM} | | 200 | | mA |
| Base Current (PEAK) | I _{BM} | | 200 | | mA |
| Emitter Current (PEAK) | I _{EM} | | 200 | | mA |
| Power Dissipation | P _D | | 500 | | mW |
| Operating and Storage | | | | | |
| Junction Temperature | T _J , T _{stg} | | -65 to +150 | | °C |
| Thermal Resistance | θ _{JA} | | 0.25 | | °C/W |
| Thermal Resistance | θ _{JC} | | 0.15 | | °C/W |

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

| SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|-----------------------|--|------|------|------|------|
| I _{CB0} | V _{CB} =30V | | | 15 | nA |
| I _{CB0} | V _{CB} =30V, T _A =150°C | | | 5.0 | μA |
| V _{CE} (SAT) | I _C =10mA, I _B =0.5mA | | | 0.25 | V |
| V _{CE} (SAT) | I _C =100mA, I _B =5.0mA | | | 0.60 | V |
| V _{BE} (SAT) | I _C =10mA, I _B =0.5mA | | 0.70 | | V |
| V _{BE} (SAT) | I _C =100mA, I _B =5.0mA | | 0.90 | | V |
| V _{BE} (ON) | V _{CE} =5.0V, I _C =2.0mA | 0.58 | | 0.70 | V |
| V _{BE} (ON) | V _{CE} =5.0V, I _C =10mA | | | 0.77 | V |
| h _{FE} | V _{CE} =5.0V, I _C =10μA (BC546, A, BC547, A, BC548, A) | | 90 | | |
| h _{FE} | V _{CE} =5.0V, I _C =10μA (BC546B, BC547B, BC548B) | | 150 | | |
| h _{FE} | V _{CE} =5.0V, I _C =10μA (BC547C, BC548C) | | 270 | | |
| h _{FE} | V _{CE} =5.0V, I _C =2.0mA (BC546) | 110 | | 450 | |
| h _{FE} | V _{CE} =5.0V, I _C =2.0mA (BC546A, BC547A, BC548A) | 110 | | 220 | |
| h _{FE} | V _{CE} =5.0V, I _C =2.0mA (BC546B, BC547B, BC548B) | 200 | | 450 | |
| h _{FE} | V _{CE} =5.0V, I _C =2.0mA (BC547) | 110 | | 800 | |
| h _{FE} | V _{CE} =5.0V, I _C =2.0mA (BC548) | 110 | | 800 | |
| h _{FE} | V _{CE} =5.0V, I _C =2.0mA (BC547C, BC548C) | 420 | | 800 | |

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

| <u>SYMBOL</u> | <u>TEST CONDITIONS</u> | <u>MIN</u> | <u>TYP</u> | <u>MAX</u> | <u>UNIT</u> |
|---------------|--|------------|------------|------------|-------------|
| h_{fe} | $V_{CE}=5.0\text{V}$, $I_C=2.0\text{mA}$, $f=1.0\text{kHz}$ | 125 | | 900 | |
| f_T | $V_{CE}=5.0\text{V}$, $I_C=10\text{mA}$, $f=35\text{MHz}$ | | 300 | | MHz |
| C_{ob} | $V_{CB}=10\text{V}$, $I_E=0$, $f=1.0\text{MHz}$ | | 2.5 | | pF |
| C_{ib} | $V_{EB}=0.5\text{V}$, $I_C=0$, $f=1.0\text{MHz}$ | | 9.0 | | pF |
| NF | $V_{CE}=5.0\text{V}$, $I_C=0.2\text{mA}$, $R_g=2.0\text{k}\Omega$, $B=200\text{Hz}$, $f=1.0\text{kHz}$ | | 2.0 | 10 | dB |

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www.centrasemi.com